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),

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 (MA32-38), 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.

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 Permit for Water Treatment Facility Discharges in the Commonwealth of Massachusetts issued on November 15, 2000, effective January 30, 2001.

This permit consists of 14 pages in Part I including effluent limitations, monitoring requirements, 8 pages in Attachment A – Freshwater Acute Toxicity Test Procedure and Protocol (2011), and 25 pages in Part II including Standard Conditions.

Signed this 19th day of September, 2012

/s/SIGNATURE ON FILE

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.

Effluent Characteristic	Discharge Limitation		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow	Report MGD	3.0 MGD	1/day	Estimate
Total Suspended Solids (TSS)	30 mg/L	50 mg/L	1/week	Composite
pH[2,3]	6.5-8.3 S.U.[4, 5]		1/week	Grab
Aluminum, Total Recoverable[6,7]	Report µg/L	Report µg/l	1/week	Composite
Whole Effluent Toxicity[8,9,10]				
LC_{50}	----------	Report %	1/quarter	Composite
Hardness	----------	Report mg/L	1/quarter	Composite
Total Residual Chlorine	----------	Report mg/L	1/quarter	Grab
Alkalinity	----------	Report mg/L	1/quarter	Composite
pH	----------	Report mg/L	1/quarter	Grab
Specific Conductance	----------	Report mg/L	1/quarter	Composite
Total Solids	----------	Report mg/L	1/quarter	Composite

Total Dissolved Solids	----------	Report mg/L	1/quarter	Composite
Ammonia	----------	Report mg/L	1/quarter	Composite
Total Organic Carbon	----------	Report mg/L	1/quarter	Composite
Total Cadmium	----------	Report mg/L	1/quarter	Composite
Total Lead	----------	Report mg/L	1/quarter	Composite
Total Copper	----------	Report mg/L	1/quarter	Composite
Total Zinc	----------	Report mg/L	1/quarter	Composite
Total Nickel	----------	Report mg/L	1/quarter	Composite
Total Aluminum	----------	Report mg/L	1/quarter	Composite
Diluent Whole Effluent Toxicity[11]				
Hardness	----------	Report mg/L	1/quarter	Grab
Alkalinity	----------	Report mg/L	1/quarter	Grab
pH	----------	Report mg/L	1/quarter	Grab
Specific Conductance	----------	Report mg/L	1/quarter	Grab
Ammonia	----------	Report mg/L	1/quarter	Grab
Total Organic Carbon	----------	Report mg/L	1/quarter	Grab
Total Cadmium	----------	Report mg/L	1/quarter	Grab
Total Lead	----------	Report mg/L	1/quarter	Grab
Total Copper	----------	Report mg/L	1/quarter	Grab

Total Zinc	----------	Report mg/L	1/quarter	Grab
Total Nickel	----------	Report mg/L	1/quarter	Grab
Total Aluminum	----------	Report mg/L	1/quarter	Grab

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 over an interval representative of a backwash cycle. The timing of the grab sample for pH shall correspond with the timing of composite sampling for TSS and aluminum. Samples of the effluent must be collected from Outfall 001 following treatment in the two-lagoon settling system.

[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.i. 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 required in Part I.C.1.i. and the composite samples collected for aluminum and TSS.

[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 µg/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. When reporting sample data at or below the ML, see the latest EPA Region 1 NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) for guidance. Analysis must be completed using EPA approved methods found in 40 CFR Part 136.

[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.

[8] The Permittee shall conduct acute toxicity tests quarterly **when aluminum coagulant is in use** at the Plant **beginning 12 months of the effective date of the permit** using the daphnid (*Ceriodaphnia dubia*). The test results shall be submitted by the last day of the

month following the completion of the test. The tests must be performed in accordance with test procedures and protocols specified in Attachment A of this permit. When aluminum coagulant is not in use, the Permittee shall follow the No Data Indicator Code guidelines found in the *NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region 1 web site at http://www.epa.gov/region1/enforcement/water/dmr.html.

[9] Sampling frequency of quarterly is defined as the interval of time between the months of January through March, inclusive; April through June, inclusive; July through September, inclusive; and October through December, inclusive. A sample for whole effluent toxicity shall be taken from a point representative of the discharge from Outfall 001. The sample shall be representative of the treated filter backwash effluent from the two-lagoon settling system. If no toxicity is indicated after two years and a minimum of four consecutive sets of WET test results, the Permittee may request a reduction in testing frequency. The Permittee is required to continue testing at the frequency specified in the permit until notice is received by certified mail from the EPA that the WET testing requirement has been changed.

[10] The LC_{50} is the concentration of effluent which causes mortality to 50% of the test organisms.

[11] The Permittee must collect a **dilution water sample** of the receiving water. The dilution water sample for the WET test shall be collected from Cook's Brook at a point immediately upstream of Outfall 001's zone of influence at a reasonably accessible location. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the Permittee shall either follow procedures outlined in Attachment A (Toxicity Test Procedure and Protocol) Section IV., Dilution Water, in order to obtain an individual approval for use of 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 alternate dilution water, including the appropriate species for use with that water. This guidance is found in Attachment G of *NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs)*, which may be found on the EPA Region 1 web site indicated above. 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 Region 1 directly using the approach outlined in Attachment A. In the case where an alternate dilution water has been agreed upon an additional **receiving water control (0% effluent)** must also be tested.

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.
11. Best Management Practices (BMP) Plan
    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.).[1]
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 12 months 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 State Water Quality Standards (WQSs) 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

[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

implementation of any design standards is impracticable, the minimization program should provide an evaluation and 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.
g. The sampling locations for watershed streams and reservoir sampling must include a sample from each of the following representative locations:
    i. Source water (i.e. Cobble Mountain Reservoir and Borden Brook Reservoir);
    ii. Receiving water upstream of the discharge point (i.e. Cook's Brook); and
    iii. Downstream of the discharge point where full mixing of the effluent and stream have occurred (i.e. the confluence of Cook's Brook with the Little River).
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, 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 (SO_4) and total residual chlorine (major anions), reported in mg/L;
    viii. Alkalinity, reported in mg/L; and
    ix. Sulfide, reported in mg/L.

j. The Permittee shall conduct sampling for TSS according to Part I.C.1.i. above for locations described in Parts I.C.1.g. and I.C.1.h. above. The Permittee must include in the study described in Part C.1.b. above, an evaluation of the source of TSS that may cause or contribute to in an impairment in Cook's Brook at the confluence with the Little River. If the source of TSS is determined to be from the discharge or lagoon treatment system at the Plant, the study must include means by which the Permittee can mitigate contributions of TSS.

k. 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.

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

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. 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.

[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.

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 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 **DMRs, and all reports or notifications** required above shall be submitted to the State at the following address:

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

And, **without DMRs**, to the State at the following address:

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

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 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.

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.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

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)

Table of Contents

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).[1] 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).

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[1] http://www.mass.gov/dep/water/laws/tblfig.pdf

[2] Westfield River Watershed 2001 Water Quality Assessment Report. MassDEP Division of Watershed Management, Worcester, Massachusetts; April 2005, Report Number: 32-AC-1.

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

Data Submitted in Individual Permit Application		
Effluent Characteristic	**Units**	**Maximum Daily Value**
Flow	MGD	0.999
Total Suspended Solids (TSS)	mg/l	4.0
pH	SU	6.5-7.7
Total Residual Chlorine	µg/L	Believed absent

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 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.

Aluminum Data Collected for NOI			
Date	**Aluminum Effluent (µg/L)**	**Aluminum Cook's Brook (µg/L)**	**Aluminum Source Water (µg/L)**
1/27/2010	210	140	61
2/3/10	120	-	Not detected
2/10/10	150	-	Not detected
2/17/10	55	-	Not detected
2/24/10	77	-	Not detected
3/3/10	120	84	Not detected

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.

Aluminum Data Collected during Aluminum-based Coagulant Trial	
Date	**Aluminum (µg/L)**
8/4/10	230
8/11/10	260
8/18/10	240

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/menuofbmps/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.[3] 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

[3] NOAA EFH Mapper available at http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx

Little River[4] 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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[4] Westfield River Watershed 2001 Water Quality Assessment Report. MassDEP Division of Watershed Management, Worcester, Massachusetts; April 2005, Report Number: 32-AC-1.

[5] See *Juvenile Atlantic Salmon Stocking Locations in the Connecticut River*. U.S. Fish and Wildlife Service, Connecticut River Coordinator's Office: 1999. Available at http://www.fws.gov/r5crc/images/Stuff/rgatsjv.jpg

[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/dfwele/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/dfwele/dfw/nhesp/species_info/mesa_list/mesa_list.htm

[10] December 19, 2011, Letter from Patricia A. Kurkul, Regional Administrator, NOAA, National Marine Fisheries Service, Northeast Region, to John H. Nagle, EPA Region 1 ("NOAA's December 19, 2011, Chicopee WPCF Consultation Letter") (addressing ESA issues concerning EPA's proposed NPDES permit for the Chicopee, MA, WPCF).

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.

12. Comment Period, Hearing Requests, and Procedures for Final Decisions

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:

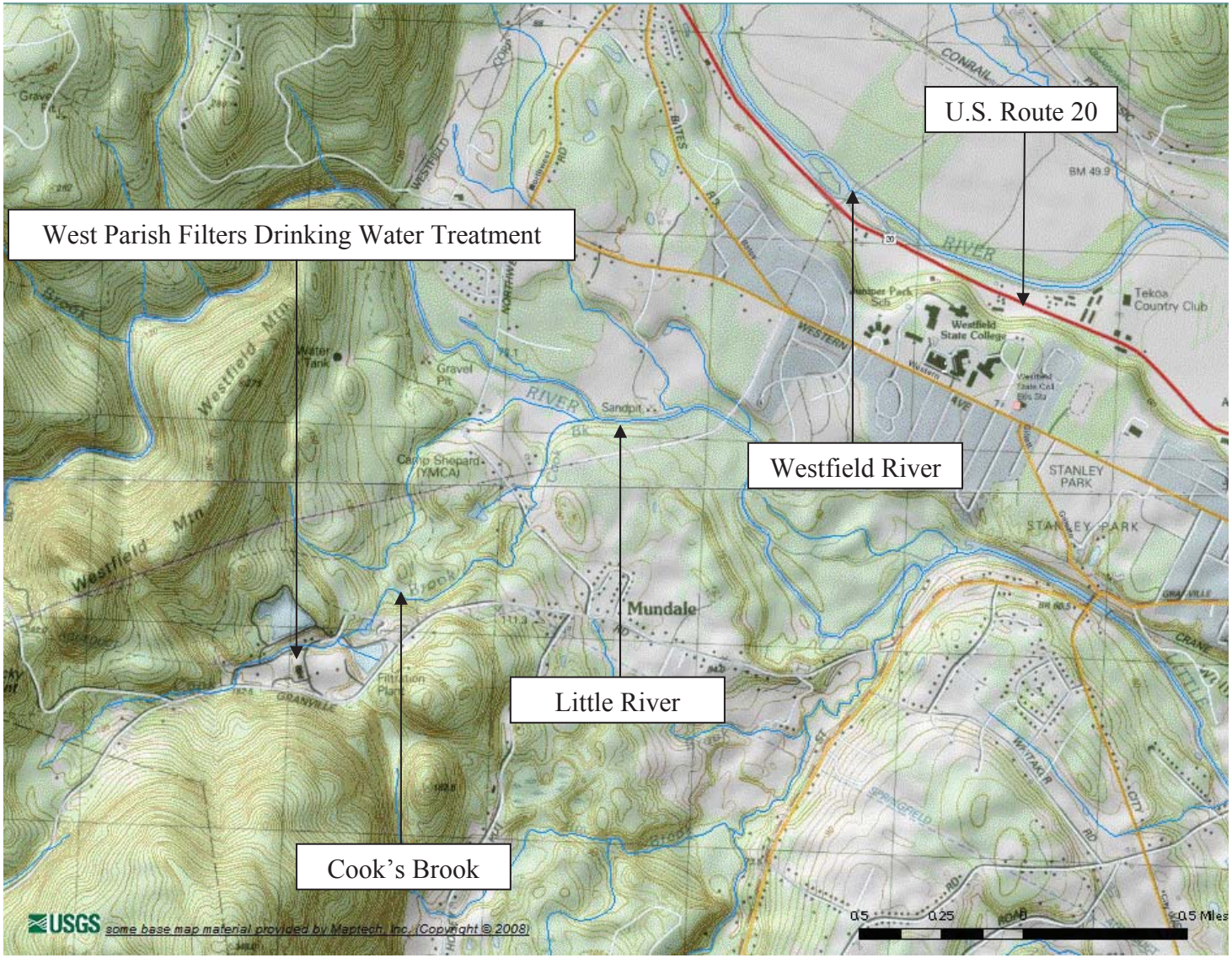
Shauna Little, EPA New England – Region 1
5 Post Office Square, Suite 100 (OEP06-1)
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1989 FAX: (617) 918-0989
Email: little.shauna@epa.gov

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

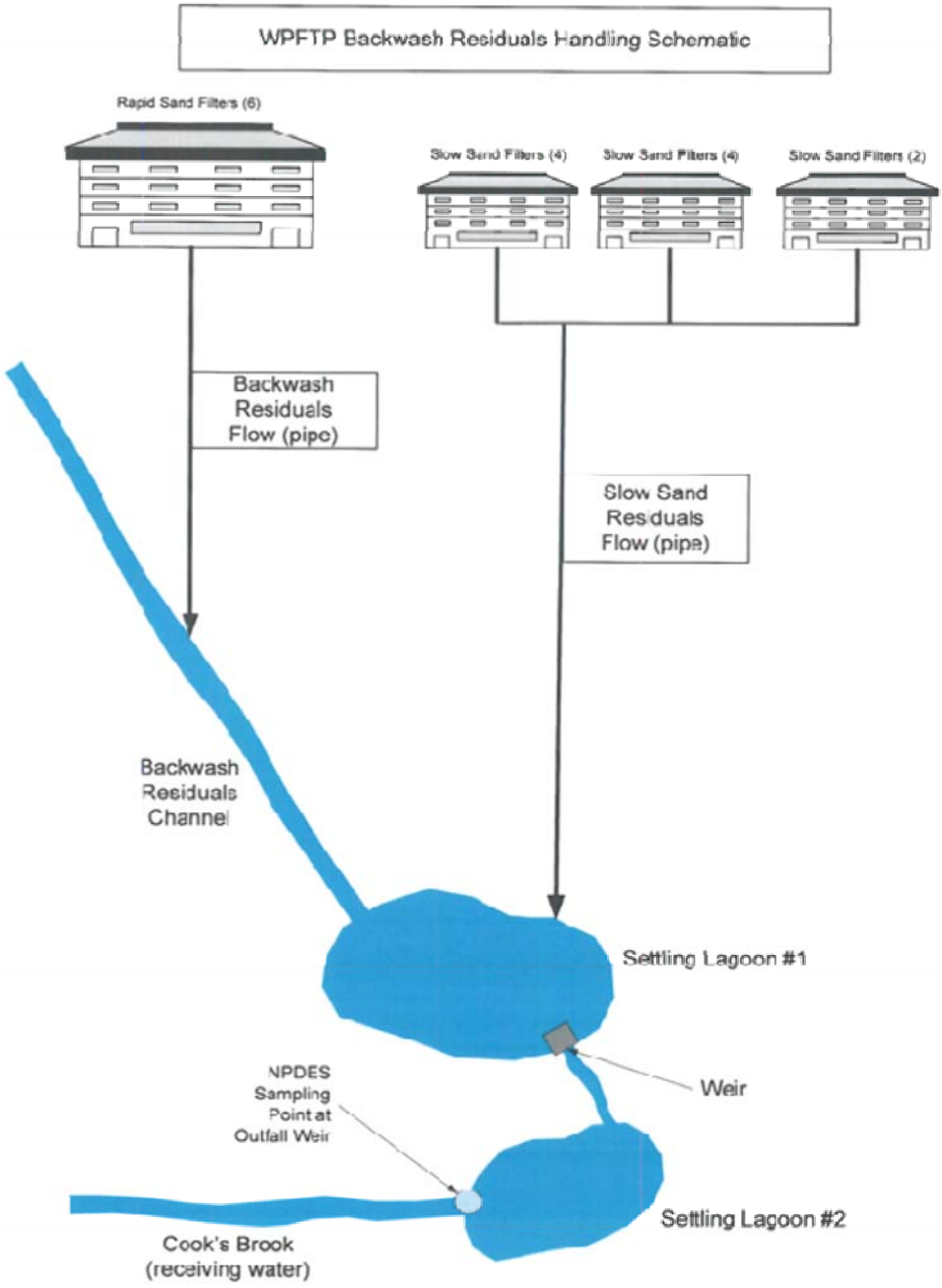
Attachment B: Discharge Monitoring Report (DMR) Data

	Flow (MGD)	pH (SU)		TRC (µg/L)		TSS (mg/L)	
Monitoring Period End Date		Min	Max	Mo Average	Daily Max	Mo Average	Daily Max
01/31/2006	0.96	6.7	6.9	ND	ND	7.00	8.00
02/28/2006	0.94	6.7	7.4	ND	ND	6.00	6.00
03/31/2006	0.95	6.9	8.9	ND	ND	8.00	16.00
04/30/2006	0.97	6.6	6.8	ND	ND	4.00	6.00
05/31/2006	0.94	6.7	6.8	ND	ND	6.00	8.00
06/30/2006	0.96	6.8	7.3	ND	ND	7.00	10.00
07/31/2006	0.96	6.7	6.8	ND	ND	8.00	8.00
08/31/2006	0.94	6.7	7.1	ND	ND	10.00	12.00
09/30/2006	0.88	6.4	6.7	ND	ND	7.00	10.00
10/31/2006	0.88	6.5	6.8	ND	ND	7.00	10.00
11/30/2006	0.86	6.5	6.7	ND	ND	8.00	13.00
12/31/2006	0.86	6.6	6.9	ND	ND	9.00	10.00
01/31/2007	0.99	6.6	6.8	ND	ND	8.00	10.00
02/28/2007	0.97	6.7	6.7	ND	ND	6.00	7.00
03/31/2007	0.95	6.5	6.9	ND	ND	8.00	12.00
04/30/2007	0.98	6.5	7.0	ND	ND	4.00	6.00
05/31/2007	0.99	6.6	7.0	ND	ND	9.00	12.00
06/30/2007	0.97	6.7	7.3	ND	ND	9.00	10.00
07/31/2007	0.97	6.6	6.9	ND	ND	11.00	14.00
08/31/2007	1.00	6.7	6.8	ND	ND	10.00	12.00
09/30/2007	0.97	6.5	6.8	ND	ND	9.00	10.00
10/31/2007	0.95	6.5	7.2	ND	ND	9.00	14.00
11/30/2007	0.99	6.6	6.8	ND	ND	6.00	7.00
12/31/2007	0.95	6.6	6.7	ND	ND	5.00	6.00
01/31/2008	0.97	6.6	6.9	ND	ND	5.00	6.00
02/29/2008	1.00	6.5	6.9	ND	ND	4.00	6.00
03/31/2008	1.00	6.6	6.8	ND	ND	4.00	5.00
04/30/2008	1.00	6.7	6.9	ND	ND	7.00	12.00
05/31/2008	0.96	6.6	6.9	ND	ND	6.00	8.00
06/30/2008	0.96	6.5	7.0	ND	ND	10.00	16.00
07/31/2008	0.96	6.6	7.0	ND	ND	6.00	8.00
08/31/2008	0.93	6.5	6.7	ND	ND	9.00	15.00
09/30/2008	0.97	6.5	6.9	ND	ND	5.00	7.00
10/31/2008	0.90	6.5	7.0	ND	ND	7.00	8.00
11/30/2008	0.97	6.5	7.1	ND	ND	6.00	7.00
12/31/2008	0.99	6.6	6.8	ND	ND	11.00	27.00
01/31/2009	0.99	6.5	6.7	ND	ND	8.00	10.00
02/28/2009	0.97	6.6	7.0	ND	ND	6.00	8.00
04/30/2009	0.99	6.7	6.9	ND	ND	6.00	10.00
05/31/2009	0.97	6.6	7.0	ND	ND	7.00	8.00
06/30/2009	0.92	6.6	6.6	ND	ND	8.00	8.00
07/31/2009	0.84	6.5	6.9	ND	ND	10.00	12.00
08/31/2009	0.90	6.6	6.8	ND	ND	12.00	16.00
09/30/2009	0.86	6.7	6.9	ND	ND	12.00	16.00
10/31/2009	0.84	6.6	6.9	ND	ND	10.00	11.00

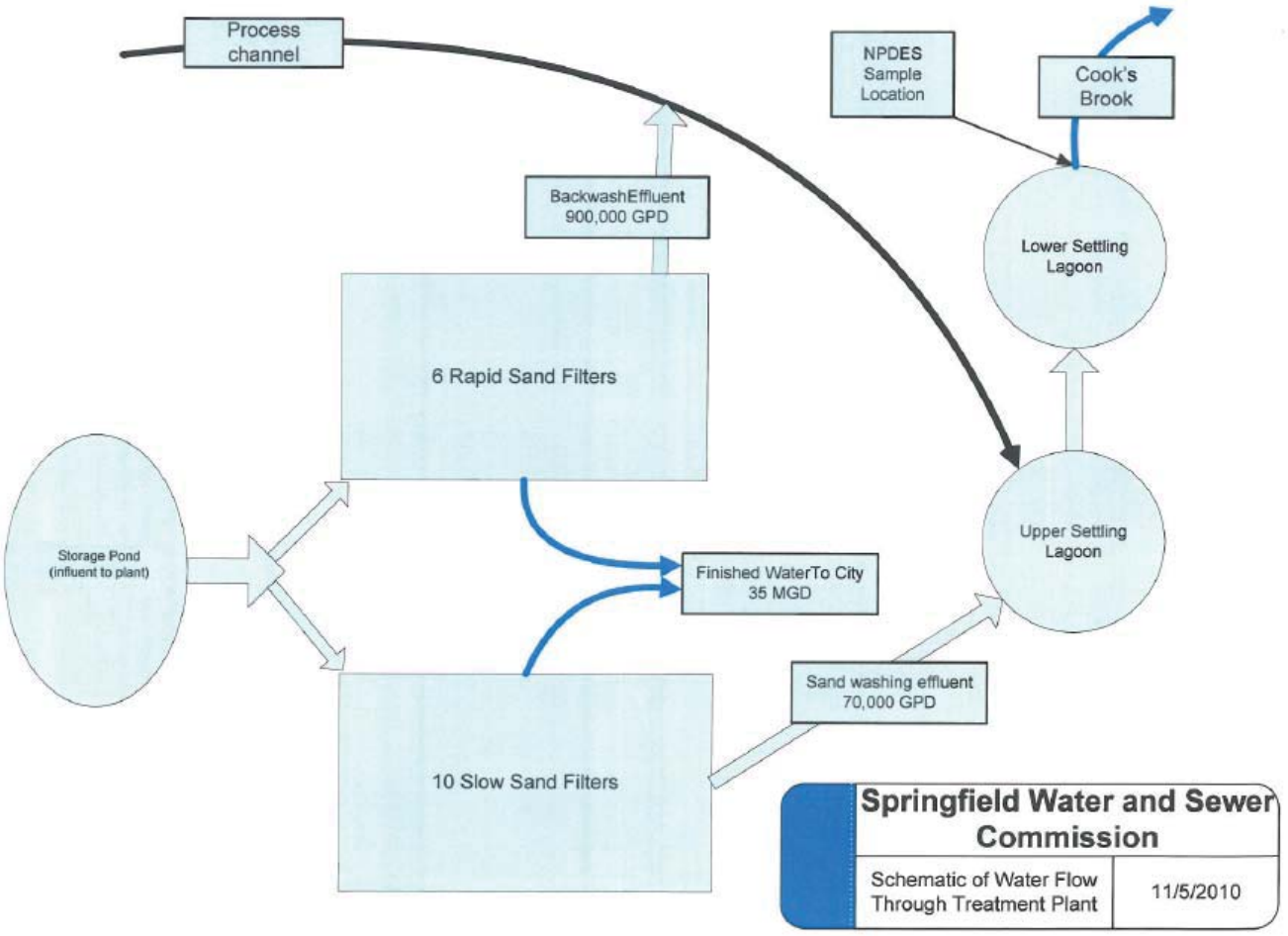
11/30/2009	0.73	6.5	6.7	ND	ND	10.00	14.00
12/31/2009	0.97	6.5	6.6	ND	ND	6.00	8.00
01/31/2010	0.87	6.7	7.1	ND	ND	10.00	10.00
02/28/2010	0.95	6.6	7.1	ND	ND	6.00	10.00
03/31/2010	0.95	6.6	6.9	ND	ND	6.00	8.00
04/30/2010	0.99	6.6	7.7	ND	ND	7.00	7.00
05/31/2010							
06/30/2010	0.89	6.5	7.2	ND	ND	7.00	8.00
07/31/2010	0.84	6.5	7.0	ND	ND	8.00	10.00
08/31/2010	0.92	6.8	7.5	ND	ND	8.00	9.00
09/30/2010	1.00	6.5	6.8	ND	ND	7.00	10.00
10/31/2010	0.96	6.5	6.9	ND	ND	8.00	9.00
11/30/2010	1.00	6.5	6.6	ND	ND	6.00	9.00
12/31/2010	0.97	6.5	6.7	ND	ND	6.00	8.00
01/31/2011	0.98	6.6	7.1	ND	ND	7.00	11.00
02/28/2011	0.95	6.6	7.4	ND	ND	5.00	5.00
03/31/2011	1.00	6.8	7.1	ND	ND	4.00	6.00
04/30/2011	1.00	6.7	6.9	ND	ND	4.00	6.00
05/31/2011	1.00	6.5	6.9	ND	ND	6.00	7.00
06/30/2011	1.00	6.9	7.4	ND	ND	6.00	8.00
07/31/2011	0.90	7.0	7.2	ND	ND	7.00	11.00
08/31/2011	0.99	6.9	7.0	ND	ND	10.00	16.00
09/30/2011	0.90	7.0	7.4	ND	ND	14.00	16.00
10/31/2011	0.98	6.6	7.1	ND	ND	6.00	8.00
11/30/2011	0.97	6.6	7.4	ND	ND	5.00	10.00
12/31/2011	0.98	6.7	7.0	ND	ND	4.00	8.00
01/31/2012	0.96	7.2	7.4	ND	ND	4.00	8.00
02/29/2012	1.00	6.9	7.2	ND	ND	6.00	7.00
03/31/2012	1.00	6.9	7.1	ND	ND	5.00	6.00

	Flow (MGD)	**pH (SU)**		**TRC (µg/L)**		**TSS (mg/L)**	
		Min	**Max**	**Mo Average**	**Daily Max**	**Mo Average**	**Daily Max**
Current Permit Limits	**1.0**	**6.5**	**8.3**	**Report**	**Report**	**30**	**50**
Maximum	1.00	7.20	8.90	0.00	0.00	14.00	27.00
Minimum	0.73	6.40	6.60	0.00	0.00	4.00	5.00
Mean	0.95	6.63	7.00	0.00	0.00	7.20	9.73
# of Measurements	74	74	74	74	74	74	74

Attachment C: West Parish Filters Water Treatment Plant Schematic



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:

$$\frac{7Q10_{@Westfield}}{Drainage\ Area_{@Westfield}} = \frac{7Q10_{@Outfall001}}{Drainage\ Area_{@Outfall001}}$$

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

Drainage Area@Outfall001[1] = 0.83 mi^2

$7Q10@Outfall001 = Q_R$

Therefore:

$$\frac{77.3\ cfs}{497\ mi^2} = \frac{Q_R}{0.83\ mi^2}$$

And:

$$QR = \frac{77.3\ cfs * (0.83\ mi^2)}{497\ mi^2} = 0.1\ cfs$$

Dilution Factor

Dilution Factor $= [Q_R + (Q_P * 1.55)]/ (Q_P * 1.55)$
$= [0.1 + (2.0*1.55]/ (2.0*1.55) = 1$

Where:

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

[1] Determined using USGS StreamStats in Massachusetts mapping tool at http://water.usgs.gov/osw/streamstats/massachusetts.html

Response to Public Comments

In accordance with the provisions of 40 C.F.R. §124.17, this document presents EPA's responses to comments received on the draft NPDES Permit, #MA0040482. The response to comments explains and supports the EPA determinations that form the basis of the final permit. From June 8, 2012 to July 7, 2012, the United States Environmental Protection Agency ("EPA") and the Massachusetts Department of Environmental Protection ("MassDEP") (together, the "Agencies") solicited public comments on a draft NPDES permit, #MA0040482, developed pursuant to an individual permit application from Springfield Water and Sewer Commission, for the issuance of a National Pollutant Discharge Elimination System ("NPDES") permit to discharge treated filter backwash from the West Parish Filters Water Treatment Facility Outfall number 001 to Cook's Brook, tributary to Little River (Segment MA32-36) in Westfield, Massachusetts. This individual permit supersedes the Final NPDES General Permit for Water Treatment Facility Discharges issued November 15, 2000, effective January 30, 2001.

After a review of the comments received, EPA and MassDEP have made a final decision to issue this permit authorizing these discharges. The Final Permit is substantially identical to the Draft Permit that was available for public comment.

Although EPA's decision-making process has benefitted from the comments and additional information submitted, the information and arguments presented did not raise any substantial new questions concerning the permit. EPA did, however, make minor changes in response to comments which are listed below. The analyses underlying these changes are explained in the responses to individual comments that follow and are reflected in the Final Permit. Comments are paraphrased.

Copies of the Final Permit may be obtained by writing or calling EPA's NPDES Industrial Permits Branch (OEP 06-1), Office of Ecosystem Protection, 5 Post Office Square, Suite 100, Boston, MA 02109-3912; Telephone: (617) 918-1989.

Summary of Changes in the Final Permit

1. Cover Page

Addition: The waterbody segment number for Cook's Brook (MA32-38) has been added.

Change: The permit effective date sentence which stated, "If no comments are received, this permit shall become effective upon signature," has been removed, as public comments were received.

Correction: A typographical error in "Final NPDES General Permits for Water Treatment Facility Discharges" has been corrected to read "Final NPDES General Permit for Water Treatment Facility Discharges in the Commonwealth of Massachusetts issued on November 15, 2000, effective January 30, 2001."

Change: The page count and permit contents has been changed to state "This permit consists of 14 pages in Part I including effluent limitations, monitoring requirements, 8

pages in Attachment A – Freshwater Acute Toxicity Test Procedure and Protocol (2011), and 25 pages in Part II including Standard Conditions."

2. Part I.A.1.

Change: The TSS monthly average limit has been changed from 15 mg/L to 30 mg/L and the TSS daily maximum limit has been changed from 30 mg/L to 50 mg/L.

Addition: Whole Effluent Toxicity testing requirements have been added to the table of Effluent Characteristics that includes a reporting requirement for LC_{50}.

Change: Footnote 1 regarding sampling requirements has been clarified to state "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 over an interval representative of a backwash cycle. The timing of the grab sample for pH shall correspond with the timing of composite sampling for TSS and aluminum. Samples of the effluent must be collected from Outfall 001 following treatment in the two-lagoon settling system."

Addition: Footnote 3 has been clarified to state "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.i. 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 required in Part I.C.1.i. and the composite samples collected for aluminum and TSS."

Correction: Footnote 6 which stated "Sample results at or below the ML shall be reported as zero on the discharge monitoring report," has been corrected to state "When reporting sample data at or below the ML, see the latest EPA Region 1 NPDES Permit Program Instructions for the Discharge Monitoring Report Forms (DMRs) for guidance. Analysis must be completed using EPA approved methods found in 40 CFR Part 136."

Addition: Footnotes 8 through 11 have been added for Whole Effluent Toxicity testing.

3. Part I.A.11.c.

Correction: the formatting which referenced Part I.A.11(b) was corrected to the format I.A.11.b.

4. Part I.C.1.b.

Change: The amount of time allowed for the Permittee to prepare and submit a proposal to study the potential for exceedances of the aluminum State Water Quality Standards resulting from the discharge of aluminum from the Plant to the Westfield River watershed and means by which the Permittee can mitigate these exceedances has been increased from 90 days to 12 months. EPA also changed "chronic State Water Quality Standard (WQS)" to "aluminum State Water Quality Standards (WQSs)" as the statement excluded the acute WQS, which also applies to discharges of aluminum at the Plant.

5. Part I.C.1.i.iv.

Correction: The testing requirement for dissolved organic carbon which stated "Dissolved Organic Carbon as a sum of carbonate (CO3), bicarbonate (HCO3), and carbonic acid (H2CO3), reported in mg/L" has been corrected to state "Dissolved Organic Carbon, reported in mg/L."

6. Part I.C.1.j.

Addition: Requirements have been added to the Aluminum Minimization Program for Total Suspended Solids which include an evaluation of the source of TSS that may cause or contribute to impairment downstream, and, if necessary, means by which the Permittee can mitigate contributions of TSS from the Plant.

Change: The Addition noted above results in a change to the numbering for items in Part I.C.1. The item formerly noted as j. is now item k. and the item formerly noted as k. is now item l.

7. Part I.C.2.c.

Change: The requirements to the Stage 2 Disinfection Byproducts rule optimization plan have been clarified to state "The Permittee shall certify the Optimization Plan has been completed, that it meets the requirements of this permit, and that it reduces the pollutants discharged in wastewater to the extent practicable, in accordance with the requirements identified in 40 CFR §122.22. A copy of the Optimization Plan and certification shall be maintained at the facility and made available to EPA and MassDEP upon request."

8. Part I.C.3.

Change: The condition which stated "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" has been removed from the Final Permit as a result of adding regular Whole Effluent Toxicity testing requirements.

9. Part E.c.

Correction: The instructions for sending paper DMRs, and all other reports or notifications to MassDEP have been corrected to state "Duplicate signed copies of **DMRs, and all reports or notifications** required above shall be submitted to the State at the following address…And **without DMRs**, to the State at the following address." The address noted for the MassDEP Western Regional Office which read "Bureau of Waste Prevention" has been corrected to "Bureau of Resource Protection."

10. Part F.

Correction: A typographical error which excluded the numbering of the State Permit Conditions has been corrected.

Public Comments

Comments submitted by Jane A. Brooks, Laboratory/Regulatory Manager, Springfield Water and Sewer Commission:

Comment A1:

Increased rainfall (duration and intensity) due to climate change, and reduced hydraulic detention time, due to the higher backwash water flows required for use of aluminum based coagulants, will maximize the potential for non-compliance with the lower TSS limitations included in the Draft Permit.

Response to Comment A1:

EPA recognizes the potential for climate change to impact natural resources and infrastructure in the Region. EPA appreciates that the Permittee is proactively evaluating the potential for impacts due to climate change at the Plant. However, the potential for a facility to violate permit limits established in a NPDES permit is not an allowable exception for less stringent permit limits defined in anti-backsliding requirements. See Sections 402(o) and 303(d)(4) of the CWA and 40 CFR §122.44(I)(1 and 2). While EPA has not increased the Total Suspended Solids (TSS) limits in the Final Permit based on this comment, the TSS limits in the Final Permit have changed based on comments received. See Response to Comment A3.

Comment A2:

The West Parish Filters (WPF) system is unique and challenging because a brook is running through the lagoon settling system. We are not aware of any water treatment plants where this same situation occurs.

Response to Comment A2:

EPA acknowledges that the configuration of the two-lagoon settling system is not typical. Although EPA is not requiring a re-engineering of the two-lagoon system at this time, the Final Permit requires that the samples collected under Part I.A.1. be representative of the filter backwash effluent. In addition, Part II, Standard Conditions requires that the Permittee maintain any treatment systems designed to treat the effluent. If the configuration of the two-lagoon system interferes with meeting these requirements, the Permittee may need to complete maintenance activities. Part II defines the conditions under which maintenance may occur under permit coverage without the need for permit modification. If maintenance activities exceed the allowable terms, EPA or MassDEP may modify the permit in accordance with 40 CFR §122.62.

Comment A3:

The SWSC requests the deletion of the TSS limits based on a weekly composite sample or alternatively requested maintaining the current general permit TSS limits based on a weekly grab sample for the following reasons:

1. Since historical data was based upon a once per week grab sample, the new limit of 15 mg/L and 30 mg/l (once per week composite) cannot be established upon past plant performance. There is no historical plant performance data based upon a composite sample.

2. The historical TSS data was based upon the polymer only coagulation process and there is no existing historical settling data available on a material change in the coagulation process.

3. Historical TSS data was based on backwash flows <1.0 mgd and not the draft permit limit of 3.0 mgd, which will reduce the hydraulic detention time in the lagoon settling system and impact settleability. The SWSC believes this is a material and substantial alteration.

4. Monitoring of Cook's Brook upstream of the SWSC discharge has found a TSS concentration of 34 mg/L during a minor rainstorm. The SWSC should not be held to a permit limit where the natural occurrence of TSS may be higher than a proposed limit.

5. The 2001 Water Quality Assessment Report for the Westfield River Watershed identifies the Plant's filter backwash discharge as the **"suspected source"** of impairment. There is no data to support the speculation that the siltation in the Little River is caused by the plant's filter backwash water effluent.

Response to Comment A3:

EPA agrees with the request to maintain the Potable Water Treatment Facility General Permit TSS monthly average limit of 30 mg/L and the daily maximum limit of 50 mg/L, which are technology-based effluent limits based on Region 1's Best Professional Judgment determination. These limits represent the Best Available Technology for treatment of backwash effluent that can be achieved with a settling lagoon treatment system and meet anti-backsliding requirements found in 40 CFR §122.44(l). While EPA agrees that historical TSS grab sample data are not comparable to composite sample requirements for TSS in the Draft Permit, particularly with an increase in flow, EPA believes a composite sample is necessary to capture concentrations representative of the average water quality of the effluent during a backwash cycle. The Draft Permit required flow-weighted composite sampling after the start of a backwash cycle. The requirements for composite sampling have been clarified in the Final Permit to state that composite samples must be collected on a flow-weighted basis during the period of time the effluent

from a backwash cycle is reaching the receiving water. Composite sampling requirements for Industrial users can be found in 40 CFR §403.12(g)(3).

EPA agrees that a material and substantial change may apply to the change in coagulant, if permanently adopted, and the higher flow required for its use, but does not affect the treatment technology used at the Plant. EPA also agrees that the configuration of the two-lagoon settling system may affect the frequency and duration of the discharge. Also see Response to Comment A2.

Regarding the 2001 biota/habitat assessment conducted by the Massachusetts Division of Watershed Management (DWM), EPA agrees that the Plant is identified in the 2001 Water Quality Report for the Westfield River Watershed as the suspected source and impacts are noted as only "slight" when compared to the upstream reference station. An updated Water Quality Report for the Westfield River Watershed is not currently available. However, a February 2012 technical memorandum prepared by DWM[1] for the Benthic Macroinvertebrate Bioassessment completed for the Westfield River Watershed in 2006 discusses the influence of the filter backwash effluent from the Plant on receiving water quality. The memorandum notes that based on the bioassessment of the Little River at the sampling location located downstream of the confluence of Cook's Brook with the Little River, the *Aquatic Life Use* is not supported by this water body. The description provided in the memorandum is as follows:

> Despite the availability of excellent habitat (Habitat Score = 175), the benthic macroinvertebrate community at Station at LR02C was only 48% comparable to that of the reference station. While the EPT Index and Scraper/Filterer metrics compromised the total metric score the most, the EPT/Chironomidae and Reference Affinity metrics also scored poorly. This site was chosen for study, in part, to evaluate the influence on receiving water quality of the filter backwash discharge from the West Parish Filters Water Treatment Plant which enters the Little River via Cook Brook less than 300 meters upstream from the sampling location.
>
> Five years earlier, Fiorentino and Mitchell (2004) found the benthic macroinvertebrate community at Station LR02C to be "slightly" or "moderately" impaired depending on which of their reference sites was used in the analysis. They attributed the impairment to the Cook Brook discharge; and this was further supported by the condition of the habitat. At that time, habitat parameters most closely associated with instream sedimentation – sediment deposition and embeddedness – were greatly reduced from the reference condition, and a large buildup of fine sediments was observed at the mouth of Cook Brook. In 2006, however, habitat quality was rated much higher, and there was little evidence of the sedimentation that was documented earlier at this site. Unlike in 2001, no reference site was established on the Little River immediately upstream from the confluence

[1] Westfield River Watershed 2006 Benthic Macroinvertebrate Bioassessment. MassDEP Division of Watershed Management Technical Memorandum CN233.3, February 2012.

> with Cook Brook. Nonetheless, the condition of the benthic macroinvertebrate community downstream from the confluence continues to implicate the water treatment facility with water quality problems in Cook Brook and the Little River. Sediments may be settling on the stream bottom at times of low flow and washing away during higher flow events. Repeated settling and scouring of the substrates in this manner may be hindering the establishment of a diverse and well-functioning macroinvertebrate community in the lower portion of the Little River.

Although the Final Massachusetts Year 2010 Integrated List of Waters listed the Little River as impaired for siltation, the Proposed Massachusetts Year 2012 Integrated List of Waters does not list the Little River as impaired for siltation, rather, Combined Biota/Habitat Bioassessments and *E. coli*. Cook's Brook (MA32-38) has been added to the Proposed 2012 List of Waters as a Category 2 Water, "Attaining Some Uses; Other Uses Not Assessed." Based on this information, additional assessment will need to be completed before the degree of impact from the filter backwash on water quality downstream of the discharge is known. The Draft Permit included sampling requirements for TSS for the discharge, as well as upstream and downstream as part of the Aluminum Minimization Program. The Final Permit maintains this sampling requirement and includes an additional requirement that the Permittee evaluate the source of TSS in Cook's Brook. This requirement includes an evaluation of ways to minimize the Plant's contribution of TSS to Cook's Brook if the Plant is determined to cause or contribute to water quality impairments. See Part I.C.1.j.

Comment A4:

The SWSC requests a timeframe of 365 days of the effective date of the permit for the requirements in Part I.C.1.b. This timeframe is needed to conduct full-scale cold weather and warm weather aluminum coagulation trials. The full-scale coagulant trials are needed to generate aluminum discharges in order to propose a study of the potential for WQS exceedances, and develop a plan to mitigate aluminum discharges in response to these discharges.

Response to Comment A4:

EPA agrees with the SWSC that to propose a study plan dependent upon discharges of aluminum from full scale use of aluminum coagulants at the Plant, their potential to exceed Massachusetts WQSs and means to mitigate these exceedances, the full-scale aluminum coagulant trials must be completed. The concentration of aluminum in discharges resulting from the use of aluminum coagulants are only known on a bench scale over a short duration at the Plant. Since the full-scale aluminum coagulant trials require both cold weather and warm weather trials, the timeframe required in Part I.C.1.b. of the Final Permit has been increased to 12 months.

Comment A5:

The SWSC is requesting clarification on the monitoring requirement in Part I.C.1.i.iv for Dissolved Organic Carbon as a sum of carbonate (CO3), bicarbonate (HCO3), and carbonic acid (H2CO3), reported in mg/L.

Response to Comment A5:

Dissolved organic carbon is the appropriate measure. The water chemistry interaction of a metal with organic carbon is a means of computing the toxicity of that metal in free ion form (Tipping, 1998, Di Toro et al., 2001; Santore et al., 2001; Santore et al., 2002). The sum of three carbon species, carbonate (CO3), bicarbonate (HCO3), and carbonic acid (H2CO3), does not apply to this sampling requirement and has been removed from the Final Permit.

Comment A6:

Section 6.1 of the Fact Sheet…first and second paragraphs: the information regarding coagulation chemicals used at the plant is incorrect; see below for revision.

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 (Attachment C). The liquid polymer used for coagulation is stored in a bulk storage tank. This chemical is fed with metering pumps located in the control building.

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, presently the liquid polymer only, are added at the rapid-mix basins. The flow in turn is passed 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.

Response to Comment A6:

EPA included information regarding the use of aluminum-containing coagulants because the Plant anticipates their use in order to meet Drinking Water Quality Standards. However, EPA acknowledges that the use of aluminum-containing coagulants does not occur at the Plant at this time and it remains unclear if or to what extent aluminum-containing coagulants will be needed at the Plant after full scale coagulant trials are completed at higher backwash volumes.

Since Fact Sheets are final documents that accompany Draft NPDES Permits, they are not changed in response to comments. EPA's "Response to Comments" may acknowledge Fact Sheet errors or inconsistencies, and then provide the necessary rational for changes that may be required in the Final NPDES Permit.

Therefore, EPA notes the correction. In this case, no change to the NPDES Permit is necessary. The Response to Comments serves as the official correction.

Comments submitted by Andrea F. Donlon, River Steward, Connecticut River Watershed Council:

Comment B1:

Based on the description of backwash water from rapid and slow sand filters on page 7 of the Fact Sheet and the process flow diagrams in Attachments C and D, it is not clear why siltation from this plant would lead to impairment in the Little River. Is there a separate outfall not shown in the diagrams? Do the settling lagoons not work well?

Response to Comment B1:

The Plant discharges through Outfall 001 only. The 2001 WQR does not indicate why siltation from the plant would lead to impairment in the Little River. As evidenced by the effluent monitoring data from the Plant between 2006 through 2012, the lagoon settling system performance regularly meets Region 1's technology-based monthly average TSS limit of 30 mg/L and daily maximum TSS limit of 50 mg/L. However, as part of the Aluminum Minimization Program, the Permittee is required to further evaluate TSS to determine if the backwash filter effluent leads to impairment downstream. See Response to Comment A3.

Comment B2:

We aren't sure if the 4 grab samples collected at even intervals would happen just over the course of time that the backwash cycle is reaching the receiving water or not. We hope the weighted averages don't cancel out a worst case scenario that might happen frequently.

Response to Comment B2:

Backwashing of filters at the Plant are typically conducted during the second and third shifts at the Plant when water demand is lowest. Because the Plant does not discharge a uniform flow with uniform wastewater characteristics at a uniform production rate, the Draft Permit required flow-weighted composite sampling after the start of a backwash cycle. The requirements for composite sampling have been clarified in the Final Permit to state that composite samples must be collected on a flow-weighted basis during the period of time the effluent from a backwash cycle is reaching the receiving water. This is not equivalent to a time weighted composite sample nor does the composite sample

consist of evenly time-spaced aliquots. It also does not include sampling during times when backwashes are not occurring at the Plant. When compared to a treatment standard, a single composite sample result will minimize data outliers relative to a single sample and is therefore a better representation of the water quality of the effluent.

Comment B3:

We don't know if the existing DMR data showing a maximum monthly average of 14 mg/L and maximum daily of 27 mg/L under the existing general permit is representative of timing the sampling when the backwash water enters the receiving water. If so, this limit, though achievable, may not be stringent enough if this is the discharge that is contributing to the impairment downstream in the Little River.

Response to Comment B3:

To ensure that the TSS data for the effluent is representative of the backwash discharges, EPA has required flow-weighted composite sampling in the Final Permit which must be conducted during the period of time the effluent from a backwash cycle is reaching the receiving water. Regarding the maximum monthly average of 14 mg/L, EPA notes that in late August 2011, Hurricane Irene brought heavy rains to New England, causing widespread flooding of Connecticut River tributaries. The Westfield River rose approximately twenty feet over a few hours and reached a flood stage not seen since the 1955, and 1938 hurricanes. The effects of Irene continued into September, when the Plant reported this average monthly concentration. The highest recorded daily maximum concentration occurred in December 2008. However, this maximum value is atypical over the period of data shown in Attachment 3 to the Fact Sheet and is above the 99th percentile projected TSS concentration (19.7 mg/L). This indicates that a concentration of 27 mg/L is statistically likely to occur 1% of the time or less. See Response to Comment A3 regarding the siltation impairment to the Little River.

Comment B4:

We are disappointed that ambient water quality information was not requested to be collected in advance of issuing the draft permit such that a site-specific aluminum limit could be established. In the meantime, since aluminum is toxic to fish and the Little River is a coldwater stream in a basin that is stocked for Atlantic salmon, we recommend that WET testing be required during the months that aluminum is used until an aluminum limit is set.

Response to Comment B4:

Numeric water quality-based limits for aluminum are not appropriate at this time. Aluminum coagulants are not currently used at the Plant and no data will be available to quantify concentrations of aluminum in the Plant's discharges without completion of the full-scale trial of aluminum coagulants. The Permittee cannot complete full scale coagulant trials without an increase in the maximum flow allowed for filter backwash

effluent, given the volume of water required to complete the trials. Finally, it is unclear at this time if the use of aluminum coagulants will be permanently adopted at the Plant. Without these data, EPA is unable to determine the reasonable potential for discharges of aluminum from the Plant to cause or contribute to an exceedance of the water quality criteria using the procedures required in 40 CFR 122.44(d)(1)(ii).

EPA is required to establish numeric water quality-based limits without effluent monitoring data or when such data are not available if required by state or federal regulations, such as when a Waste Load Allocation has been developed in a Total Maximum Daily Load for the pollutant (see Chapter 6, *NPDES Permit Writer's Manual*, EPA-833-K-10-001). There is no TMDL for aluminum in Cook's Brook or the Little River. EPA may choose to establish numeric water quality-based limits without data if it is determined that such limits are needed for a pollutant which contributes to an impairment of a waterbody. The Final Massachusetts Year 2010 Integrated List of Waters and the Proposed Massachusetts Year 2012 Integrated List of Waters does not list Cook's Brook or the Little River as being impaired for aluminum. EPA may also determine limits are necessary for a pollutant for all facilities that exhibit certain operational or discharge characteristics. For potable water treatment facilities in Massachusetts, the NPDES Potable Water Treatment Facility General Permit signed on September 25, 2009 requires monitoring-only for daily maximum concentrations of aluminum if the facility uses aluminum coagulants. EPA included this monitoring-only requirement for aluminum in the Draft Permit and additionally required monitoring for average monthly concentrations of aluminum at the Plant.

However, EPA is aware of Atlantic salmon stocking in the Connecticut River Watershed and acknowledges that the longer-term status of the Atlantic salmon population following the U.S. Fish and Wildlife Service decision to terminate the federal Atlantic salmon restoration program in the watershed is unclear. EPA may require Whole Effluent Toxicity testing if the effluent contains toxic substances in toxic amounts. Although the Plant's discharge does not currently contain toxic substances, EPA agrees that aluminum, if adopted for permanent use at the Plant, is toxic to fish. As a result, EPA is removing the condition that Whole Effluent Toxicity testing be performed upon request from EPA or MassDEP and is requiring WET testing be conducted quarterly beginning 12 months from the effective date of the Final Permit, when aluminum coagulants are in use. The delay in implementation of this requirement is to allow the SWSC to complete the proposal to study the potential for aluminum exceedances and ways to mitigate such exceedances, based in turn on the completion of both cold weather and warm weather full scale coagulant trials. Also see Response to Comment A4.

Comment B5:

The Stage 2 Disinfection Byproducts rule optimization plan appears to have no due date, but a report summarizing results of the plan are due 2½ years after the final permit is issued. Is there a reason why the plan is not requested to be submitted?

Response to Comment B5:

The Stage 2 Disinfection Byproducts rule is part of the Safe Drinking Water Act requirements (see 71 FR 388). EPA does not have NPDES authority to direct how the Plant comes into compliance under the Stage 2 Disinfection Byproducts rule, nor does EPA have resources to review and approve or disapprove such a plan. However, because justification for the increase in filter backwash flow and potential discharges of aluminum are based on these requirements, EPA has requested that the Permittee summarize how Stage 2 Disinfection Byproducts rule compliance was achieved as it relates to NPDES permitted pollutants (i.e., aluminum). The requirements of this plan are similar to those of Best Management Practices Plan. EPA is clarifying the requirement by adding that the Permittee certify the plan, keep the plan on site, and make the plan available upon request of EPA or MassDEP.

Comment B6:

Rather than relying on a re-opener clause for changes to the permit once water quality testing is complete (we doubt this happens very often), we recommend that the permit be amended to build in a timeline for developing a site-specific aluminum discharge limit. Therefore, we recommend that in year 3 of the permit, data analysis be done to generate a proposed limit with a summary report due to EPA. Either EPA could assist the permitee or EPA could provide the equation used to develop the limit.

Response to Comment B6:

After careful and extensive consideration of the materials pertaining to the Draft Permit, EPA concluded that establishing a numeric water-quality-based aluminum limit is not necessary at this time nor is it certain that a numeric water-quality-based aluminum limit will be necessary in the future. EPA believes that the restrictions and limitations required by the Final Permit ensure that Massachusetts water quality standards will be met. If information becomes available which indicates that new or more stringent permit limits are needed to meet water quality standards, the permit will be modified in accordance with 40 C.F.R. § 122.62. EPA and MassDEP both have full authority to modify a permit under a reopener clause, should a numeric limit become necessary.

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.

Effluent Characteristic	Discharge Limitation		Monitoring Requirements	
	Average Monthly	Maximum Daily	Measurement Frequency	Sample Type[1]
Flow	Report MGD	3.0 MGD	1/day	Estimate
Total Suspended Solids (TSS)	30 mg/L	50 mg/L	1/week	Composite
pH[2,3]	6.5-8.3 S.U.[4, 5]		1/week	Grab
Aluminum, Total Recoverable[6,7]	Report µg/L	Report µg/l	1/week	Composite
Whole Effluent Toxicity[8,9,10]				
LC_{50}	----------	Report %	1/quarter	Composite
Hardness	----------	Report mg/L	1/quarter	Composite
Total Residual Chlorine	----------	Report mg/L	1/quarter	Grab
Alkalinity	----------	Report mg/L	1/quarter	Composite
pH	----------	Report S.U.	1/quarter	Grab
Specific Conductance	----------	Report µmohs/cm	1/quarter	Composite
Total Solids	----------	Report mg/L	1/quarter	Composite

Total Dissolved Solids	----------	Report mg/L	1/quarter	Composite
Ammonia	----------	Report mg/L	1/quarter	Composite
Total Organic Carbon	----------	Report mg/L	1/quarter	Composite
Total Cadmium	----------	Report mg/L	1/quarter	Composite
Total Lead	----------	Report mg/L	1/quarter	Composite
Total Copper	----------	Report mg/L	1/quarter	Composite
Total Zinc	----------	Report mg/L	1/quarter	Composite
Total Nickel	----------	Report mg/L	1/quarter	Composite
Total Aluminum	----------	Report mg/L	1/quarter	Composite
Diluent Whole Effluent Toxicity[11]				
Hardness	----------	Report mg/L	1/quarter	Grab
Alkalinity	----------	Report mg/L	1/quarter	Grab
pH	----------	Report S.U.	1/quarter	Grab
Specific Conductance	----------	Report µmohs/cm	1/quarter	Grab
Ammonia	----------	Report mg/L	1/quarter	Grab
Total Organic Carbon	----------	Report mg/L	1/quarter	Grab
Total Cadmium	----------	Report mg/L	1/quarter	Grab
Total Lead	----------	Report mg/L	1/quarter	Grab
Total Copper	----------	Report mg/L	1/quarter	Grab