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),

Leicester Water Supply District
124 Pine Street
Leicester, MA 01524

is authorized to discharge from the facility located at

Leicester Water Supply District Treatment Facility
124 Pine Street
Leicester, MA 01524

to receiving water named

French River (Town Meadow Brook)

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

This permit shall become effective on the date of signature.

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

This permit supersedes the permit issued on June 22, 2005.

This permit consists of 14 pages in Part I including effluent limitations and monitoring requirements, Part II including General Conditions and Definitions, and Attachment A (Freshwater Chronic Toxicity Test Procedure and Protocol).

Signed this 30th day of September, 2010

/S/ SIGNATURE ON FILE

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

Glenn Haas, Director
Division of Watershed Management
Department of Environmental Protection
Commonwealth of Massachusetts
Boston, MA

PART I

A.1. During the period beginning on the effective date and lasting through expiration, the permittee is authorized to discharge treated effluent from outfall serial number **001** to the French River (Town Meadow Brook). Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	**EFFLUENT LIMITS**					**MONITORING REQUIREMENTS [1]**	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
FLOW[2]	*********	*********	0.35 MGD	*********	Report MGD	CONTINUOUS	RECORDER
FLOW[2]	*********	*********	Report MGD	*********	*********	CONTINUOUS	RECORDER
BOD_5 [4] (November 1 – March 31)	88 lbs/day	131 lbs/Day	30 mg/l	45 mg/l	*********	2/WEEK	24-HOUR COMPOSITE[5]
BOD_5 [4] (April 1 to October 31)	35 lbs/day	53 lbs/Day	12 mg/l	18 mg/l	20 mg/l	2/WEEK	24-HOUR COMPOSITE[5]
TSS [4] (November 1 - March 31)	88 lbs/day	131 lbs/Day	30 mg/l	45 mg/l	*********	2/WEEK	24-HOUR COMPOSITE[5]
TSS [4] (April 1 to October 31)	35 lbs/day	53 lbs/Day	12 mg/l	18 mg/l	20 mg/l	2/WEEK	24-HOUR COMPOSITE[5]
pH RANGE[3]	6.5 - 8.3 SU (See Paragraph I.A.1.b.)					1/DAY	GRAB
DISSOLVED OXYGEN (April 1 to October 31)	NOT LESS THAN 6.0 mg/l					1/DAY	GRAB
ESCHERICHIA COLI[3,7] (April 1 to October 31)	*********	**********	126 cfu/100 ml	*********	409 cfu/100 ml	1/WEEK	GRAB
TOTAL CHLORINE RESIDUAL[3,7]	*********	**********	18 ug/l	*********	31 ug/l	1/DAY	GRAB
TOTAL PHOSPHORUS (April 1 to October 31)	0.58 lbs/day	**********	0.2 mg/l	*********	Report mg/l	2/WEEK	24-HOUR COMPOSITE[5]
TOTAL PHOSPHORUS (November 1 to March 31)	2.9 lbs/day	**********	1.0 mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]

CONTINUED FROM PREVIOUS PAGE

A.1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from treated effluent from outfall serial number **001** to the French River (Town Meadow Brook). Such discharges shall be limited and monitored as specified below.

EFFLUENT CHARACTERISTIC	EFFLUENT LIMITS					MONITORING REQUIREMENTS[1]	
PARAMETER	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**AVERAGE MONTHLY**	**AVERAGE WEEKLY**	**MAXIMUM DAILY**	**MEASUREMENT FREQUENCY**	**SAMPLE TYPE**
ORTHOPHOSPHORUS (November 1 to March 31)	**********	**********	Report mg/l	*********	Report mg/l	1/WEEK	24-HOUR COMPOSITE[5]
TOTAL RECOVERABLE COPPER[8]	0.05 lbs/Day	**********	18 ug/l	*********	32 ug/l	2/MONTH	24-HOUR COMPOSITE[5]
ALUMINUM[9]	0.25 lbs/Day	*********	87 ug/l	*********	Report mg/l	1/MONTH	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN (April 1 – April 30)	29.2 lbs/Day	29.2 lbs/Day	10 mg/l	10 mg/l	15 mg/l	2/WEEK	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN (May 1 – May 31)	14.6lbs/Day	14.6 lbs/Day	5 mg/l	5 mg/l	7.5 mg/l	2/WEEK	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN (June 1 – October 31)	5.8 lbs/Day	5.8 lbs/Day	2 mg/l	2 mg/l	3 mg/l	2/WEEK	24-HOUR COMPOSITE[5]
AMMONIA-NITROGEN (November 1 – March 31)	Report lbs/Day	*********	Report mg/l	*********	*********	1/QUARTER	24-HOUR COMPOSITE[5]
TOTAL KJELDAHL NITROGEN	Report lbs/Day	*********	Report mg/l	*********	*********	1/QUARTER	24-HOUR COMPOSITE[5]
TOTAL NITRATE	Report lbs/Day	*********	Report mg/l	*********	*********	1/QUARTER	24-HOUR COMPOSITE[5]
TOTAL NITRITE	Report lbs/Day	*********	Report mg/l	*********	*********	1/QUARTER	24-HOUR COMPOSITE[5]
WHOLE EFFLUENT TOXICITY [10, 11, 12, 13]	Acute $LC_{50} \geq 100\%$ Chronic C-NOEC $\geq 62\%$					2/YEAR	24-HOUR COMPOSITE[5]

Footnotes:

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

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

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

3. Required for State Certification.

4. Sampling required for influent and effluent.

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

6. The monthly average limit for Escherichia coli is expressed as a geometric mean. Escherichia coli monitoring shall be conducted concurrently with a total residual chlorine sample.

7. Total residual chlorine monitoring is required whenever chlorine is added to the treatment process (i.e. TRC sampling is not required if chlorine is not added for disinfection or other purpose). The limitations are in effect year-round.

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

   Chlorination and dechlorination systems shall include an alarm system for indicating system interruptions or malfunctions. Any interruption or malfunction of the chlorine dosing system that may have resulted in levels of chlorine that were inadequate for achieving effective disinfection, or interruptions or malfunctions of the dechlorination system that may have resulted in excessive levels of chlorine in the final effluent shall be reported with the monthly DMRs. The report shall include the date and time of the

interruption or malfunction, the nature of the problem, and the estimated amount of time that the reduced levels of chlorine or dechlorination chemicals occurred.

8. The permittee must use a sufficiently sensitive EPA-approved analytical method. This requirement is met when the method minimum level, or quantitation limit, is at or below the permit limit.

9. Aluminum monitoring is required during months when aluminum is added to the treatment process (i.e. aluminum sampling is not required during months that aluminum is not added for phosphorus removal or other purpose). The limitations are in effect year-round. For months when no aluminum is added, and no monitoring is conducted, the permittee shall report a no discharge code (NODI). Sampling for aluminum monitoring and phosphorus monitoring shall be conducted concurrently.

10. The permittee shall conduct two chronic (and modified acute) toxicity tests per year on the daphnid, Ceriodphnia dubia. The test samples shall be collected during the second week of the months of May and August. 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.

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
May August	June 30 September 30	Ceriodaphnia dubia (daphnid)	≥ 100% ≥ 100%	≥ 62% ≥ 62%

After submitting **one year** and a **minimum** of four consecutive sets of WET test results, all of which demonstrate compliance with the WET permit limits, the permittee may request a reduction in the WET testing requirements. 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.

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

12. C-NOEC (chronic-no observed effect concentration) is defined as the highest concentration of toxicant or effluent to which organisms are exposed in a life cycle or partial life cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results exhibit a linear dose-response relationship. The "62% or greater" limit is defined as a sample which is composed of 62% (or greater) effluent, the remainder being dilution water.

13. 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 (Freshwater Chronic 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 Program Instructions for the Discharge Monitoring Report Forms (DMRs)* which may be found on the EPA, Region I web site at http://www.epa.gov/Region1/enforcementandassistance/dmr.html. 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 as part of the annual DMR instruction package. However, at any time, the permittee may choose to contact EPA-New England directly using the approach outlined in **Attachment A**.

Part I.A.1. (Continued)

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

b. The pH of the effluent shall not be less than 6.5 or greater than 8.3 at any time.

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

d. The effluent shall not contain a visible oil sheen, foam, or floating solids at any time.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand. The percent removal shall be based on monthly average values.

f. The permittee shall minimize the use of chlorine while maintaining adequate bacterial control.

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

h. If the average annual flow in any calendar year exceeds 80 percent of the facility's design flow, the permittee shall submit a report to MassDEP by March 31 of the following calendar year describing its plans for further flow increases and describing how it will maintain compliance with the flow limit and all other effluent limitations and conditions.

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

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

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

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

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

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

3. Prohibitions Concerning Interference and Pass Through:

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

4. 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.

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

B. UNAUTHORIZED DISCHARGES

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

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

C. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

1. Maintenance Staff

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

2. Preventative Maintenance Program

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

3. Infiltration/Inflow Control Plan:

   The permittee shall develop and implement a plan to control infiltration and inflow (I/I) to the separate sewer system. The plan shall be submitted to EPA and MassDEP **within six months of the effective date of this permit** (see page 1 of this permit for the effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow.

effective date) and shall describe the permittee's program for preventing infiltration/inflow related effluent limit violations, and all unauthorized discharges of wastewater, including overflows and by-passes due to excessive infiltration/inflow.

The plan shall include:

- An ongoing program to identify and remove sources of infiltration and inflow. The program shall include the necessary funding level and the source(s) of funding.
- An inflow identification and control program that focuses on the disconnection and redirection of illegal sump pumps and roof down spouts. Priority should be given to removal of public and private inflow sources that are upstream from, and potentially contribute to, known areas of sewer system backups and/or overflows
- Identification and prioritization of areas that will provide increased aquifer recharge as the result of reduction/elimination of infiltration and inflow to the system.
- An educational public outreach program for all aspects of I/I control, particularly private inflow.

Reporting Requirements:

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

- A map and a description of inspection and maintenance activities conducted and corrective actions taken during the previous year.
- Expenditures for any infiltration/inflow related maintenance activities and corrective actions taken during the previous year
- A map with areas identified for I/I-related investigation/action in the coming year.
- A calculation of the annual average I/I and the maximum month I/I for the reporting year.
- A report of any infiltration/inflow related corrective actions taken as a result of unauthorized discharges reported pursuant to 314 CMR 3.19(20) and reported pursuant to the Unauthorized Discharges section of this permit.

4. Alternate Power Source

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

D. SLUDGE CONDITIONS

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

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

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

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

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

   c. Sewage sludge incineration in a sludge only incinerator

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

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

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

Which of the 40 C.F.R. Part 503 requirements apply to the permittee will depend upon

the use or disposal practice followed and upon the quality of material produced by a facility. The EPA Region 1 Guidance document, "EPA Region 1 - NPDES Permit Sludge Compliance Guidance" (November 4, 1999), may be used by the permittee to assist it in determining the applicable requirements.[1]

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

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

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

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

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

   - Name and address of contractor(s) responsible for sludge preparation, use or disposal
   - Quantity of sludge (in dry metric tons) from the POTW that is transferred to the

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

sludge contractor(s), and the method(s) by which the contractor will prepare and use or dispose of the sewage sludge.

E. MONITORING AND REPORTING

1. **For a period of one year from the effective date of the permit**, the permittee may either submit monitoring data and other reports to EPA in hard copy form or report electronically using NetDMR, a web-based tool that allows permittees to electronically submit discharge monitoring reports (DMRs) and other required reports via a secure internet connection. **Beginning no later than one year after the effective date of the permit**, the permittee shall begin reporting using NetDMR, unless the facility is able to demonstrate a reasonable basis that precludes the use of NetDMR for submitting 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, including the MassDEP Monthly Operations and Maintenance Report, as an electronic attachment to the DMR. Once a permittee begins submitting reports using NetDMR, it will no longer be required to submit hard copies of DMRs or other reports to EPA and will no longer be required to submit hard copies of DMRs to MassDEP. However, permittees shall continue to send hard copies of reports other than DMRs (including Monthly Operation and Maintenance Reports) to MassDEP until further notice from MassDEP.

   b. Submittal of NetDMR Opt-Out Requests

   Opt-out requests must be submitted in writing to EPA for written approval at least sixty (60) days prior to the date a facility would be required under 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. All reports required under this permit, including MassDEP Monthly Operation and Maintenance Reports, shall be submitted as an attachment to the DMRs. Signed and dated originals of the DMRs, and all other reports or notifications required herein or in Part II shall be submitted to the Director at the following address:

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

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

Massachusetts Department of Environmental Protection
Central Regional Office
Bureau of Resource Protection
627 Main Street
Worcester, Massachusetts 01608

And

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

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

F. STATE PERMIT CONDITIONS

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
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO THE WATERS OF THE UNITED STATES

NPDES NO: MA0101796

NAME AND ADDRESS OF APPLICANT:

Leicester Water Supply District
124 Pine Street
Leicester, MA 01524

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Leicester Water Supply District Treatment Facility
124 Pine Street
Leicester, MA 01524

RECEIVING WATER: French River (Segment MA42-02, Town Meadow Brook)

CLASSIFICATION: B - Warm Water Fishery

I. Proposed Action, Type of Facility, and Discharge Location

The above-named applicant has requested that the U.S. Environmental Protection Agency reissue its NPDES permit to discharge into the designated receiving waters. The facility is engaged in the collection and treatment of municipal wastewater. The discharge is effluent from an advanced wastewater treatment facility to the French River.

The Leicester Water Supply District is a public corporation which owns and operates water and wastewater treatment facilities in the Town of Leicester. A process diagram is attached as Figure 1. The wastewater facility is a 0.35 million gallon per day (MGD) extended aeration facility which consists of grit removal, aeration, clarification, sand filtration and chlorination. The facility uses multi-dosing of aluminum compounds (sodium aluminate and PAC) for phosphorus removal. Sludge is dewatered with a belt filter press and send to Synagro in Woonsocket for incineration.

(sodium aluminate and PAC) for phosphorus removal. Sludge is dewatered with a belt filter press and send to Synagro in Woonsocket for incineration.

This facility discharges to the French River just south of the outlet of Dutton Pond, and approximately two miles upstream of Greenville Pond. A topographic map is attached as Figure 2. This headwater segment of the French River is referred to as "Town Meadow Brook" in state assessment documents and local maps. Below Greenville Pond the French River flows approximately 18 miles to the state line with Connecticut and joins the Quinebaug River in Thomson, CT. The Quinebaug crosses the state line twice before discharging to the Thames River in Connecticut and ultimately to Long Island Sound.

The discharge has been relocated since issuance of the current permit; the facility previously discharged to Dutton Pond. This change was contemplated in the current permit and alternative phosphorus limits are in place for the relocated discharge.

II. Description of Discharge

A quantitative description of the discharge in terms of significant effluent parameters based on recent monitoring data is shown in Table 1.

III. Receiving Water Description

The French River - Town Meadow Brook segment is classified as a Class B waterbody. The Massachusetts Surface Water Quality Standards (314 CMR 4.05(3)(b)) state that Class B waters shall have the following designated uses:

> These waters are designated as habitat for fish, other aquatic life, and wildlife, including for their reproduction, migration, growth and other critical functions, and for primary and secondary contact recreation. Where designated . . . they shall be suitable as a source of public water supply with appropriate treatment . . . . Class B waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value. The temperature shall not exceed 83 degrees F (28.3 degrees C) in warm water fisheries.

The *Massachusetts Year 2008 Integrated List of Waters* (Clean Water Act Section "303(d) list") details the quality of waters in Massachusetts, including the French River and Town Meadow Brook. The 303(d) list indicates that the river segment receiving the discharge is attaining its uses for aquatic life and aesthetics, with other uses not assessed. Greenville Pond, two miles downstream, is listed as an impaired waterbody for which a TMDL has been developed. The facility's effluent limit for phosphorus is set in accordance with the TMDL, as set forth below.

IV. Permit Limitations and Conditions

The effluent limitations of the draft permit and the monitoring requirements may be found in the draft NPDES permit.

V. Permit Basis: Statutory and Regulatory Authority

The Clean Water Act (the "CWA") prohibits the discharge of pollutants to waters of the United States without an NPDES permit unless such a discharge is otherwise authorized by the Act. A NPDES permit is used to implement technology based and water quality based effluent limitations as well as other requirements including monitoring and reporting. This draft NPDES permit was developed in accordance with statutory and regulatory authorities established pursuant to the Act. The regulations governing the NPDES program are found in 40 CFR Parts 122, 124 and 125.

Under Section 301(b)(1)(B) of the CWA, Publicly Owned Treatment Works (POTWs) are required to achieve technology-based effluent limitations based upon secondary treatment. The secondary treatment requirements are set forth in 40 CFR Part 133 and define secondary treatment as an effluent achieving specific limitations for biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on water quality standards. The Massachusetts Surface Water Quality Standards, 314 CMR 4.00, include requirements for the regulation and control of toxic constituents and also require that EPA criteria, established pursuant to Section 304(a) of the CWA, shall be used unless a site specific criteria is established. Massachusetts regulations similarly require that its permits contain limitations which are adequate to assure the attainment and maintenance of the water quality standards of the receiving waters as assigned in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00. See 314 CMR 3.11(3).

According to Clean Water Act Section 402(o) and federal regulations at 40 CFR § 122.44(1), when a permit is reissued, effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards or conditions in the previous permit, except under certain limited conditions.

VI. Explanation of Effluent Limitation Derivation

The limits in the draft permit are based on information in the application, the existing permit, discharge monitoring reports, whole effluent testing reports and a site visit.

A. Flow and Dilution Factor

The current permit incorporates limits based on a dilution factor of 1.62, derived from a 7Q10 flow in the French River (Town Meadow Brook) of 0.33 cfs. EPA and MassDEP have reviewed the 7Q10 and dilution factor in connection with this reissuance and have

concluded that it remains a reasonable estimate of dilution under 7Q10 conditions based on available data. The draft permit therefore maintains the same 7Q10 flow and dilution factors for calculating permit limits, as set forth below.

B. BOD, TSS, Total Phosphorus and Ammonia Nitrogen Limits

The average monthly and average weekly BOD and TSS limitations during cold weather (November 1- March 31) are based on the secondary treatment requirements of Section 301(b)(1)(B) of the Clean Water Act (CWA) as defined in 40 CFR 133.102. The warm weather limits (April 1- October 31) are based on water quality and are from a 1980 waste load allocation (WLA). All effluent limitations for BOD and TSS are the same as the limits in the current permit.

The mass limits calculations are below. Mass limits for BOD and TSS are in the current permit; mass limits for phosphorus and ammonia are included in the draft permit consistent with 40 CFR § 122.45(d).

Mass Limits Flow x Concentration x Conversion Factor = lbs/day

TSS & BOD, November to March
0.35 mgd x 30 mg/l x 8.34(lb)(l)/(mg)(gal) = 88 lbs/day
TSS & BOD, April to October
0.35 mgd x 12 mg/l x 8.34(lb)(l)/(mg)(gal) = 35 lbs/day
Phosphorus
0.35 mgd x 0.2 mg/l x 8.34(lb)(l)/(mg)(gal) = 0.58 lbs/day
Ammonia - April
0.35 mgd x 10 mg/l x 8.34(lb)(l)/(mg)(gal) = 29.2 lbs/day
Ammonia – May
0.35 mgd x 5 mg/l x 8.34(lb)(l)/(mg)(gal) = 14.6 lbs/day
Ammonia – June to October
0.35 mgd x 2 mg/l x 8.34(lb)(l)/(mg)(gal) = 5.8 lbs/day

C. pH and Dissolved Oxygen

The limitation for pH, e. coli, and dissolved oxygen (DO) are based upon the Massachusetts state certification requirements under Section 401(a)(1) of the Clean Water Act (CWA), as defined in 40 CFR § 124.53 and water quality standards.

D. Eschericia coli Bacteria

The current permit includes bacteria limits on fecal coliform bacteria. Since issuance of the current permit, Massachusetts has promulgated, and EPA has approved, revised water quality standards for bacteria, which include Class B water quality criteria based on Eschericia coli, replacing fecal coliform (see Massachusetts Surface Water Quality Standards, 314 CMR 4.05(3)(b)(4)).

The draft permit therefore includes water quality-based effluent limitations for E.coli bacteria, replacing the fecal coliform bacteria limits in the current permit. Pursuant to both MassDEP and EPA guidance, mixing zones for bacteria are not allowed, so the E.coli limits were not calculated using a dilution factor. E. coli limits in the draft permit are a monthly geometric mean of 126 cfu/100 ml mean and a maximum daily limit of 409 cfu/100 ml (this is the 90% distribution of the geometric mean of 126 cfu per 100 ml).

Monitoring frequency remains the same as under the current permit at 1 per week.

E. Phosphorus

The existing limit for total phosphorous are from the MassDEP Report Titled *Total Maximum Daily Loads of Phosphorous for Selected French Basin Lakes (MA 42003-2002-28 May 28, 2002)*. The TMDL report included effluent limits based on both the prior discharge location, and on the relocation of the Leicester treatment plant's outfall to a point below Dutton Pond. This relocation was completed in 2009. The limitations in this case would be 0.26 kg/day in the summertime (0.2 mg/l at 0.35 MGD) in order to meet the TMDL for Greenville Pond. The permit therefore continues the monthly average phosphorus limit of 0.2 mg/l for the period April through October.

Surface waters can also be affected by the year-round accumulation of phosphorus in sediments. The accumulated phosphorus can be released during warmer water temperatures and contribute to algal growth. Studies in other watersheds indicate that higher winter period phosphorus loadings likely accumulate in downstream sediments and can exacerbate summertime impairment. See, e.g., *Assabet River, Massachusetts Sediment and Dam Removal Feasibility Study* (September 2009). Consequently, the draft permit establishes a new 1.0 mg/l phosphorus limit for the period of November through March. It also includes a reporting requirement for dissolved orthophosphate for this period to confirm that the potential for phosphorus accumulation is minimized.

F. Nitrogen

It has been determined that excessive nitrogen loadings are causing significant water quality problems in Long Island Sound, including low dissolved oxygen. In December 2000, the Connecticut Department of Environmental Protection (CT DEP) completed a Total Maximum Daily Load (TMDL) for addressing nitrogen-driven eutrophication impacts in Long Island Sound. The TMDL included a Waste Load Allocation (WLA) for point sources and a Load Allocation (LA) for non-point sources. The point source WLA for out-of-basin sources (Massachusetts, New Hampshire and Vermont wastewater facilities discharging to the Connecticut, Housatonic and Thames River watersheds) requires an aggregate 25% reduction from the baseline total nitrogen loading estimated in the TMDL.

The baseline total nitrogen point source loadings estimated for the Connecticut, Housatonic, and Thames River watersheds were 21,672 lbs/day, 3,286 lbs/day, and 1,253 lbs/day respectively (see table below). The estimated current point source total nitrogen

loadings for the Connecticut, Housatonic, and Thames Rivers respectively are 13,836 lbs/day, 2,151 lbs/day, and 1,015 lbs/day, based on recent information and including all POTWs in the watershed. The following table summarizes the estimated baseline loadings, TMDL target loadings, and estimated current loadings:

Basin	Baseline Loading[1] (lbs/day)	TMDL Target[2] (lbs/day)	Existing Loading[3] (lbs/day)
Connecticut River	21,672	16,254	13,836
Housatonic River	3,286	2,464	2,151
Thames River	1,253	939	1,015
Totals	26,211	19,657	17,002

The overall TMDL target of a 25 percent aggregate reduction from baseline loadings is currently being met. In order to ensure that the aggregate nitrogen loading from out-of-basin point sources does not exceed the TMDL target of a 25 percent reduction over baseline loadings, EPA intends to include nitrogen-related conditions in permits for existing treatment facilities in Massachusetts and New Hampshire that discharge to the Connecticut, Housatonic and Thames River watersheds. For facilities discharging loads equal greater than 35 lbs/day total nitrogen, permit conditions will require the optimization of nitrogen removal with the existing treatment technology. For existing facilities discharging less than 35 lbs/day, monitoring of nitrogen discharges will be required. This is consistent with the approach applied by the Connecticut Department of Environmental Protection, which applied a threshold of 20 lbs/day (equivalent in impact to a 35 lb/day threshold at facilities upstream in MA and NH) when imposing nitrogen controls on existing facilities. See Nitrogen Control for Small Sewage Facilities (CT DEP); General Permit for Nitrogen Discharges (CT DEP 2005).

The annual average total nitrogen load from the Leicester facility is estimated to be approximate 32 lbs/day, based on annual average flow for 2008-2009 (0.25 MGD) and a nitrogen concentration equivalent to the average from MA seasonal nitrification facilities (15.5 mg/l).[4] This is below the threshold of 35 lbs/day. Therefore, the draft permit includes quarterly, year-round reporting of effluent total Kjedahl, nitrate, and nitrite nitrogen loadings and quarterly reporting of ammonia nitrogen loadings for the period, November 1 to March 31, when numerical limits are not in effect

VII. Toxic Pollutants

[1] Estimated loading from TMDL (see Appendix 3 to CT DEP "Report on Nitrogen Loads to Long Island Sound", April 1998).
[2] Reduction of 25% from baseline loading.
[3] Estimated current loading from 2004 – 2005 DMR data – see Table 2.
[4] Average total nitrogen values based on a review of 27 MA facilities with effluent monitoring data.

A. Total Residual Chlorine

The effluent limits for average monthly and maximum daily total residual chlorine (TRC) were developed using the chronic and acute TRC criteria defined in EPA's National *Recommended Water Quality Criteria: 2002*, adopted by the Massachusetts Department of Environmental Protection (MassDEP) into the state water quality standards. The criteria state that the average TRC in the receiving water should not exceed 11 ug/l for chronic toxicity protection and 19 ug/l for acute toxicity protection. Therefore the dilution factor of 1.62 in the receiving water is multiplied by the chronic and acute criteria to obtain average monthly and maximum daily effluent limitations respectively for TRC.

The average monthly TRC limit is below the analytical detection limit for this pollutant. In these situations, EPA Region I is following guidance set forth in the Technical Support Document for Water Quality-Based Toxics Control, EPA/505/2-90-001, March 1991, Page 111, which recommends ".... that the compliance level be defined in the permit as the minimum level (ML)". EPA has defined the ML as "the level at which the entire analytical system shall give recognizable signal and acceptable calibration points". The minimum level for TRC is 0.02 mg/l or 20 ug/l, and is defined as such in the draft permit. Therefore, compliance/non-compliance determinations of TRC values will be based on the Minimum Level (ML). This ML value of 20 ug/l may be reduced by permit modification as more sensitive test methods are developed and approved by the EPA and MassDEP.

Chlorine toxicity is a concern whenever chlorine may be used in the treatment process, even when this is outside the seasonal bacteria monitoring period. Therefore the draft permit includes a TRC limit on a year-round basis, but monitoring is only required when chlorine is used by the facility. This is a change from the current permit's seasonal limits. Months when chlorine is not in use should be reported on the DMRs using the No Data Indicator (NODI).

B. Copper

The draft permit contains revised limits for copper. The limits for copper in the existing permit were calculated based on the chronic and acute criteria set forth in the *National Recommended Water Quality Criteria: 2002* (EPA-822-R-02-047), pursuant to the Massachusetts Water Quality Standards in effect when the existing permit was issued in 2005. Since that time the Commonwealth of Massachusetts has issued, and EPA has approved, site specific water quality criteria for copper for the French River that are less stringent than the prior criteria.[5] The new site specific criteria for copper establish a

[5] EPA interprets the reference to the "French River" in the site-specific criteria to include the Town Meadow Brook segment to which the facility discharges. Town Meadow Brook (segment MA42-02) is the headwater stream to the French River, and the total miles specified in the site-specific criteria (20.3) indicate that both the segments identified as "French River" (MA42-03 to -06;17.8 mi) and the headwater

chronic criterion of 18.1 ug/$l_{(dissolved, "d"),}$ [6] and an acute criterion of 25.7 ug/$l_{(d)}$ in the French River. The draft permit contains effluent limits of 17.5 ug/$l_{(total\ recoverable\ "tr")}$ (monthly average) and 32.1 ug/$l_{(tr)}$ (maximum daily) that reflect the level of copper reduction that has been achieved by the facility in the period 2008-2009. The derivation of these limits is set forth below.

1. Standard for determining effluent limitations under revised water quality standard

In determining the appropriate effluent limitation in response to this revised standard, EPA must apply the requirements of the revised state standard, as set forth in the Mass DEP *Protocol for and Determination of Site-Specific Copper Criteria for Ambient Waters in Massachusetts,* January 2007 (the "site-specific protocol"), and the requirements of the anti-backsliding provisions of the Clean Water Act §§ 402(o) and 303(d)(4).

Site-Specific Protocol: In determining effluent limitations under the revised standard, the site-specific protocol allows for relaxation of permit limits to reflect the higher criteria only to the extent required to reflect the actual performance that the facility has been able to achieve. It states:

> [A]s part of the site-specific criteria, all reasonable efforts to minimize the loads of metals, and copper in this case, are part of the criteria revision protocol. So, the Department on a case-by-case basis will develop permit copper limits. Each determination will be based not only on the adjusted concentration resulting from the appropriate multiplier but will reflect the demonstrated level of copper reduction routinely achievable at the facility in order to minimize copper loads and thereby reduce its accumulation in the sediment.

Thus determination of the appropriate effluent limits under the site-specific protocol requires calculating both (i) the required effluent limits that would meet the numeric criteria (criteria-based limits) and (ii) the actual effluent concentrations achieved by the facility (performance-based limits), and selecting the more stringent of the two.

Anti-backsliding: The reissuance of a permit with less stringent effluent limits must meet

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segments (MA42-02; 1.9 miles and MA42-01; 0.5 miles) were intended to be included. 314 CMR 4.06 (Table 10).

[6] Water quality criteria for copper are expressed in terms of dissolved metals. However, permit limitations for copper are expressed in terms of total recoverable metals in accordance with the requirements of 40 CFR § 122.45(c). As such, conversion factors are used to develop total recoverable limits from dissolved criteria. The conversion factor reflects how the discharge of a particular metal partitions between the particulate and dissolved form after mixing with the receiving water. In the absence of site-specific data describing how a particular discharge partitions in the receiving water, a default assumption equivalent to the criteria conversion factor is used in accordance with the *Metal Translator Guidance for Calculating a TotalRecoverable Permit Limit from a Dissolved Criterion* (USEPA 1996 [EPA-823-B96-007]). Therefore, a conversion factor of 0.960 was used to convert between total recoverable and dissolved copper concentrations. Dissolved concentrations are denoted ug/$l_{(d),}$ while total recoverable concentrations are denoted ug/$l_{(tr)}$

the requirements of the Clean Water Act's anti-backsliding provision, § 402(o), which allows relaxation of water quality based standards only if they comply with CWA § 303(d)(4), and only if the revised limit meets current effluent guidelines and will not cause a violation of water quality standards.[7]

The standards under § 303(d)(4) differ depending on whether the receiving water is currently attaining the relevant water quality standard, so EPA first determined whether the French River downstream of the discharge is in attainment of the copper standard. As shown in Attachment A, the receiving water is currently in attainment of the water quality standard for copper. For waters in attainment of standards, an effluent limitation based on water quality standard "may be revised only if such revision is subject to and consistent with the antidegradation policy established under this section." §303(d)(2). The Massachusetts antidegradation policy is set forth in 314 CMR § 4.04, providing, *inter alia*, "[i]n all cases existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected."

The analysis under the site-specific protocol addresses the antidegradation requirement by limiting copper discharges to the levels that have historically been achieved by the facility. Because new limits will not be less stringent than the facility's current performance, the facility will not be able to scale back its efforts to reduce copper concentrations in the effluent. Therefore the less stringent limits will not have the result of worsening water quality in the receiving water, and the antidegradation requirement will be met.

In addition, a less stringent effluent limitation may in no event be implemented "if the implementation of such limitation would result in a violation of a water quality standard." CWA § 402(o)(3). The criteria-based limits represent the maximum discharge allowable that would not result in a violation of a water quality standard, thus satisfying § 402(o)(3). By selecting the more stringent of the criteria-based and performance-based criteria, this protocol ensures that all the anti-backsliding requirements are met.

2. Determination of Effluent Limitations

As set forth above, the effluent limitations are determined by calculating both (i) the required effluent limits that would meet the numeric criteria (criteria-based limits) and (ii) the actual effluent concentrations achieved by the facility (performance-based limits), and selecting the more stringent of the two.

Criteria-based calculation. The criteria-based limits are calculated based on a mass-balance equation that incorporates the relevant flows (7Q10 for the receiving water and design flow for the facility) and the background concentration in the French River (based on receiving water data from the facility WET reports). The equation is

$$Q_r C_r = Q_d C_d + Q_s C_s$$

[7] The anti-backsliding rule also contains a number of exceptions that are not applicable here. *See* CWA § 402(o)(2); 40 CFR § 122.44(l).

Which was rearranged as:

$$C_d = (Q_rC_r - Q_sC_s)/Q_d$$

Where:

Q_s = receiving water flow upstream of the discharge (7Q10 flow) = 0.33 cfs
C_s = copper concentration upstream of the discharge = 2 µg/l$_{(tr)}$
Q_r = receiving water flow downstream from the discharge = $Q_r = Q_d + Q_s$ = 0.87 cfs
C_r = copper concentration downstream from the discharge = set equal to criteria (expressed as total recoverable copper by dividing by conversion factor of 0.96)
Q_d = design flow of the facility = (0.35 MGD * 1.547) = 0.54 cfs
C_d = copper concentration in the discharge = effluent limit (being solved for)

The resulting criteria-based limits are:

Monthly average (chronic):

C_d = [(0.87 cfs)(18.1 µg/l)/0.96 - (0.33 cfs)(2 µg/l)] /0.54 cfs
C_d = 29.1 µg/l$_{(tr)}$

Maximum daily (acute):

C_d = [(0.87 cfs)(25.7 µg/l)/0.96 - (0.33 cfs)(2 µg/l)] /0.55 cfs
C_d = 41.9 µg/l$_{(tr)}$

Performance-based calculation. The level of copper removal routinely achieved by the facility (i.e., the past demonstrated performance of the facility) is determined by a statistical analysis of the facility's discharge data over the two year period from January 2008 through December 2009 (Table 3) as provided by the facility, using the methodology set forth in the *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001 (March 1991) (Appendix E). The average monthly and maximum daily limits are based on the 95th and 99th percentile of a lognormal distribution based on the facility's daily effluent data as shown in Attachment B. These calculations indicate that limits based solely on past performance would result in a monthly average limit of 17.5 µg/l and a maximum daily limit of 32.1 µg/l.

Resulting Effluent Limitation. As noted above, pursuant to the site-specific protocol effluent limits will be relaxed only to the more stringent of the criteria-based or performance-based limits. In this case the limits calculated based on the Leicester WSD facility's performance are the more stringent, so the resulting effluent limits are based on the facility's performance and are as follows:

Monthly average: 17.5 µg/l$_{(tr)}$
Maximum daily: 32.1 µg/l$_{(tr)}$

A mass-based limit is also set in accordance with 40 CFR §122.45(f) as follows:

0.35 mgd x 0.0175 mg/l x 8.34(lb)(l)/(mg)(gal) = 0.05 lbs/day

Monitoring frequency: The required monitoring frequency is increased to 2/month to provide a more consistent picture of the facility's performance; this is more frequent than the requirement in the current permit but less frequent than the facility's actual monitoring practice during the period 2008-2009.

C. Other metals

EPA reviewed analytical data submitted in connection with the Leicester WET Reports to determine whether the facility discharges toxic metals. Data from the period August 2004 through May 2009 are set forth in Table 2, along with the relevant water quality criteria for each parameter. Of the metals tested, only aluminum is present in the effluent at levels that present a reasonable potential for exceedance of water quality criteria.

Reported concentrations of aluminum in the effluent have been as high as 0.59 mg/l, with several results with concentrations of 0.2 mg/l or above. These values far exceed the chronic water quality criterion of 0.087 mg/l and would result in excursions above the chronic water quality criterion under 7Q10 conditions. The reported concentrations do not indicate a reasonable potential to exceed the acute water quality criterion for aluminum (0.75 mg/l).

As the data demonstrate a reasonable potential to exceed the chronic water quality criteria for aluminum, an effluent limit must be set. 40 C.F.R. §122(d)(iii). The receiving water does not provide dilution of aluminum discharges with respect to the chronic criterion, as the WET Reports show numerous dates where receiving water concentrations are at or above that criterion. See Table 2. Therefore the average monthly effluent limit for aluminum is set at the criterion level of 0.087 mg/l.

The high effluent concentrations have all occurred during the phosphorus treatment seasonal period and appear to be related to the use of aluminum compounds for phosphorus control. Therefore, the aluminum effluent limitation is in effect only during months when aluminum is used in the treatment process, and sampling for aluminum must occur concurrently with sampling for phosphorus.

A mass-based limit is also set in accordance with 40 CFR §122.45(d) as follows:

0.35 mgd x 0.087 mg/l x 8.34(lb)(l)/(mg)(gal) = 0.25 lbs/day

D. Whole Effluent Toxicity

National studies conducted by the Environmental Protection Agency have demonstrated that domestic sources contribute toxic constituents to POTWs. These constituents include metals, chlorinated solvents and aromatic hydrocarbons among others. The Region's current policy is to include toxicity testing requirements in all municipal

permits, while Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts.

Based on the potential for toxicity resulting from domestic and industrial contributions, and in accordance with EPA regulation and policy, the draft permit includes chronic and acute toxicity limitations and monitoring requirements. See, e.g., "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants", 50 Fed. Reg. 30,784 (July 24, 1985); see also Technical Support Document for Water Quality-Based Toxics Control (EPA, 1991). EPA Region I has developed a toxicity control policy which requires wastewater treatment facilities to perform toxicity bioassays on their effluents. The principal advantages of biological techniques are: (1) the effects of complex discharges of many known and unknown constituents can be measure only by biological analyses; (2) bioavailability of pollutants after discharge is best measured by toxicity testing including any synergistic effects of pollutants; and (3) pollutants for which there are inadequate chemical analytical methods or criteria can be addressed. Therefore, toxicity testing is being used in conjunction with pollutant specific control procedures to control the discharge of toxic pollutants.

The current permit requires chronic toxicity testing two times per year, and acute toxicity testing an additional two times per year, on a single species. The facility has had no excursions below the permit limit in the past five years and EPA is therefore reducing this requirement to chronic (and modified acute) testing two times per year, in May and August.

VIII. Operation and Maintenance Requirements

The permit standard conditions for 'Proper Operation and Maintenance' are found at 40 CFR § 122.41(e). These require proper operation and maintenance of permitted wastewater systems and related facilities to achieve permit conditions. Similarly, the permittee has a ' duty to mitigate' as stated in 40 CFR § 122.41(d). This requires the permittee to take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment. EPA and MassDEP have included specific operation and maintenance requirements for the wastewater treatment plant and collection system. These requirements may be found in Part I.C. of the permit and include requirements for adequate staffng, preventative maintenance, infiltration and inflow (I/I) control, and alternate power needed at pump stations.

Of these requirements, only the I/I control requirements apply specifically to the collection system. EPA and MassDEP have determined that an I/I removal program is an integral component to ensure permit compliance. I/I is extraneous water entering the wastewater collection system through a variety of sources. Infiltration is groundwater that enters the collection system though physical defects such as cracked pipes, or deteriorated joints. Inflow is extraneous flow entering the collection system through point sources such as roofleaders, yard and area drains, sump pumps manhole covers, tide gates, and cross connections from storm water systems. Significant I/I in a collection

system may displace sanitary flow reducing the capacity and the efficiency of the treatment works and may cause bypasses of secondary treatment. It greatly increases the potential for sanitary sewer overflows in separate systems and combined sewer overflows in combined systems. The permittee shall develop an I/I removal program commensurate with the severity of the I/I in the collection system. Where portions of the collection system have little I/I, the control program will logically be scaled down

The MassDEP has stated that inclusion of the I/I conditions in the draft permit shall be a standard State Certification requirement under Section 401 of the Clean Water Act and 40 CFR §124.55(b).

IX. Monitoring and Reporting

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 requiring that, beginning no later than one year after the effective date of the permit, the permittee submit all monitoring data and all other reports required by the permit to EPA using NetDMR. NetDMR is a national web-based tool for submittal of discharge monitoring reports (DMRs) and other data electronically via a secure Internet application. 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.

NetDMR access and additional information can be found at http://www.epa.gov/netdmr. EPA currently conducts free training on the use of NetDMR; to participate, visit http://www.epa.gov/netdmr for contact information for Massachusetts.

The Draft Permit also includes an "opt-out" request process for permittees who can demonstrate a reasonable basis (such as technical infeasibility) that precludes the use of NetDMR. Opt-out requests must be submitted in writing 60 days in advance and approved opt-outs must be renewed annually following the procedures set forth in the Draft Permit.

X. Sludge

Section 405(d) of the Clean Water Act (CWA) requires that EPA develop technical standards regulating the use and disposal of sewage sludge. These regulations, found at 40 CFR Part 503, regulate the use and disposal of domestic sludge that is land applied, disposed in a surface disposal unit, or fired in a sewage sludge incinerator. Part 503 regulations have a self-implementing provision; however, the CWA requires implementation through permits.

The draft permit has been conditioned to ensure that sewage sludge use and disposal practices meet the CWA Section 405(d) Technical Standards and the 40 CFR Part 503 regulations. EPA encourages the permittee to make use of the guidance document entitled "EPA Region I NPDES Permit Sludge Compliance Guidance, November 1999" (http://www.epa.gov/region1/npdes/permits/generic/sludgeguidance.pdf), prepared for use by permittees in helping to determine the appropriate sludge conditions for the chosen method of sewage sludge use or disposal practices.

The permittee is required to submit an annual report to EPA and MassDEP by **February 19th** of each year, containing the information specified in the 40 CFR Part 503 (see the sludge compliance guidance document for additional guidance) for the permittee's chosen method of sludge disposal.

XI. Essential Fish Habitat and Endangered Species Determination

Under the 1996 Amendments (PL 104-267) to the Magnusun-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Services (NMFS) if EPA's action or proposed actions that it funds, permits, or undertakes, "may adversely impact any essential fish habitat," (16 U.S.C. § 1855(b)). Essential fish habitat (EFH) 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. The French River is not covered by the EFH designation for riverine systems and thus EPA and MassDEP have determined that a formal EFH consultation with NMFS is not required.

Section 7(a)(2) of the Endangered Species Act (ESA) of 1973 requires every Federal agency, in consultation with and with the assistance of the Secretary of the Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any threatened or endangered species of fish, wildlife, or plants ("listed species") or result in the destruction or adverse modification of habitat of such species that have been designated as critical ("critical habitat"). EPA and the MassDEP have determined that an ESA consultation is not required for this discharge, since no listed species or critical habitat are located in an area that could be affected by the Leicester facility's discharge.

The permittee should contact the State regarding a Massachusetts Natural Heritage and Endangered Species Program (NHESP) review.

XII. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection certifies that the effluent limitations included in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The MassDEP has reviewed the draft permit and advised EPA that the limitations are adequate to protect water quality and continue to meet the

requirements of the antidegradation policy. EPA has requested permit certification by the State pursuant to 40 CFR §124.53 and expects the draft permit will be certified.

XIII. Comment Period and Procedures for Final Decision

All persons, including applicants, who believe any condition of the 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 Susan Murphy, Permit Writer, at the U.S. Environmental Protection Agency, 5 Post Office Square, Suite 100 (OEP6-1), Boston, MA 02109. 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 to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on the draft permit the Regional Administrator 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 the public hearing, if held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and to each person who has submitted written comments or requested notice.

XIV. Contacts

Requests for additional information or questions concerning the draft permit may be addressed Monday through Friday, between the hours of 9:00 a.m. and 5:00 p.m., to :

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July 27, 2010
Date

Stephen Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

Attachments:
Table 1. Two Year Facility DMR Data
Table 2. WET Report Analytical Data
Table 3. Facility Copper Discharge Data, 2008-2009
Figure 1. Facility Process Flow Schematic
Figure 2. Location Map
Attachment A. Current attainment calculation - copper
Attachment B. Statistical analysis of facility discharge data for copper

Leicester Water Supply District Treatment Facility
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Table 1 (page 1 of 2)
Two year facility DMR Data

	Flow		BOD			TSS			pH	
	12mo avg (MGD)	max (MGD)	mo avg (mg/l)	max (mg/l)	% rem	mo avg (mg/l)	max (mg/l)	% rem	min	max
Sampling Frequency:	CONTINUOUS		2/WEEK			2/WEEK			1/DAY	
January 2008	0.22	1.33	4.83	6.8	96.94	4.62	10.4	96.41	6.12	6.95
February	0.24	1.3	6.11	7.6	95.78	14.94	24.3	85.1	6.4	7.08
March	0.36	1.3	15.44	25.4	85.97	13.73	22.4	85.19	6.55	7.05
April	0.23	1.33	7.5	17	94.05	4.82	13	95.77	6.73	7.12
May	0.23	0.73	5.09	6	97	2.79	6	98.01	6.7	7.35
June	0.22	924	5.14	7.5	97.2	2.21	4.8	98.89	7.05	7.53
July	0.23	0.5	3.66	5	97.8	1.09	2.2	99.29	6.77	7.24
August	0.23	0	4.25	6	97.4	0.95	1.8	99.3	6.95	7.23
September										
October	0.24	0.29	4.79	9.5	98	0.81	1.4	99.5	6.85	7.12
November	0.25	1.3	4.9	7	96.8	1.26	5.4	99.18	6.95	7.3
December	0.26	0.9	4.62	8	96.6	1.07	3.8	98.71	6.89	7.11
January 2009	0.25	0.69	6.34	10	96.6	3.62	5.2	97.6	6.79	7.12
February	0.25	1.33	6.74	16	95.49	1.42	2.4	98.98	6.8	7.36
March	0.25	0.92	7.79	10	95.63	3.98	11	96.45	607	7.05
April	0.24	1.3	7.37	10.5	94.76	6.8	11.8	94.59	6.54	7.23
May	0.24	0	9.09	13	94.7	6.51	15.4	95.79	6.96	7.07
June	0.25	0	9	13.4	95.3	3.19	8.2	97.3	6.6	7.26
July	0.25	1.33	8.87	15	94.5	4.7	13.6	96.35	6.77	7.2
August	0.23	0.86	6.48	9.5	96.6	1.57	3	99.19	6.88	7.1
September	0.23	1.33	4.91	6	96.57	0.5	1.4	99.7	6.93	7.25
October	0.25	0.92	7.38	10		2.48	7.2		6.95	7.25
November										
December	0.24	0.92	14.34	65	95.6	4.01	10.2	96.96	6.74	7
Average:	0.25		7.0		95.7	4.0		96.6		
Maximum:		924		65.00			24.30		6.86 (min)	7.53

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Table 1 (page 2 of 2)
Two year facility DMR Data

	fecal colilform		NH3		DO	Total P	TRC		Cu	
	avg (cfu/100ml)	max (cfu/100ml)	mo avg (mg/l)	max (mg/l)	min	avg (mg/l)	avg (mg/l)	max (mg/l)	avg (ug/l)	max (ug/l)
Sampling Frequency:	1/WEEK		2/WEEK		1/WEEK	2/WEEK	1/DAY		1/MONTH	
January 2008									6.95	7.8
February									5.5	6
March									1.5	2
April	2.25	9	7.62	9.3	6	0.19	0.03	0.08	5	8.9
May	0	0	3.6	3.7	5.45	0.2	1.3	1.4	1.3	1.4
June	0	0	1.97	2.3	5.91	0.15	0.03	0.05	2	2.2
July	0	0	0.36	0.93	5.05	0.14	0.02	0.04	3.75	4.1
August	0	0	0.1	0.46	5.96	0.15	0.03	0.05	6.7	6.7
September										
October	0	0	0.14	0.32	5.95	0.14	0.03	0.05	1	1
November									7.05	7.4
December									7.65	8
January 2009									0	9.4
February									5.5	6
March									9	10
April	1	2	8.96	14.56	5.4	0.16	0.05	0.21	3.5	5
May	1	2	4.73	5.18	5.2	0.15	0.03	0.06	9	9
June	1	2	2.77	6.16	5.24	0.09	0.02	0.04	5.45	6.5
July	0	0	1.82	2.3	5.23	0.14	0.02	0.06	5.8	7
August	0	0	1.4	1.68	5.87	0.14	0.03	0.04	4.3	4.5
September	0	0	0.05	0.05	5.05	0.13	0.02	0.04	6.4	6.4
October	0	0	2.82	10	5.61	0.1	0.03	0.08	3.4	4.5
November										
December									6	8.2
Average:			2.80			0.14	0.13	0.17	4.85	
Maximum:		9.00		14.56						10.00

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Table 2
WET Report Analytical Data

	Effluent Analytical Data							Receiving Water Analytical Data						
	Hardness	Al	Cd[1]	Cu	Ni	Pb[1]	Zn	Hardness	Al	Cd[1]	Cu	Ni	Pb[1]	Zn
8/24/2004	99	0.03	-0.001	0.031	0.031	-0.001	0.04	19	0.06		-0.005	-0.01	-0.005	-0.01
11/29/2004	88	0.06	-0.005	0.011	0.011	-0.005	0.03	17	0.09		-0.005	-0.005	-0.005	-0.02
2/16/2005	93	0.05	-0.005	0.0088	0.0088	-0.005	0.0344	30	-0.02		-0.0025	-0.005	-0.005	0.0063
6/6/2005	102	0.18	-0.001	0.0082	0.0082	-0.005	0.0263	16	0.05		-0.0025	-0.005	-0.005	0.0077
9/12/2005	115	0.15	-0.001	0.0051	0.0051	-0.005	0.0581	16	0.05		-0.0025	-0.005	-0.005	-0.0025
11/15/2005	98	0.04	-0.001	0.0063	0.0063	-0.005	0.054	16	0.12		-0.0025	-0.005	-0.005	0.0094
2/6/2006	82	0.031	-0.001	0.008	0.008	-0.001	0.016	14	0.233		0.003	-0.001	-0.001	0.007
5/15/2006	76	0.476	-0.001	0.012	0.012	-0.001	0.019	14	0.064		0.005	-0.001	-0.001	0.009
8/8/2006	108	0.176	-0.001	0.009	0.009	-0.001	0.067	22	0.046		0.002	-0.001	-0.001	0.004
11/13/2006	84	0.049	-0.001	0.008	0.008	-0.001	0.028	14	0.088		0.002	-0.001	-0.001	0.004
2/6/2007	88	0.001	-0.001	0.018	0.018	-0.001	0.053	16	0.107		0.001	-0.001	-0.001	0.005
5/7/2007	105	0.59	-0.001	0.009	0.009	-0.001	0.038	16	0.058	-0.001	-0.001	-0.001	-0.001	0.002
8/13/2007[2]	*112*	*0.204*	*-0.001*	*0.027*	*0.027*	*-0.001*	*0.232*	*20*	*0.111*		*0.02*	*0.002*	*-0.001*	*0.127*
11/14/2007	109	0.075	-0.001	0.012	0.012	-0.001	0.067	14.3	0.025		0.001	-0.001	0.002	0.002
9/22/2008	74	0.065	-0.001	0.016	0.002	-0.001	0.047	20	0.052	-0.001	-0.001	-0.001	-0.001	0.006
11/10/2008	94	0.044	-0.001	0.006	0.001	-0.001	0.076	14	0.056	-0.001	-0.001	-0.001	-0.001	0.003
2/11/2009	100	0.042	-0.001	0.018	0.004	-0.001	0.038	18	0.086	-0.001	-0.001	-0.001	-0.001	0.006
5/11/2009	87	0.26	-0.0005	0.014	0.004	-0.0005	0.05	16	0.06	-0.0005	0.002	0.002	0.006	0.004
Average[2]	94.235	0.136	ND	0.012	0.009	ND	0.044	17.194	0.072	ND	0.002	ND	ND	0.006
Max		0.59	ND	0.031	0.0310	ND	0.0760		0.233	ND	0.005	0.002	0.006	0.0090
Chronic Criterion[3]		0.087	0.0002		0.036	0.002	0.08		0.087	0.0000		0.000	0.000	0.00
Acute Criterion[3]		0.75	0.0014		0.326	0.047	0.08		0.75	0.0000		0.000	0.000	0.00

[1] Non-detects noted as " - [minimum detection level]"

[2] Data from 8/13/2007 excluded from analysis; unusually high values of Zn for both effluent and receiving water appear to indicate contamination or other sampling or lab error

[3] Samples at or below minimum detection level (MDL) are assumed to be at MDL in calculating average

4 Criteria for Cd, Cu, Ni, Pb and Zn are hardness dependent and calculated using the formulas set forth in the *National Recommended Water Quality Criteria 2002* (EPA 2002) at a hardness of 65 (based on average hardness of combined receiving water and effluent from WET report analytical data, assuming 7Q10 dilution conditions).

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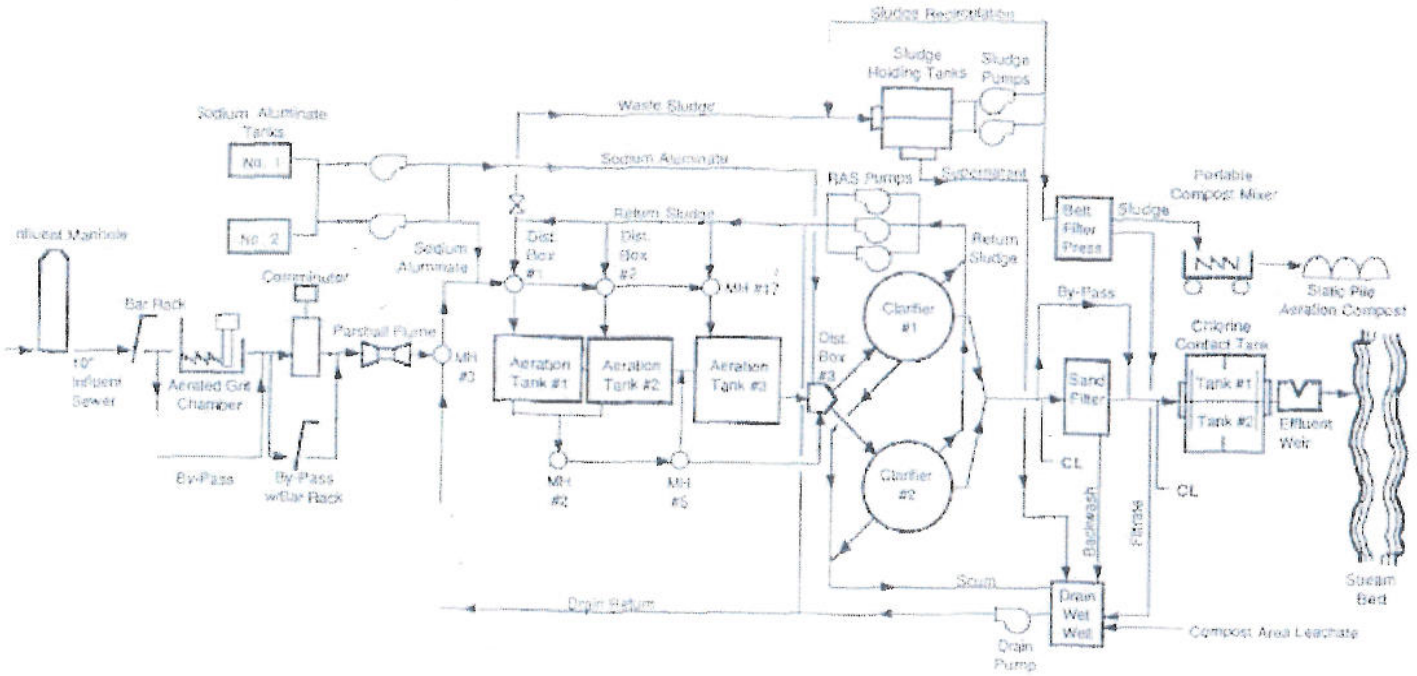
Table 3. Facility Discharge Data, 2008-1009

Date	Cu (ug/L)
1/2/2008	6.1
1/9/2008	10
1/30/2008	10
2/1/2008	14
2/6/2008	13
3/5/2008	2
3/7/2008	1
4/4/2008	1
4/9/2008	8.9
5/7/08	12
5/28/08	16
6/3/08	22
6/6/08	21
6/25/08	4
6/27/08	3
7/2/08	3
7/17/08	10
8/11/08	6.7
8/27/08	9.8
8/29/08	8.6
9/3/08	6.4
9/20/08	11
10/1/08	11
10/29/08	7.4
11/4/08	9.7
11/7/08	6.7
11/14/08	7.8
11/19/08	6.0
11/21/08	5.2
12/3/08	7.3
12/5/08	8.0

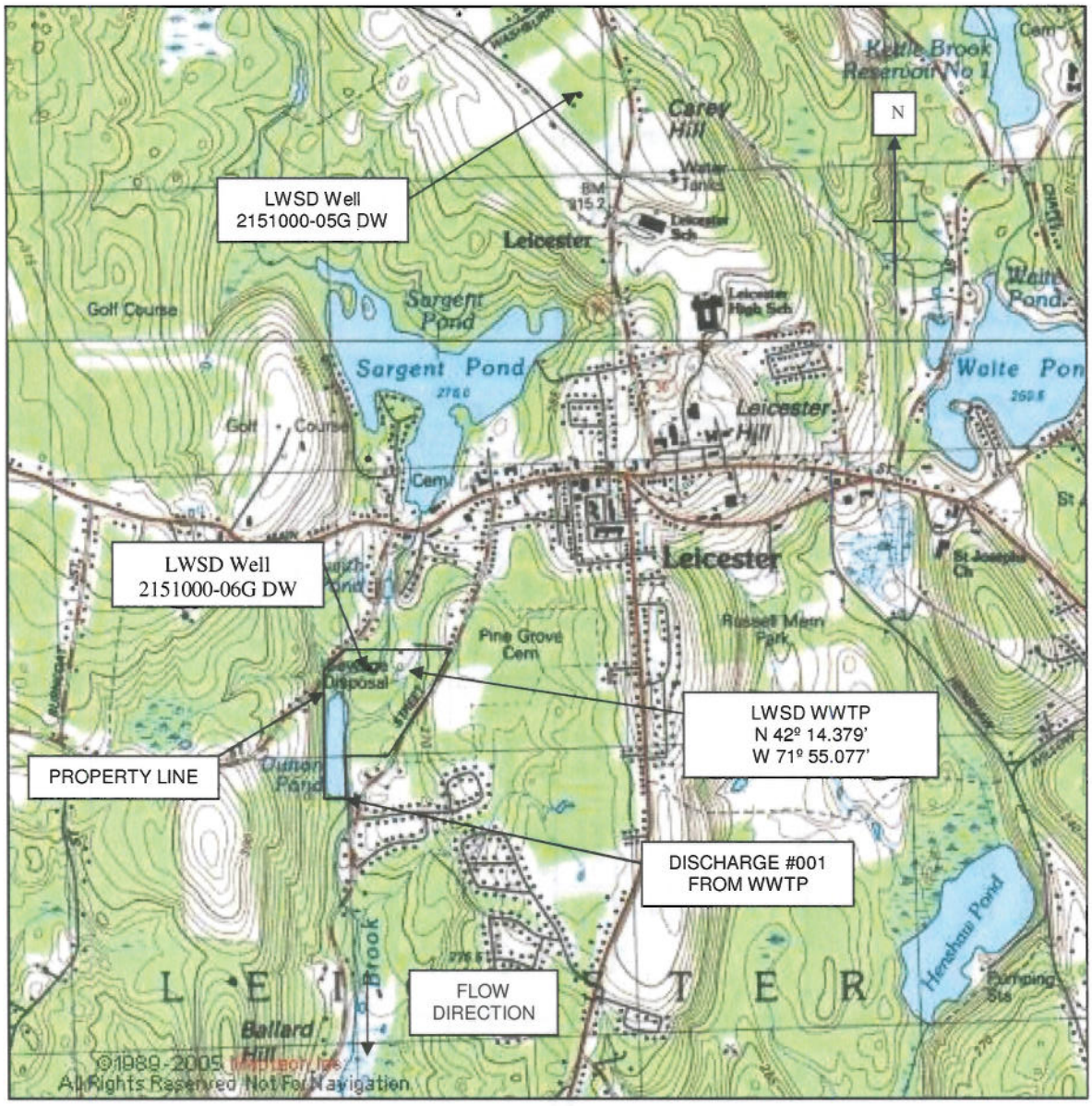
Date	Cu (ug/L)
1/1/09	11.0
1/7/09	9.4
2/2/09	6.0
2/4/09	17.0
2/11/09	11.0
3/4/09	17.0
3/6/09	11.0
3/11/09	9.3
3/25/09	11.0
4/15/09	15.0
4/22/09	14.0
4/29/09	9.4
5/1/09	9.0
5/3/09	15.0
5/8/09	12.0
6/3/09	4.4
6/5/09	6.5
7/1/09	6.4
7/8/09	4.8
8/5/09	4.5
8/7/09	4.2
9/2/09	7.2
9/4/09	8.2
10/7/09	2.3
10/9/09	4.5
11/4/09	6.4
11/6/09	5.6
12/2/09	8.2
12/4/09	3.7



Leicester Water Supply WWTP

Process Flow Schematic

Attachment 5



LOCATION PLAN – LEICESTER WATER SUPPLY DISTRICT WWTP

SCALE – 1" = 2000'

Calculation to determine whether receiving water is currently in attainment of water quality standard for copper.

No monitoring data is available downstream of the discharge, so the downstream concentration is estimated using a mass balance equation incorporating current flows and concentrations for the discharge and receiving water. The equation is:

$Q_rC_r = Q_dC_d + Q_sC_s$

Which was rearranged as:

$C_r = Q_sC_s + Q_dC_d / Q_r$

Where:

Q_s = receiving water flow upstream of the discharge (7Q10 flow) = 0.33 cfs
C_s = copper concentration upstream of the discharge = 2 µg/$l_{(tr)}$
Q_d = average current flow of the facility = (0.25 MGD * 1.55) = 0.39 cfs
C_d = 99th percentile copper concentration in the discharge = 32.1 µg/$l_{(tr)}$
Q_r = receiving water flow downstream from the discharge = $Q_r = Q_d + Q_s$ = 0.72 cfs
C_r = [(0.33 cfs * 2 µg/$l_{(tr)}$) + (0.39 cfs * 32.1 µg/$l_{(tr)}$)] / 0.72 cfs
C_r = 18.3 ug/$l_{(tr)}$
C_r = (18.3 µg/$l_{(tr)}$ * 0.960) = 17.5 ug/$l_{(d)}$

Using the 99th percentile of the distribution of copper concentrations in the discharge, representative of the maximum daily discharge, the resulting concentration is below both the acute (25.7 ug/$l_{(d)}$) and chronic (18.1 ug/$l_{(d)}$) water quality criteria.[i] The receiving water is in attainment of the water quality standard for copper.

[i] Note the 95th percentile concentration is generally used to determine whether there is an exceedance of the chronic criterion; that calculation is not done here because the chronic criterion is met even at the higher 99th percentile concentration.

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Fact Sheet Attachment B

Daily Maximum Concentration - 99th percentile

u_y = Avg of Nat. Log of daily Discharge (ug/l) =	2.00615
σ_y = Std Dev. of Nat Log of daily discharge =	0.62868
$\Sigma (y_i - u_y)^2$ =	23.31890
k = number of daily samples =	60
σ_y^2 = estimated variance = $(\Sigma[(y_i - u_y)^2]) / (k-1)$ =	0.39524

RP analysis/Limit calculation:

99th percentile daily max limit = $\exp(u_y + 2.326*\sigma_y)$

Daily Max Limit* = 32.09 ug/L

TSD-Table E-1, no ND, 99th percentile

Average Monthly Concentration - 95th percentile

Number of samples per month, n =	2
E(x) = Daily Avg = $\exp(u_y + 0.5 \sigma_y^2)$ =	9.05908
V(x) = Daily Variance = $\exp(2u_y + \sigma_y^2) * [\exp(\sigma_y^2) - 1]$ =	39.78064
σ_n^2 = Monthly Average variance = $\ln\{ V(x) / (n[E(x)]^2) + 1\}$ =	0.21702
σ_n = Monthly Average standard deviation = $\sigma_n^{2}\text{^}(0.5)$ =	0.46585
u_n = n-day monthly average = $\ln(E(x)) - 0.5\sigma_n^2$ =	2.09526

RP analysis/Limit calculation:

95th percentile monthly average limit = $\exp(u_n + 1.645*\sigma_n)$

Monthly Avg Limit* = 17.49 ug/L

TSD-Table E-2, no ND, 95th percentile

**TSD Table 3-1
***TSD Table 3-2