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),

Oxford-Rochdale Sewer District
P.O. Box 246
Rochdale, MA 01542

is authorized to discharge from the facility located at

Oxford-Rochdale Wastewater Treatment Facility
28 Cummins Road
Oxford, MA 01540

to receiving water named **French River**

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 last day of the month preceding the effective date.

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

This permit consists of 15 pages in Part I including effluent limitations, monitoring requirements, Attachment A – Toxicity Protocol, Attachment B – Sludge Guidance, Attachment C – Summary of Report Submittals and Part II including General Conditions and Definitions.

Signed this 30th day of July 2010

/S/SIGNATURE OF FILE

_____	_____
Director	Director
Office of Ecosystem Protection	Division of Watershed Management
Environmental Protection Agency	Department of Environmental Protection
Boston, MA	Commonwealth of Massachusetts
	Boston, MA

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number 001. Such discharge shall be limited and monitored by the permittee as specified below for the period from **November 1- March 31**:

Effluent Characteristic	Discharge Limitations			Monitoring Requirement	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[3]
Flow, MGD	0.50 Report	---- ----	Report -----	Continuous	See Footnote 2
BOD[4], mg/l lbs/day	30 125	45 188	Report Report	1/Week	24 Hour Composite[5]
TSS[4], mg/l lbs/day	30 125	45 188	Report Report	1/Week	24 Hour Composite[5]
pH,[1] s.u.	----	See I.A.3.b	----	1/Day	Grab
Total Copper, ug/l	28	-----	38	1/Month	24 Hour Composite[5]
Total Phosphorus, mg/l	1.0	----	----	1/Week	24 Hour Composite[5]
Dissolved Orthophosphate, mg/l	Report	----	----	1/Week	24 Hour Composite[5]
LC50[8, 9,11]	----	----	$\geq$100%	4/Year	24 Hour Composite[5]
C-NOEC [8, 10, 11]	----	----	$\geq$17%	4/Year	24 Hour Composite[5]

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning the effective date and lasting through expiration, the permittee is authorized to discharge from outfall serial number 001. Such discharges shall be limited and monitored by the permittee as specified below for the period from **April 1-October 31**:

Effluent Characteristic	Discharge Limitations			Monitoring Requirement	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[3]
Flow, MGD	0.50 Report	---- ----	Report -----	Continuous	Footnote 2
CBOD[4], mg/1 lbs/day	10 42	10 42	15 63	1/Week	24 Hour Composite[5]
TSS[4], mg/1 lbs/day	10 42	10 42	20 84	1/Week	24 Hour Composite[5]
pH,[1] s.u		See I.A.3.b		1/Day	Grab
E. Coli,[1,6]cfu/100 ml	126	----	409	1/Week	Grab
Total Residual Chlorine,[6,7]ug/1	66	----	114	1/Day	Grab
Total Copper, ug/l	28	----	38	1/Month	24 Hour Composite[5]
NH3-N, mg/1					
April 1- April 30	10	10	15	1/Week	24 Hour Composite[5]
May 1-May 31	5	5	7.5	1/Week	24 Hour Composite[5]
June 1-October 31	2	2	3	1/Week	24 Hour Composite[5]

Effluent Characteristic	Discharge Limitations			Monitoring Requirement	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type[3]
Total Phosphorus, mg/1	0.2	----	----	2/week	24 Hour Composite[5]
LC_{50}[8,9,11]	----	----	≥100%	4/Year	24 Hour Composite[5]
C-NOEC[8,10,11]	----	----	≥17%	4/Year	24 Hour Composite[5]
Dissolved Oxygen, mg/l	Report	----	Report	1/Week	Grab

Footnotes:

1. Required for state certification.

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. 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. All samples shall be 24 hour composites unless specified as a grab sample in 40 CFR §136.

4. Sampling required for influent and effluent.

5. A 24-hour composite sample will consist of at least twenty four (24) grab samples taken during one working day (e.g. 0700 Monday-0700 Tuesday).

6. E. Coli and total residual chlorine monitoring will be conducted from April 1st through October 31st, during the seasonal chlorination period. This is also a state certification requirement. E. Coli discharges shall not exceed a monthly geometric mean of 126 colony forming units (cfu) per 100 ml, nor shall they exceed 409 cfu per 100 ml as a daily maximum. E Coli samples shall be taken concurrently with a TRC sample.

7. 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 or G. One of these methods must be used to determine total residual chlorine. For effluent limitations less than 20 ug/l, compliance/non-compliance will be determined based on the ML. Sample results of 20 ug/l or less shall be reported as zero on the discharge monitoring report.

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

8. The permittee shall conduct chronic (and modified acute) toxicity tests on one specie, four times per year. The chronic test may be used to calculate the acute LC_{50} at the 48 hour exposure interval. The permittee shall test the daphnid, *Ceriodaphnia dubia*.

Toxicity test samples shall be collected during the second week of February, May, August, and November. The test results shall be submitted by the last day of the month following the completion of the test. The test results are due March 31st, June 30th, September 30th and December 31st, respectively. The tests must be performed in accordance with test procedures and protocols specified in **Attachment A** of this permit.

Test Dates Second Week in	**Submit Results By:**	**Test Species**	**Acute Limit LC_{50}**	**Chronic Limit C-NOEC**
February May August November	March 31st June 30th September 30th December31st	Ceriodaphnia dubia (daphnid) See Attachment A	100%	17%

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.

9. 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.

10. 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. However, where the test results do not exhibit a linear dose-response relationship, the permittee must report the lowest concentration where there is no observable effect. The "17% or greater" limit is defined as a sample which is composed of 17% (or greater) effluent, the remainder being dilution water. This is a maximum daily limit derived as a percentage of the inverse of the dilution factor of 6.

11. A review of the recent WET reports indicates little if any problem with the receiving water controls. This permit requires that the receiving water be used as dilution water for the WET tests. The permittee will submit a map or GIS coordinates of the receiving water sampling point with the first toxicity test under this permit. If toxicity test(s) using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow procedures outlined in **Attachment A Section IV., DILUTION WATER** in order to obtain permission to use an alternate dilution water. In lieu of individual approvals for alternate dilution water required **in Attachment A**, EPA-

NewEngland has developed a Self-Implementing Alternative Dilution Water Guidance document (called "Guidance Document") 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 the NPDES Permit Program Instructions for the Discharge Monitoring Forms (DMRs) available on the EPA Region I website at http://www.epa.gov/region1/enforcement/water/dmr.html and is not intended as a direct attachment to this permit. If this Guidance document is revoked, the permittee shall revert to obtaining approval as outlined in **Attachment A**. Any modification or revocation to this "Guidance Document" 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.3.

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 nor greater than 8.3 at any time, unless these values are exceeded due to natural causes or as a result of the approved treatment processes.

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

d. The discharge shall not cause visible discoloration of the receiving waters.

e. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both total suspended solids and biochemical oxygen demand (or carbonaceous biochemical oxygen demand (CBOD) during months when CBOD limitations are in effect.) The percent removal shall be based on monthly average values and shall be reported on the monthly DMR's.

f. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the designated flow, the permittee shall submit to the permitting authorities a projection of the loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

g. Samples taken in compliance with the monitoring requirements specified in the permit shall be taken at a representative point prior to the mixing with other streams.

h. The permittee shall minimize the use of chlorine while maintaining adequate bacteria control.

Part I.A.4. All POTWs must provide adequate notice to the Director of the following:

a. Any new introduction of pollutants into that POTW from an indirect discharger in a

primary industry category discharging process water; 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

Part I.A.5. Prohibitions Concerning Interference and Pass Through:

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

Part I.A.6. 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.

Part I.A.7. Numerical Effluent Limitations for Toxicants

EPA or DEP 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. PRETREATMENT

1. 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.

2. Industrial Pretreatment Program

Within 120 days of the effective date of the permit, the permittee shall submit the results of an industrial user survey including identification of industrial users and the character and volume of pollutants contributed to the Publicly Owned Treatment Works

(POTW) by the industrial users. The industrial user survey shall as a minimum include the following:

a Industries discharging wastes which are or may be in the future subject to local limitations or the national prohibited discharge standards found in 40 CFR Part 403.5; and

b Industries discharging wastewater from processes in one or more primary industry categories (See Appendix A to 40 CFR Part 122 or Appendix C of 40 CFR Part 403).

C. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I 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.

D. OPERATION AND MAINTENANCE OF THE SEWER SYSTEM

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

1. Maintenance Staff

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

2. Preventative Maintenance Program

The permittee shall maintain an ongoing preventative maintenance program to prevent unauthorized discharges 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 continue to control inflow and infiltration into its collection system and shall update its infiltration and inflow (I/I) control plan. **The updated 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.

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 the 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, 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. Alternative Power Source

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

E. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal and state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.

2. The permittee shall comply with the more stringent of either the state or federal (40 CFR part 503), requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to facilities which perform one or more of the following 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 40 CFR Part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not 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 permittee shall use and comply with the attached compliance guidance document to determine appropriate conditions. Appropriate conditions contain the following elements:

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

   Depending upon the quality of material produced by a facility, all conditions may not apply to the facility.

6. The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction 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

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR 503.8.

8. The permittee shall **submit an annual report containing the information specified in the guidance by February 19.** Reports shall be submitted to the address contained in the reporting section of the permit. Sludge monitoring is not required by the permittee when the permittee is not responsible for the ultimate sludge disposal. The permittee must be assured that any third party contractor is in compliance with appropriate regulatory requirements. In such case, the permittee is required only to **submit an annual report by February 19 containing the following information:**

- Name and address of contractor responsible for sludge disposal
- Quantity of sludge in dry metric tons removed from the facility by the sludge Contractor.

F. MONITORING AND REPORTING

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

a. Submittal of Reports Using NetDMR

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

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

b. Submittal of NetDMR Opt Out Requests

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

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

And

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

c. Submittal of Reports in Hard Copy Form

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

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

The State Agency addresses are:

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

And

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

Signed and dated Industrial Pretreatment Program Reports should be sent to:

U.S. Environmental Protection Agency
Office of Ecosystem Protection
5 Post Office Square, Suite 100 (OEP06-03)
Boston, MA 02109-3912
Attn. Justine Pimpare

and

Massachusetts Department of Environmental Protection
Bureau of Waste Prevention
Industrial Wastewater Program
1 Winter Street
Boston, MA 02108

G. STATE PERMIT CONDITIONS

This discharge permit is issued jointly by the U. S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP) under federal and state law, respectively. As such, all the terms and conditions of this permit are hereby incorporated into and constitute a discharge permit issued by the Commissioner of the MA DEP pursuant to M.G.L. Chap. 21, §43.

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 an NPDES permit issued by the U.S. Environmental Protection Agency. In the event this permit is declared invalid, illegal or otherwise issued in violation of federal law, this permit shall remain in full force and effect under state law as a permit issued by the Commonwealth of Massachusetts.

Attachment C

Summary of Required Report Submittals*

Required Report	**Date Due**	**Submitted By:**	**Submitted To: ** (see bottom of page for key)**
Discharge Monitoring Report (DMR)	Monthly, postmarked by the 15th of the month following the monitoring month (e.g. the March DMR is due by April 15th.	Town of Oxford-Rochdale	1, 2, 3
Whole Effluent Toxicity (WET)Test Report (Part I.A.2)	March 31, June 30, September 30 and December 31 of each year	Town of Oxford-Rochdale	1, 2, 3
I/I Control Plan (Part I.C.3)	Within 6 months of permit effective date	Town of Oxford-Rochdale	1,2
I/I Annual Report (Part I.C.3)	By anniversary date of permit effective date of each year	Town of Oxford-Rochdale	1,2
Annual Sludge Report (Part I.D.8)	February 19 each year	Town of Oxford-Rochdale	1,2
Industrial User Survey (Part I.B.b)	Within 120 days of permit effective date	Town of Oxford-Rochdale	4,5

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

**The addresses are for the submittal of hard copies. When the permittee begins reporting using NetDMR, submittal of hard copies of many of the required reports will not be necessary. See permit conditions for details.

1. Environmental Protection Agency
   Water Technical Unit (SMR- 04)
   5 Post Office Square – Suite 100
   Boston, Massachusetts 02109 - 3912

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

3. Massachusetts Department of Environmental Protection
   Division of Watershed Management
   Surface Water Discharge Permit Program
   627 Main Street, 2nd Floor
   Worcester, Massachusetts 01608

4. U.S. Environmental Protection Agency
   Office of Ecosystem Protection
   5 Post Office Square, Suite 100 (OEP 06 – 03)
   Boston, MA 02109-3912
   Attn. Justine Pimpare

5. Massachusetts Department of Environmental Protection
   Bureau of Waste Prevention
   Industrial Wastewater Program
   1 Winter Street
   Boston, MA 02108

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 WATERS OF THE UNITED STATES.

NPDES PERMIT NO.: **MA0100170**

NAME AND ADDRESS OF APPLICANT:

Oxford-Rochdale Sewer District
P.O. Box 246
Rochdale, MA 01542

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

Oxford-Rochdale Sewer District
28 Cummins Road
Oxford, MA 01540

RECEIVING WATER: **French River (42 French MA42-03).**

CLASSIFICATION: **B: warm water fishery**
French Watershed

I. Proposed Action, Type of Facility.

The above named applicant has requested that the U.S. Environmental Protection Agency reissue its NPDES permit to discharge into the designated receiving water. 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 locations of wastewater treatment facility and effluent discharge point are shown in **Attachment A**.

II. Description of Discharge.

A quantitative description of the discharge in terms of significant effluent parameters, based on the Discharge Monitoring Reports (DMR's) from November 2007 through November 2009 are shown on **Attachment B**.

III. Limitations and Conditions.

The proposed effluent limitations, the monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

IV. Permit Basis and Explanation of Effluent Limitation Derivation.

A. Facility Description

The Oxford-Rochdale wastewater treatment facility is a 0.5 mgd (million gallon per day) advanced treatment plant that discharges to the French River. The facility includes the following unit processes: bars screen, 2 aerated lagoons, 2 secondary clarifiers, automatic backwash sand filter, chlorination/dechlorination facilities, and flow metering. Phosphorous removal is enhanced by the addition of alum. The sludge is sent to Upper Blackstone Water Pollution Abatement District for incineration.

B. Regulatory Background

EPA is required to consider technology and water quality requirements when developing permit effluent limits. Technology based treatment requirements represent the minimum level of control that must be imposed under Sections 402 and 301 (b) of the Act (see 40 CFR 125 Subpart A). For publicly owned treatment works (POTWs), technology based requirements are effluent limitations based on secondary treatment requirements of Section 301 (b) (1) (B) of the Clean Water Act (CWA) as defined in 40 CR 133.102.

Under Section 301 (b) (1) (C) of the CWA, discharges are subject to effluent limitations based on water quality standards. EPA regulations require NPDES permits to contain effluent limits more stringent than technology-based limits where more stringent limits are necessary to maintain or achieve federal or state water quality standards (40 CFR 122.44(d)(1). The Massachusetts Surface Water Quality Standards (314 CMR 4.00) include requirements for the regulation and control of toxic constituents and also require the EPA criteria, established pursuant to Section 304 (a) of the CWA, shall be used unless a site specific criteria is established.

The permit must limit any pollutant or pollutant parameter (conventional, non-conventional, toxic, and whole effluent toxicity) that is or may be discharged at a level that caused, has reasonable potential to cause, or contributes to an excursion above any water quality criterion. An excursion occurs if the projected or actual instream concentration exceed the applicable criterion (40CFR 122.44(d)(1)(i). In determining reasonable potential, EPA considers existing controls on point and non-point sources of pollution, variability of the pollutant in the effluent, sensitivity of the species to toxicity and, where appropriate, the dilution of the effluent in the receiving water.

When developing water quality-based effluent limitations (WQBELs) using numeric water quality criteria, both the acute and chronic criteria are used. These criteria are expressed in terms

of maximum allowable in-stream pollutant concentrations. Maximum daily limits are generally derived from acute aquatic life criteria, and average monthly limits are generally derived from chronic aquatic life criteria.

The segment of the French River in the vicinity of the discharge outfall is designated as a Class B water by the State of Massachusetts (314 CMR § 4.06, Table 2). The Massachusetts Surface Water Quality Standards include requirements for the regulation and control of toxic constituents and also require that EPA criteria established pursuant to Section 304(a) of the Clean Water Act ("CWA") shall be used unless site-specific criteria are established (314 CMR § 4.05(5)(e)). These requirements apply to all surface water classifications.

A permit may not be renewed, reissued, or modified with less stringent limitations or conditions than those contained in the previous permit unless in compliance with the antibacksliding requirements of the CWA. EPA's antibacksliding provisions are found in Section 402(o) and 303 (d) (4) of the CWA and in 40 CFR 122.44 (1) and restrict the relaxation of permit limits, standards, and conditions.

C. Derivation of Limits

Conventional Pollutants:

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 CFR133.102. Warm weather limits (April 1- October 31) are based on water quality and are from a 1988 (Development and Application of the Qual2E Model for the Oxford-Rochdale Wastewater Treatment Facility on the French River) waste load allocation (WLA). All effluent limitations for BOD and TSS in the draft permit are the same as the limits in the current permit.

The numerical limitations for pH and E. coli are based on state certification requirements under section 401 (a) (1) of the CWA, as described in 40 CFR 124.53 and 124.55. Limitations on E.coli bacteria replace the limitations on fecal coliform bacteria found in the current permit. The bacterial indicator has been changed to conform to the Class B water quality criteria for bacteria found in the Massachusetts Water Quality Standards (314CMR 4.05(3)(b)4.) Massachusetts adopted these new criteria on December 29, 2006 and were approved by EPA on September 19, 2007.

A review of the discharge monitoring reports (DMRs) from November 2007 through November 2009 indicates that the permittee is complying with all parameters of the effluent limitations.

Nutrients:

<u>Phosphorus</u>

Phosphorus interferes with water uses and reduces in-stream dissolved oxygen. State water quality standards (314 CMR 4.05(5)(c) require any existing point source discharge containing nutrients in concentrations that will cause or contribute cultural eutrophication including excessive growth on aquatic plants or algae in any surface water, shall be provided with the most appropriate treatment to remove such nutrients.

EPA has published national guidance documents which contain recommended total phosphorus criteria and other indicators of eutrophication. In order to control eutrophication, EPA's *Quality Criteria for Water 1986* (the Gold Book) recommends that in-stream phosphorus concentrations should be less than 100 ug/l (0.100 mg/l) in streams or other flowing waters not discharging directly to lakes or impoundments.

More recently, EPA released Ecoregional Nutrient Criteria, established as part of an effort to reduce problems associated with excess nutrients in water bodies in specific areas of the country. The published ecoregion-specific criteria represent conditions in waters minimally impacted by human activities, and thus representative of water without cultural eutrophication. The Oxford-Rochdale Wastewater Treatment Facility is within Ecoregion XIV, Eastern Coastal Plain, Northeastern Coastal Zone. Recommended criteria for this ecoregion is found in *Ambient Water Quality Criteria Recommendations, Information Supporting the Development of State and Tribal Nutrient Criteria, Rivers and Streams in Ecoregion XIV*, published in December 2000, and includes a total phosphorus criteria of 23.75 ug/l (0.024 mg/l).

EPA's Gold Book criterion was developed from an effects-based approach versus the reference conditions-based approach used to develop the ecoregion criteria. The effects-based approach is taken because it is more directly associated with an impairment to a designated use (e.g. fishing). The effects-based approach provides a threshold value above which water quality impairments are likely to occur. It applies empirical observations of a causal variable (i.e. phosphorus) and a response variable (i.e. algal growth) associated with designated use impairments. Referenced-base values are statistically derived from a comparison within a population of rivers in the same ecoregional class. They are a quantitative set of river characteristics (physical, chemical, and biological) that represent minimally impacted conditions.

The limit for total phosphorous in the current permit is from a Total Maximum Daily Load (TMDL) report titled *Total Maximum Daily Loads of Phosphorous for Selected French Basin Lakes* (MA DEP, DWM TMDL Report MA42003-2002-28 May 28, 2002). As the title indicates, the report developed TMDLs for a number of lakes in the French River watershed, including Texas Pond, which is immediately downstream of the Oxford-Rochdale discharge. The phosphorus waste load allocation for the Oxford-Rochdale discharge was calculated to be 138 kg per year during the growing season of April through October (see Tables 4t(i) and 4t(ii) of the TMDL report) in order to achieve an in-lake target of 25 ug/l (see Table 3 of TMDL report)

The TMDL report stated that the Oxford-Rochdale WWTP "will be required to at least meet the new "Highest and Best" treatment standard which limits phosphorus concentrations in the discharge to 0.2 mg/l, at least during the growing season". At a monthly average concentration of 0.2 mg/l and the design flow of 0.5 MGD, the monthly discharge of phosphorus would be about

11 kg/month (.38 kg/day) or a total of about 80 kg during the 7 month growing season of April through October.

The existing permit includes a monthly average limit of 0.2 mg/l during the months of April through October for total phosphorus. This limit has been continued in the draft permit.

Surface waters can also be affected by the year-round accumulation of phosphorus. The accumulated phosphorus can be released during warmer water temperatures and contribute to algal growth. The draft report dated September 2009, titled *Assabet River, Massachusetts Sediment and Dam Removal Feasibility Study* indicates that higher winter period phosphorus loadings likely accumulate in downstream sediments and can exacerbate summertime impairment. 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 of phosphorus accumulation is minimized.

Toxic Pollutants:

Ammonia

The limits for total ammonia-nitrogen (NH_3-N) in the current permit are based on a 1988 wasteload allocation. The limits in the draft permit are the same as those in the existing permit. Control of ammonia in the discharge will also help to maintain dissolved oxygen (DO) levels in the stream. Monitoring of dissolved oxygen (DO) will continue in the draft permit.

Total Chlorine Residual

The effluent limits for average monthly and maximum daily total residual chlorine (TRC) were developed in the existing permit using the chronic and acute TRC criteria of 19 ug/l and 11 ug/l. The water quality criteria for TRC found in *National Recommended Water Quality Criteria:2002* are the same as those in the Gold Book, so the limits in the draft permit are the same as those in the current permit. See **Attachment (C**) for calculations.

The draft permit also specifies that TRC be tested using either low-level amperometric titration or the DPD spectrophotometric method. These EPA approved methods are listed in the most current edition of standard methods for the examination of Water and Wastewater as Method 4500-C1 D and Method 4500 C1 G, respectively.

Copper

The existing permit includes a daily maximum copper limit of 38 µg/l and a monthly average copper limit of 28 µg/l, which were based upon the acute and chronic copper criteria, respectively, found in the *National Recommended Water Quality Criteria: 2002* (USEPA 2002 [EPA-822-R-02-047]), in accordance with the state water quality standards See **Attachment C** for calculations.

The Massachusetts Surface Water Quality Standards were revised in December 2006 (and approved by EPA on March 26, 2007) to include a site-specific dissolved acute copper criterion of 25.7 µg/l and a site specific dissolved chronic copper criterion of 18.1 µg/l for the French River (314 CMR § 4.06, Table 28 (Site Specific Criteria)). In conjunction with the site-specific criteria, MassDEP developed guidance for implementing the revised criteria, which, among other things, provides that when adjustments to a discharger's copper limits are made pursuant to the site-specific criteria, such adjustments 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." See *Protocol for and Determination of Site-Specific Copper Criteria for Ambient Waters in Massachusetts* (the "site-specific protocol"; MassDEP January 2007).

The calculations shown in Attachment C, Table 2, show that the existing limits are more stringent than the limits based on the site specific criteria, but also show that the effluent copper concentrations produced by the wastewater treatment facility are consistently less than both the existing limits and the limits based on the site-specific criteria. Accordingly, the draft permit retains the existing monthly average limit of 28 ug/l and the existing maximum daily limit of 38 ug/l..

Whole Effluent Toxicity (WET):

The French River (receiving water) has been classified as a class B waterway by the state. The designated uses for class B waters are 1) the protection and propagation of fish, other aquatic life, and wildlife and 2) for primary and secondary contact recreation.

Under section 301 (b) (1) (C) of the CWA, discharges are subject to effluent limitations based on water quality standards require that EPA criteria established pursuant to section 304 (a) (1) of the CWA be used as guidance for interpretation of the following narrative criteria:

All surface waters shall be free from pollutants in concentrations or combinations that are toxic to humans, aquatic life or wildlife.

National studies conducted by the EPA have demonstrated that industrial and domestic sources contribute toxic constituents, such as metals, chlorinated solvents aromatic hydrocarbons, and others to POTWs. The impact of such complex mixtures is often difficult to assess. Therefore, the toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing. In addition, 40 CFR 122.44 (d) requires whole effluent toxicity limits in NPDES permits when the permittee has a reasonable potential to cause toxicity.

Therefore, the draft permit includes modified acute and chronic whole effluent toxicity limitations and monitoring requirements (see below for details). (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 EPA's Technical Support Document for Water Quality-Based Toxics Control, EPA/505-90-001). The LC50 limitation prohibits acute effects (lethality), to more that 50% of

the test organisms when exposed to POTW undiluted effluent for 48 hours. The chronic-no observed effect concentration (C-NOEC) limitation in the draft permit prohibits chronic adverse effects (e.g., on survival growth, and reproduction) when aquatic organisms are exposed to the POTW discharges at the calculated available dilution. **Attachment C** contains the calculation for chronic whole effluent toxicity (C-NOEC), which is based on the available dilution.

The modified acute and chronic toxicity tests shall be performed using the Ceriodaphnia dubia. These tests will be conducted four times per year during the second week of the months of February, May, August, and November. See the Toxicity Testing Protocol in **Attachment A** of the draft permit for a more complete description of the testing requirements. The results from these tests will be used to assure that the discharge is free from pollutants in concentrations or combinations which are toxic to aquatic life. Results are to be submitted by the last day of the months of March, June, September, and December.

As a condition of this permit, the toxicity testing requirements may be reduced by a certified letter from the EPA. This permit provision anticipates that the permittee may wish to request a reduction in WET testing. After four consecutive WET tests, demonstrating compliance with the permit limits for whole effluent toxicity, the permittee may submit a written request to EPA seeking a review of the toxicity test results. The EPA will review the test results and other pertinent information to make a decision.

The permittee is required to continue WET testing in accordance with the requirements specified in the permit until the permit is either formally modified or until the permittee receives a certified letter from the EPA indicating a change in the permit conditions.

The provision does not replace the permittee's right to request a permit modification pursuant to 40 CFR 122.62.

The permittee will submit a map or GIS coordinates of the receiving water sampling point with the first toxicity test under this permit.

Site Dilution Water Waiver:

If toxicity test(s)using receiving water as diluent show the receiving water to be toxic or unreliable, the permittee shall follow the procedures outlined in permit ***Attachment A section IV., DILUTION Water.***

D. Sewage Sludge

The Section 405 (d) of the Clean Water Act requires that sludge conditions be included in all NPDES permits. Technical sludge standards required by Section 405 of the Clean Water Act (CWA) were finalized on November 25, 1992 and were published on February 19, 1993. The regulations went into effect on March 21, 1993. Section 405 (f) of the CWA requires that these regulations be implemented through permits. The permit contains conditions requiring that the

permittee's sludge use and disposal practices comply with Section 405 (d) of the CWA and 40 CFR Part 503. .

Currently the Oxford-Rochdale Wastewater Treatment Facility transports its sludge to the Upper Blackstone Water Pollution Abatement District for incineration.

V. Pretreatment

There are currently no major industries contributing industrial wastewater to the wastewater treatment facility.

The draft permit includes conditions prohibiting the discharge of pollutants into the POTW by a non-domestic source that pass through the POTW or interfere with the operation or performance of the treatment.

VI. Antidegradation

This draft permit is being reissued with an allowable wasteload identical to the current permit and no change in outfall location. The State of Massachusetts has indicated that there will be no lowering of water quality and no loss of existing water uses and that no additional anti-degradation review is warranted.

VII. Unauthorized Discharges

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from the outfall listed in Part I 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).

VIII. Essential Fish Habitat (EFH) and Endangered Species

Essential Fish Habitat (EFH)

Under the 1996 Amendments (PL 104-267) to the Magunson-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 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 C.F.R. § 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 a formal EFH consultation with NMFS is not required because there is no essential fish habitat in the vicinity of the discharge.

Endangered Species

EPA has determined that there are no endangered species in the receiving water.

IX. State Certification Requirements

EPA may not issue a permit unless the Massachusetts Department of Environmental Protection with jurisdiction over the receiving waters 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 State Water Quality Standards. The staff of the Massachusetts Department of Environmental Protection has reviewed the draft permit. EPA has requested permit certification by the state pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

X. Public Comment Period, Public Hearing, And Procedures For Final Decision

All persons, including applicants, who believe any condition of the draft permit is inappropriate must raise all issues and submit all available arguments and a supporting material for their arguments in full by the close of the public comment period, to Suprokash Sarker, U.S. EPA, 5 Post Office Square – Suite 100, Mail Code OEP-06-1, Boston, Massachusetts 02109-3912. Any person, prior to such date, may submit a request in writing to EPA and MADEP for a public hearing to consider the draft permit. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public hearing may be held after at least thirty days public notice whenever the Regional Administrator finds that response to this notice indicates significant public interest. In reaching a final decision on 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 a public hearing, if such hearing is held, the Regional Administrator will issue a final permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice.

XI. 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 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").

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 discharge monitoring reports (DMRs) electronically via a secure Internet application to U.S. 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. NetDMR is accessed from the following url: http://www.epa.gov/netdmr Further information about NetDMR, including contacts for EPA Region 1, 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 can not 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 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.

XII. EPA Contact

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:

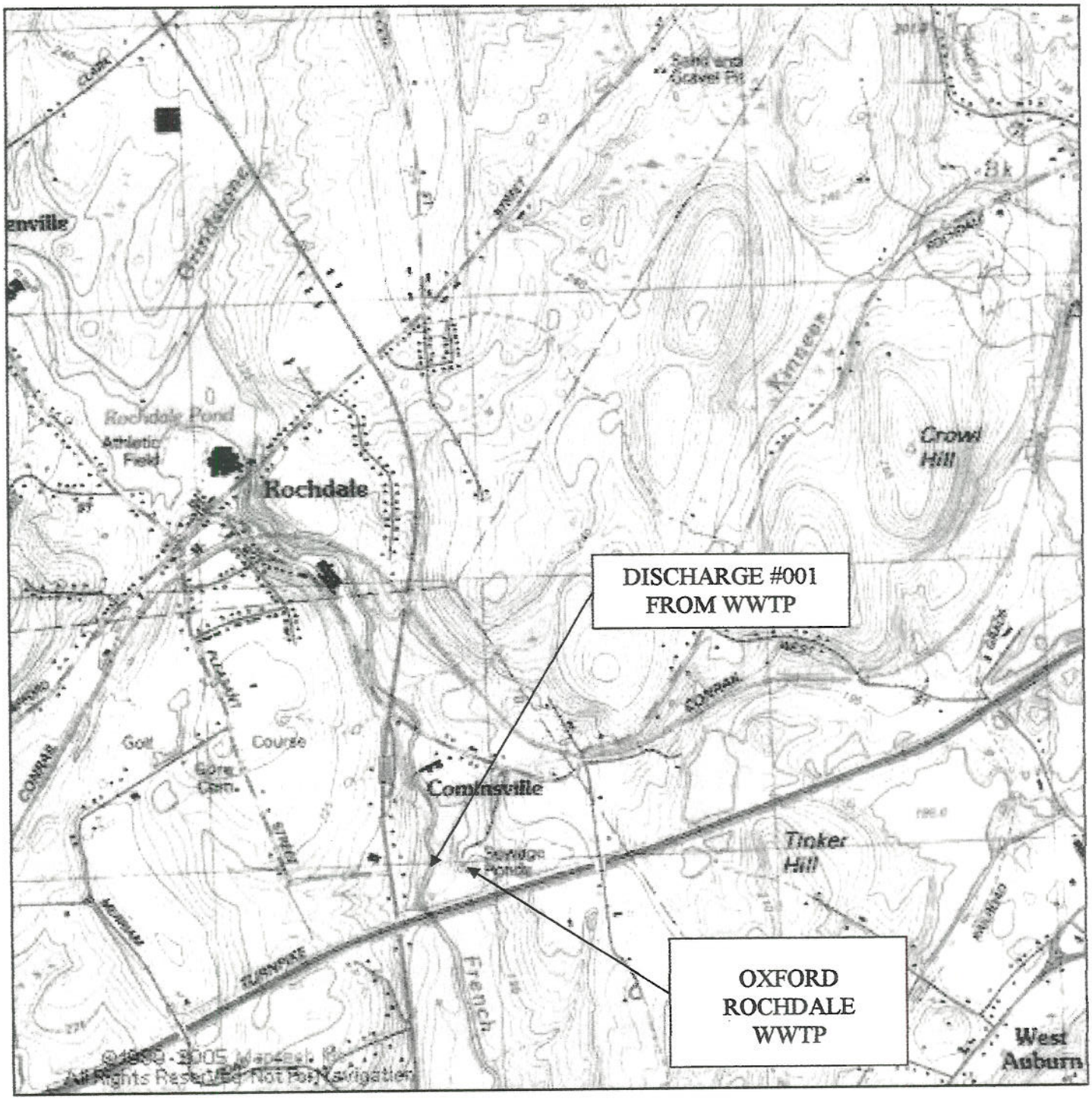
Suprokash Sarker
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Mail Code OEP-06-1
Boston, MA 02109-3912
Telephone: (617) 918-1693
E-Mail : sarker.soupy@epa.gov

_____
Date

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

Please note that Attachments A and B are not electronically available.

Attachment - A



LOCATION PLAN – OXFORD ROCHDALE WWTP

Attachment - B

'ermit Limits with DMR Violation Dat

Jan 29, 20

MA0100170 OXFORD ROCHDALE SD WWTP

001A

Monitoring Location = 1

00310 - BOD, 5-day, 20 deg. C (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--N

			Q1 125 lb/d	Q2 Req. Mon. lb/d	C1 30 mg/L	C2 45 mg/L	C3 Req. Mon. mg/L
MP Date	Rec'd Date	NODI	MO AVG	DAILY MX	MO AVG	WKLY AVG	DAILY MX
11/30/2007	12/12/2007		5.7	7.	4.8	5.9	5.9
12/31/2007	1/9/2008		10.5	13.5	7.5	9.7	9.7
1/31/2008	2/4/2008		11.8	14.9	6.7	8.4	8.4
2/29/2008	3/15/2008		25.3	26.3	7.4	7.7	7.7
3/31/2008	4/12/2008		23.4	25.7	7.2	7.9	7.9
11/30/2008	12/15/2008		12.3	18.5	4.8	7.2	7.2
12/31/2008	1/12/2009		16.1	17.4	4.9	5.3	5.3
1/31/2009	2/12/2009		14.8	21.3	7.5	10.8	10.8
2/28/2009	3/10/2009		12.7	16.4	6.6	8.5	8.5
3/31/2009	4/8/2009		16.	19.2	6.5	7.8	7.8
11/30/2009							
		Ave:	14.86	18.02	6.39	7.92	7.92

80082 - BOD, carbonaceous, 05 day, 20 C (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			Q1 42 lb/d	Q2 63 lb/d	C1 10 mg/L	C2 10 mg/L	C3 15 mg/L
MP Date	Rec'd Date	NODI	MO AVG	DAILY MX	MO AVG	WKLY AVG	DAILY MX
4/30/2008	5/9/2008		10.	12.2	3.7	4.5	4.5
5/31/2008	6/10/2008		6.6	8.1	3.	3.7	3.7
6/30/2008	7/8/2008		4.5	5.2	2.9	3.3	3.3
7/31/2008	8/6/2008		5.5	5.7	2.8	2.9	2.9
8/31/2008	9/10/2008		5.6	6.4	2.8	3.2	3.2
9/30/2008	10/14/2008		7.1	7.6	2.7	2.9	2.9
10/31/2008	11/12/2008		7.9	10.5	3.3	4.4	4.4
4/30/2009	5/8/2009		6.2	7.	2.4	2.7	2.7
5/31/2009	6/10/2009		7.8	11.5	4.9	7.2	7.2
6/30/2009	7/9/2009		3.4	4.4	2.3	3.	3.
7/31/2009	8/11/2009		5.1	5.1	2.	2.	2.
8/31/2009	9/3/2009		5.8	10.	3.3	5.7	5.7
9/30/2009	10/8/2009		6.	18.	4.7	14.	14.
10/31/2009	11/7/2009		3.1	3.1	2.	2.	2.
		Ave:	6.042857143	8.2	3.057142857	4.392857143	4.392857143

50060 - Chlorine, total residual (SNC Group = 2)

Limit Start Date = 9/1/05

Season = 0 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			C1 66 ug/L	C3 114 ug/L
MP Date	Rec'd Date	NODI	MO AVG	DAILY MX
4/30/2008	5/9/2008		11.	11.
5/31/2008	6/10/2008		11.	11.
6/30/2008	7/8/2008		11.	11.
7/31/2008	8/6/2008		11.	22.
8/31/2008	9/10/2008		11.	11.
9/30/2008	10/14/2008		11.	11.
10/31/2008	11/12/2008		11.	11.
4/30/2009	5/8/2009		11.	11.
5/31/2009	6/10/2009		11.	11.
6/30/2009	7/9/2009		11.	11.
7/31/2009	8/11/2009		11.	11.
8/31/2009	9/3/2009		11.	11.
9/30/2009	10/8/2009		11.	11.
10/31/2009	11/7/2009		11.	11.
		Ave:	11	11.78571429

74055 - Coliform, fecal general

Limit Start Date = 9/1/05

Season = 0 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			C1 200 #/100mL	C2 400 #/100mL	C3 400 #/100mL
MP Date	Rec'd Date	NODI	MO GEO	WKLY GEO	DAILY MX
4/30/2008	5/9/2008		.	.	.
5/31/2008	6/10/2008		.	.	.
6/30/2008	7/8/2008		.	.	.
7/31/2008	8/6/2008		.	.	.
8/31/2008	9/10/2008		.	.	.
9/30/2008	10/14/2008		.	.	.
10/31/2008	11/12/2008		.	.	.
4/30/2009	5/8/2009		.	.	.
5/31/2009	6/10/2009		.	.	.
6/30/2009	7/9/2009		.	.	.
7/31/2009	8/11/2009		.	.	.
8/31/2009	9/3/2009		.	.	.
9/30/2009	10/8/2009		.	.	.
10/31/2009	11/7/2009		.	.	.
		Ave:	0	0	0

01042 - Copper, total (as Cu) (SNC Group = 2)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--Apr--May--Jun--Jul--Aug--Sep--Oct--Nov--Dec-)

			C1 28 ug/L	C3 38 ug/L
MP Date	Rec'd Date	NODI	MO AVG	DAILY MX
11/30/2007	12/12/2007		6.	6.
12/31/2007	1/9/2008		10.	10.
1/31/2008	2/4/2008		10.	10.
2/29/2008	3/15/2008		2.	2.
3/31/2008	4/12/2008		.	.
4/30/2008	5/9/2008		.	.
5/31/2008	6/10/2008		.	.
6/30/2008	7/8/2008		.	.
7/31/2008	8/6/2008		5.4	5.4
8/31/2008	9/10/2008		7.	7.
9/30/2008	10/14/2008		3.	3.
10/31/2008	11/12/2008		3.	3.
11/30/2008	12/15/2008		2.	2.
12/31/2008	1/12/2009		7.	7.
1/31/2009	2/12/2009		1.	1.
2/28/2009	3/10/2009		1.	1.
3/31/2009	4/8/2009		8.	8.
4/30/2009	5/8/2009		5.	5.
5/31/2009	6/10/2009		3.	3.
6/30/2009	7/9/2009		3.	3.
7/31/2009	8/11/2009		2.	2.
8/31/2009	9/3/2009		4.	4.
9/30/2009	10/8/2009		8.	8.
10/31/2009	11/7/2009		7.	7.
11/30/2009				
		Ave:	4.058333333	4.058333333

50050 - Flow, in conduit or thru treatment plant

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--Apr--May--Jun--Jul--Aug--Sep--Oct--Nov--Dec-)

			Q1 .5 Mgal/d
MP Date	Rec'd Date	NODI	12MO AVG
11/30/2007	12/12/2007		.143
12/31/2007	1/9/2008		.167
1/31/2008	2/4/2008		.212
2/29/2008	3/15/2008		.41
3/31/2008	4/12/2008		.39
4/30/2008	5/9/2008		.325

5/31/2008	6/10/2008		.263
6/30/2008	7/8/2008		.188
7/31/2008	8/6/2008		.235
8/31/2008	9/10/2008		.238
9/30/2008	10/14/2008		.315
10/31/2008	11/12/2008		.287
11/30/2008	12/15/2008		.306
12/31/2008	1/12/2009		.394
1/31/2009	2/12/2009		.237
2/28/2009	3/10/2009		.231
3/31/2009	4/8/2009		.295
4/30/2009	5/8/2009		.31
5/31/2009	6/10/2009		.192
6/30/2009	7/9/2009		.177
7/31/2009	8/11/2009		.305
8/31/2009	9/3/2009		.21
9/30/2009	10/8/2009		.154
10/31/2009	11/7/2009		.185
11/30/2009			
		Ave:	0.257041667

00610 - Nitrogen, ammonia total (as N) (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Apr-)

			C1 10 mg/L	C2 10 mg/L	C3 15 mg/L
MP Date	Rec'd Date	NODI	MO AVG	WKLY AVG	DAILY MX
4/30/2008	5/9/2008		3.8	5.4	5.4
4/30/2009	5/8/2009		3.4	3.9	3.9
		Ave:	3.6	4.65	4.65

Season = 1 (-May-)

			C1 5 mg/L	C2 5 mg/L	C3 7.5 mg/L
MP Date	Rec'd Date	NODI	MO AVG	WKLY AVG	DAILY MX
5/31/2008	6/10/2008		1.	1.9	1.9
5/31/2009	6/10/2009		.3	.3	.3
		Ave:	0.65	1.1	1.1

Season = 2 (-Jun--Jul--Aug--S

			C1 2 mg/L	C2 2 mg/L	C3 3 mg/L
MP Date	Rec'd Date	NODI	MO AVG	WKLY AVG	DAILY MX
6/30/2008	7/8/2008		.4	.04	.04
7/31/2008	8/6/2008		.4	.5	.5
8/31/2008	9/10/2008		.4	.5	.5

9/30/2008	10/14/2008		.3	.3	.3
10/31/2008	11/12/2008		.3	.4	.4
6/30/2009	7/9/2009		.3	.4	.4
7/31/2009	8/11/2009		.3	.4	.4
8/31/2009	9/3/2009		.4	.5	.5
9/30/2009	10/8/2009		.3	.4	.4
10/31/2009	11/7/2009		.3	.4	.4
		Ave:	0.34	0.384	0.384

00400 - pH

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--Apr--May--Jun--Jul--Aug--Sep--Oct--Nov--Dec-)

			C1 6.5 SU	C3 8.3 SU
MP Date	Rec'd Date	NODI	MINIMUM	MAXIMUM
11/30/2007	12/12/2007		6.5	7.4
12/31/2007	1/9/2008		6.8	7.2
1/31/2008	2/4/2008		6.7	7.1
2/29/2008	3/15/2008		6.6	7.1
3/31/2008	4/12/2008		6.5	7.2
4/30/2008	5/9/2008		6.5	7.1
5/31/2008	6/10/2008		6.6	7.1
6/30/2008	7/8/2008		6.6	7.2
7/31/2008	8/6/2008		6.7	7.2
8/31/2008	9/10/2008		6.6	6.9
9/30/2008	10/14/2008		6.6	7.
10/31/2008	11/12/2008		6.5	7.1
11/30/2008	12/15/2008		6.5	6.5
12/31/2008	1/12/2009		6.5	6.8
1/31/2009	2/12/2009		6.5	7.
2/28/2009	3/10/2009		6.5	6.8
3/31/2009	4/8/2009		6.5	6.7
4/30/2009	5/8/2009		6.5	6.7
5/31/2009	6/10/2009		6.5	6.7
6/30/2009	7/9/2009		6.5	7.1
7/31/2009	8/11/2009		6.5	7.1
8/31/2009	9/3/2009		6.7	7.
9/30/2009	10/8/2009		6.5	6.9
10/31/2009	11/7/2009		6.5	7.
11/30/2009				
		Ave:	6.558333333	6.995833333

00665 - Phosphorus, total (as P) (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			C1 1 mg/L
MP Date	Rec'd Date	NODI	MO AVG
4/30/2008	5/9/2008		.22
5/31/2008	6/10/2008		.07
6/30/2008	7/8/2008		.23
7/31/2008	8/6/2008		.42
8/31/2008	9/10/2008		.74
9/30/2008	10/14/2008		.43
10/31/2008	11/12/2008		.4
4/30/2009	**5/8/2009**		.14
5/31/2009	6/10/2009		.11
6/30/2009	7/9/2009		.13
7/31/2009	8/11/2009		.14
8/31/2009	9/3/2009		.11
9/30/2009	10/8/2009		.14
10/31/2009	11/7/2009		.14
		Ave:	**0.244285714**

00530 - Solids, total suspended (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--N

			Q1 125 lb/d	Q2 Req. Mon. lb/d	C1 30 mg/L	C2 45 mg/L	C3 Req. Mon. mg/L
MP Date	Rec'd Date	NODI	MO AVG	DAILY MX	MO AVG	WKLY AVG	DAILY MX
11/30/2007	12/12/2007		3.3	5.4	2.8	4.5	4.5
12/31/2007	**1/9/2008**		11.6	17.	8.3	12.2	12.2
1/31/2008	**2/4/2008**		5.5	9.4	3.1	5.3	5.3
2/29/2008	3/15/2008		20.9	23.9	6.1	7.	7.
3/31/2008	4/12/2008		18.9	23.4	5.8	7.2	7.2
11/30/2008	**12/15/2008**		7.2	11.6	2.8	4.5	4.5
12/31/2008	1/12/2009		9.9	13.8	3.	4.2	4.2
1/31/2009	2/12/2009		8.3	10.5	4.2	5.3	5.3
2/28/2009	3/10/2009		9.2	11.6	4.8	6.	6.
3/31/2009	**4/8/2009**		8.6	11.8	3.5	4.8	4.8
11/30/2009							
		Ave:	**10.34**	13.84	4.44	**6.1**	**6.1**

Season = 1 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			Q1 42 lb/d	Q2 84 lb/d	C1 10 mg/L	C2 10 mg/L	C3 20 mg/L
MP Date	Rec'd Date	NODI	MO AVG	DAILY MX	MO AVG	WKLY AVG	DAILY MX
4/30/2008	5/9/2008		7.3	13.	2.7	4.8	4.8
5/31/2008	6/10/2008		3.3	7.	1.5	3.2	3.2
6/30/2008	7/8/2008		1.3	2.1	.8	1.3	1.3
7/31/2008	8/6/2008		1.6	3.7	.8	1.9	1.9
8/31/2008	9/10/2008		1.8	3.	.9	1.5	1.5
9/30/2008	10/14/2008		1.6	2.6	.6	1.	1.

10/31/2008	11/12/2008		1.7	1.9	.7	.8	.8
4/30/2009	5/8/2009		3.9	5.9	1.5	2.3	2.3
5/31/2009	6/10/2009		1.6	3.5	1.	2.2	2.2
6/30/2009	7/9/2009		2.2	3.2	1.5	2.2	2.2
7/31/2009	8/11/2009		2.5	4.8	1.	1.9	1.9
8/31/2009	9/3/2009		1.6	2.3	.9	1.3	1.3
9/30/2009	10/8/2009		1.5	1.5	1.2	1.2	1.2
10/31/2009	11/7/2009		1.4	2.9	.9	1.9	1.9
		Ave:	2.378571429	4.1	1.142857143	1.964285714	1.964285714

Monitoring Location = G

00310 - BOD, 5-day, 20 deg. C (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--N

			Q1 Req. Mon. lb/d	C1 Req. Mon. mg/l
MP Date	Rec'd Date	NODI	MO AVG	MO AVG
11/30/2007	12/12/2007		256.	215.
12/31/2007	1/9/2008		270.	194.
1/31/2008	2/4/2008		345.	195.
2/29/2008	3/15/2008		533.	156.
3/31/2008	4/12/2008		517.	159.
11/30/2008	12/15/2008		447.	174.
12/31/2008	1/12/2009		581.	177.
1/31/2009	2/12/2009		344.	174.
2/28/2009	3/10/2009		387.	201.
3/31/2009	4/8/2009		499.	203.
11/30/2009				
		Ave:	417.9	184.8

80082 - BOD, carbonaceous, 05 day, 20 C (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			Q1 Req. Mon. lb/d	C1 Req. Mon. mg/l
MP Date	Rec'd Date	NODI	MO AVG	MO AVG
4/30/2008	5/9/2008		485.	179.
5/31/2008	6/10/2008		445.	203.
6/30/2008	7/8/2008		292.	186.
7/31/2008	8/6/2008		380.	2.8
8/31/2008	9/10/2008		361.	192.
9/30/2008	10/14/2008		536.	209.
10/31/2008	11/12/2008		435.	182.
4/30/2009	5/8/2009		506.	196.
5/31/2009	6/10/2009		253.	158.

6/30/2009	7/9/2009		386.	262.
7/31/2009	8/11/2009		231.	91.
8/31/2009	9/3/2009		355.	203.
9/30/2009	10/8/2009		254.	198.
10/31/2009	11/7/2009		239.	155.
		Ave:	368.4285714	172.6285714

00530 - Solids, total suspended (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--Apr--May--Jun--Jul--Aug--Sep--Oct--Nov--Dec-)

			Q1 Req. Mon. lb/d	C1 Req. Mon. mg/l
MP Date	Rec'd Date	NODI	MO AVG	MO AVG
11/30/2007	12/12/2007		239.	201.
12/31/2007	1/9/2008		335.	241.
1/31/2008	2/4/2008		274.	155.
2/29/2008	3/15/2008		287.	84.
3/31/2008	4/12/2008		316.	97.
4/30/2008	5/9/2008		371.	137.
5/31/2008	6/10/2008		360.	164.
6/30/2008	7/8/2008		347.	221.
7/31/2008	8/6/2008		404.	206.
8/31/2008	9/10/2008		381.	192.
9/30/2008	10/14/2008		325.	124.
10/31/2008	11/12/2008		270.	113.
11/30/2008	12/15/2008		383.	149.
12/31/2008	1/12/2009		437.	133.
1/31/2009	2/12/2009		227.	115.
2/28/2009	3/10/2009		275.	143.
3/31/2009	4/8/2009		224.	91.
4/30/2009	5/8/2009		230.	89.
5/31/2009	6/10/2009		236.	147.
6/30/2009	7/9/2009		324.	220.
7/31/2009	8/11/2009		429.	169.
8/31/2009	9/3/2009		333.	190.
9/30/2009	10/8/2009		273.	213.
10/31/2009	11/7/2009		330.	
10/31/2009				
11/30/2009				
		Ave:	317.0833333	156.2608696

Monitoring Location = K

81010 - BOD, 5-day, percent removal (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--Apr--May--Jun--Jul--Aug--Sep--Oct--Nov--Dec-)

			C1 85 %
MP Date	Rec'd Date	NODI	MO AV MN
11/30/2007	12/12/2007		97.8
12/31/2007	1/9/2008		96.1
1/31/2008	2/4/2008		96.6
2/29/2008	3/15/2008		95.2
3/31/2008	4/12/2008		95.5
4/30/2008	5/9/2008		97.9
5/31/2008	6/10/2008		98.5
6/30/2008	7/8/2008		98.5
7/31/2008	8/6/2008		98.6
8/31/2008	9/10/2008		98.5
9/30/2008	10/14/2008		98.7
10/31/2008	11/12/2008		98.2
11/30/2008	12/15/2008		97.5
12/31/2008	1/12/2009		97.2
1/31/2009	2/12/2009		95.7
2/28/2009	3/10/2009		96.7
3/31/2009	4/8/2009		96.8
4/30/2009	5/8/2009		98.8
5/31/2009	6/10/2009		96.9
6/30/2009	7/9/2009		99.1
7/31/2009	8/11/2009		97.8
8/31/2009	9/3/2009		98.4
9/30/2009	10/8/2009		97.6
10/31/2009	11/7/2009		98.7
11/30/2009			
		Ave:	97.55416667

81011 - Solids, suspended percent removal (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--Apr--May--Jun--Jul--Aug--Sep--Oct--Nov--Dec-)

			C1 85 %
MP Date	Rec'd Date	NODI	MO AV MN
11/30/2007	12/12/2007		98.6
12/31/2007	1/9/2008		96.6
1/31/2008	2/4/2008		98.
2/29/2008	3/15/2008		92.7
3/31/2008	4/12/2008		94.
4/30/2008	5/9/2008		98.1
5/31/2008	6/10/2008		99.1
6/30/2008	7/8/2008		99.6
7/31/2008	8/6/2008		99.6
8/31/2008	9/10/2008		99.5
9/30/2008	10/14/2008		99.5
10/31/2008	5/19/2009		99.4
11/30/2008	12/15/2008		98.1

12/31/2008	1/12/2009		97.8
1/31/2009	2/12/2009		96.3
2/28/2009	3/10/2009		96.7
3/31/2009	4/8/2009		96.2
4/30/2009	5/8/2009		98.3
5/31/2009	6/10/2009		99.3
6/30/2009	7/9/2009		99.3
7/31/2009	8/11/2009		99.4
8/31/2009	9/3/2009		99.5
9/30/2009	10/8/2009		99.5
10/31/2009	11/7/2009		99.6
11/30/2009			
		Ave:	98.1125

Monitoring Location = W

00310 - BOD, 5-day, 20 deg. C (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 1 (-Jan--Feb--Mar--N

			Q1 188 lb/d
MP Date	Rec'd Date	NODI	WKLY AVG
11/30/2007	12/12/2007		7.
12/31/2007	1/9/2008		13.5
1/31/2008	2/4/2008		14.9
2/29/2008	3/15/2008		26.3
3/31/2008	4/12/2008		25.7
11/30/2008	12/15/2008		18.5
12/31/2008	1/12/2009		17.4
1/31/2009	2/12/2009		21.3
2/28/2009	3/10/2009		16.4
3/31/2009	4/8/2009		19.2
11/30/2009			
		Ave:	18.02

80082 - BOD, carbonaceous, 05 day, 20 C (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			Q1 42 lb/d
MP Date	Rec'd Date	NODI	MO AVG
4/30/2008	5/9/2008		10.
5/31/2008	6/10/2008		6.6
6/30/2008	7/8/2008		4.5
7/31/2008	8/6/2008		5.5
8/31/2008	9/10/2008		5.6

9/30/2008	10/14/2008		7.6
10/31/2008	11/12/2008		7.9
4/30/2009	5/8/2009		6.2
5/31/2009	6/10/2009		7.8
6/30/2009	7/9/2009		3.4
7/31/2009	8/11/2009		5.1
8/31/2009	9/3/2009		5.8
9/30/2009	10/8/2009		6.
10/31/2009	11/7/2009		3.1
		Ave:	6.078571429

00530 - Solids, total suspended (SNC Group = 1)

Limit Start Date = 9/1/05

Season = 0 (-Jan--Feb--Mar--N

			Q1 188 lb/d
MP Date	Rec'd Date	NODI	WKLY AVG
11/30/2007	12/12/2007		5.4
12/31/2007	1/9/2008		17.
1/31/2008	2/4/2008		94.
2/29/2008	3/15/2008		23.9
3/31/2008	4/12/2008		23.4
11/30/2008	12/15/2008		11.6
12/31/2008	1/12/2009		13.8
1/31/2009	2/12/2009		10.5
2/28/2009	3/10/2009		11.6
3/31/2009	4/8/2009		11.8
11/30/2009			
		Ave:	22.3

Season = 1 (-Apr--May--Jun--Jul--Aug--Sep--Oct-)

			Q1 42 lb/d
MP Date	Rec'd Date	NODI	WKLY AVG
4/30/2008	5/9/2008		13.
5/31/2008	6/10/2008		3.3
6/30/2008	7/8/2008		2.1
7/31/2008	8/6/2008		3.7
8/31/2008	9/10/2008		3.
9/30/2008	10/14/2008		2.6
10/31/2008	11/12/2008		1.7
4/30/2009	5/8/2009		5.9
5/31/2009	6/10/2009		1.6
6/30/2009	7/9/2009		3.2
7/31/2009	8/11/2009		4.8
8/31/2009	9/3/2009		1.6
9/30/2009	10/8/2009		1.5
10/31/2009	11/7/2009		2.9

		Ave:	3.635714286

001T

Monitoring Location = 1

TAA3B - LC50 Static 48Hr Acute Ceriodaphnia

Limit Start Date = 9/1/05

Season = 0 (-Jan--Mar--Apr--Jun--Jul--Sep--Oct--Dec-)

			C1 100 %
MP Date	Rec'd Date	NODI	DAILY MN
12/31/2007	12/11/2007		100.
3/31/2008	3/18/2008		100.
6/30/2008	6/10/2008		100.
9/30/2008	9/16/2008		100.
12/31/2008	12/24/2008		100.
3/31/2009	3/13/2009		100.
6/30/2009	6/10/2009		100.
9/30/2009	9/3/2009		100.
		Ave:	100

TBP3B - Noel Statre 7Day Chronic Ceriodaphnia

Limit Start Date = 9/1/05

Season = 0 (-Jan--Mar--Apr--Jun--Jul--Sep--Oct--Dec-)

			C1 17 %
MP Date	Rec'd Date	NODI	DAILY MN
12/31/2007	12/11/2007		100.
3/31/2008	3/18/2008		50.
6/30/2008	6/10/2008		100.
9/30/2008	9/16/2008		100.
12/31/2008	12/24/2008		100.
3/31/2009	3/13/2009		100.
6/30/2009	6/10/2009		50.
9/30/2009	9/3/2009		100.
		Ave:	87.5

Attachment C
NPDES Permit No.MA0100170
Oxford-Rochdale, Massachusetts

Oxford -Rochdale WWTF Design Flow = .50 mgd = .77 cfs

Receiving Water: French River

The Massachusetts Water Quality Standards requires the application of aquatic life criteria at the lowest mean flow for seven consecutive days to be expected once in ten years (the "7Q10" flow) (314 CMR § 4.03(3)(a)).

7Q10 Flow of the French River = 3.83 cfs = 2.48 mgd (obtained from the previous permit)

Dilution factor at Outfall: (.50 mgd + 2.48 mgd)/0.50 mgd = 5.96 = **6**

Chlorine Residual:

EPA Instream Acute Criterion: 19 ug/l

Maximum Daily Value = 19 ug/l x 6 = 114 **ug/l**

EPA Instream chronic criterion: 11 ug/l

Average Monthly Value = 11 ug/l x 6 = 66 **ug/l**

Toxicity:

The chronic (C-NOEC) whole effluent toxicity limits of I.A.1 was calculated using the instream waste concentration ("IWC") of the WWTP effluent:

IWC = (1/dilution) x 100% = (1/(6)) x 100% = **17%**

Copper

Existing Permit Limits

The limits for copper in the existing permit was calculated based on National Recommended Water Quality Criteria published in the Federal Register on December 10, 1998, with a hardness of 45 mg/l and a dilution factor of 6.

Water Quality Criteria for hardness-dependent metals (see equations below):

Acute Criteria (dissolved) = $\exp\{m_a [\ln(\text{hardness})] + b_a\}$ (CF)

Where: m_a = pollutant-specific coefficient
b_a = pollutant-specific coefficient
h = hardness of the receiving water = 45 mg/l as $CaCO_3$
ln = natural logarithm
CF = pollutant-specific conversion factor
(CF is used to convert total recoverable to dissolved metal)

Chronic Criteria (dissolved) = $\exp\{m_c [\ln(\text{hardness})] + b_c\}$ (CF)

Where: m_c = pollutant-specific coefficient
b_c = pollutant-specific coefficient
h = hardness of the receiving water = 45 mg/l as $CaCO_3$
ln = natural logarithm
CF = pollutant-specific conversion factor
(CF is used to convert total recoverable to dissolved metal)

Calculation - acute limit for copper :

$m_a = 0.9422$ $b_a = -1.7$ CF = 0.96

Acute criteria (dissolved) = $\exp\{0.9422 [\ln(45)] - 1.7\}$ (0.96) = 6 ug/l

Dilution Factor = 6

Effluent Limitation: = (6 ug/l x 6) = 36 ug/l (dissolved)
Total recoverable = 36 / CF = 36 / 0.96 = **38 ug/l ***

* An inverse conversion factor is used to determine total recoverable metal. The EPA Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit from a Dissolved Criterion (EPA- 823-B-96-007) is used as the basis for using the criteria conversion factor. National guidance requires that permit limits be based on total recoverable metals and not dissolved metals. Consequently, it is necessary to apply a translator in order to develop a total recoverable permit limit from a dissolved criteria. The translator reflects how a discharge partitions between the particulate and dissolved phases after mixing with the receiving water. In the absence of site specific data on how a particular discharge partitions in the receiving water, a default assumption that the translator is equivalent to the criteria conversion factor is used in accordance with the Translator Guidance.

Therefore the acute (maximum daily) water quality based limitation for Total Recoverable Copper is **38 ug/l**.

Calculation - chronic limit for copper:

$m_c = 0.8545$ $b_c = -1.702$ CF = 0.96

Chronic criteria (dissolved) = exp{0.8545 [ln(45] - 1.702} (0.96) = 4.48 ug/l

Dilution Factor = 6

Effluent Limitation: = (4.48 ug/l x 6) = 27.0/l (dissolved)
Total Recoverable = 27.0 / CF = 27.0 / 0.96 = **28 ug/l ***

Therefore the chronic (monthly average) water quality based limitation for Total Recoverable Copper is **28 ug/l.**

Derivation of Proposed Limits

In determining appropriate copper limits, EPA accounted for the site-specific copper criteria contained within the Massachusetts Surface Water Quality Standards (314 CMR § 4.06, Table 28), the copper limits contained in the prior permit, the design flow of the facility, the concentration of copper discharged from the facility from November 2007 to October 2009 (see Table 1 below), and critical flow conditions in the receiving water.[1] The results of copper analyses conducted on samples of the receiving water collected at a location upstream from the discharge for use as dilution water in whole effluent toxicity ("WET") tests were also evaluated in order to establish the concentration of copper present in the receiving water before it receives additional loadings from the Oxford-Rochdale WWTP (i.e., the ambient or background concentration). The concentration of copper in the receiving water varies between 2 ug/l to 8 ug/l with an average value of 3.18 ug/l. EPA has assigned this value of 3.18 µg/l to the ambient concentration in its analyses.

The first step in establishing appropriate copper limits was to determine the current instream copper concentration downstream of the facility. Accounting for the 7Q10 flow in the receiving water in the vicinity of the discharge (Q_s = 3.83 cubic feet per second (cfs)), the design flow of the facility (Q_d = 0.5 MGD * 1.55 = 0.77 cfs), the 7Q10 flow in the receiving water downstream from the discharge ($Q_r = Q_d + Q_s$ = 4.6 cfs), the maximum concentration of copper discharged from the facility from November 2007 to October 2009, as determined from monthly discharge monitoring reports submitted by the permittee (C_d = 10 µg/l; see Table 1 below), and an ambient copper concentration (C_s) of 3.18 µg/l, the concentration of copper in the receiving water (Cr) downstream from the discharge was determined to be 4.15 µg/l, using the following equation:

[1] The Massachusetts Water Quality Standards requires the application of aquatic life criteria at the lowest mean flow for seven consecutive days to be expected once in ten years (the "7Q10" flow) (314 CMR § 4.03(3)(a)). As described in the fact sheet, the 7Q10 flow of the receiving water was determined to be 3.83 cubic feet per second (cfs).

$Q_rC_r = Q_dC_d + Q_sC_s$

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) = 3.83 cfs

C_s = copper concentration upstream of the discharge = 3.18 $\mu g/l_{(\text{total recoverable copper})}$ [2]

Q_d = design flow of the facility = (0.5 MGD * 1.55) = 0.77 cfs

C_d = copper concentration in the discharge = 10 $\mu g/l_{(\text{total recoverable copper})}$

Q_r = receiving water flow downstream from the discharge = $Q_r = Q_d + Q_s$ = 4.6 cfs

C_r = [(3.83 cfs * 3.18 µg/l) + (0.77 cfs * 10 µg/l)] / 4.6 cfs

C_r = 4. 32 $\mu g/l_{(\text{total recoverable copper})}$

C_r = (4. 32 µg/l * 0.960) = $4.15_{(\text{dissolved copper})}$

Because the in-stream copper concentration downstream from the discharge is less than both the acute and chronic site-specific criteria, the receiving water is currently in attainment of the applicable water quality standards for copper (also see **Appendix C-2**).

[2] 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 Total Recoverable 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.

Table 1

Effluent Copper Concentration

Date	Mo Avg (ug/l)	Daily Max (ug/l)
11/30/2007	6	6
12/31/2007	10	10
1/31/2008	10	10
2/29/2008	2	2
3/31/2008	0	0
4/30/2008	0	0
5/31/2008	0	0
6/30/2008	0	0
7/31/2008	5	5
8/31/2008	7	7
9/30/2008	3	3
10/31/2008	3	3
11/30/2008	2	2
12/31/2008	7	7
1/31/2009	1	1
2/28/2009	1	1
3/31/2009	8	8
4/30/2009	5	5
5/31/2009	3	3
6/30/2009	3	3
7/31/2009	2	2
8/31/2009	4	4
9/30/2009	8	8
10/31/2009	7	7
Ave	4.1	4.1
Min	0	0
Max	10	10

EPA then calculated the acute (maximum daily) and chronic (average monthly) effluent limits (C_d) that would allow for the achievement of the site-specific criteria for copper in the receiving water downstream of the discharge. To do so, EPA used the above equation, and set the downstream copper concentration (C_r) equal to the site-specific criteria as shown below:

$$Q_rC_r = Q_dC_d + Q_sC_s$$

Which was rearranged as:

$C_d = Q_rC_r - Q_sC_s/Q_d$

Average Monthly (Chronic) Limitation:

$C_d = Q_rC_r - Q_sC_s / Q_d$
Where:
$Q_s = 3.83$ cfs
$C_s = 3.18\ \mu g/l_{(\text{total recoverable copper})}$
$Q_d = 0.77$ cfs
$Q_r = 4.6$ cfs
C_r = Chronic criterion = $(18.1\ \mu g/l_{(\text{dissolved copper})} / 0.960) = 18.9\ \mu g/l_{(\text{total recoverable copper})}$
$C_d = [(4.6\text{ cfs})(18.9\ \mu g/l) - (3.83\text{ cfs})(3.18\ \mu g/l)] / 0.77\text{ cfs}$
$C_d = 97\ \mu g/l_{(\text{total recoverable copper})}$

Maximum Daily (Acute) Limitation:

$C_d = Q_rC_r - Q_sC_s/Q_d$
Where:
$Q_s = 3.83$ cfs
$C_s = 3.18\ \mu g/l_{(\text{total recoverable copper})}$
$Q_d = 0.77$ cfs
$Q_r = 4.6$ cfs
C_r = Acute criterion = $(25.7\ \mu g/l_{(\text{dissolved copper})} / 0.960) = 26.8\ \mu g/l_{(\text{total recoverable copper})}$
$C_d = [(4.6\text{ cfs})(26.8\ \mu g/l) - (3.83\text{ cfs})(3.189\ \mu g/l)] / 0.77\text{ cfs}$
$C_d = 144\ \mu g/l_{(\text{total recoverable copper})}$

Therefore, discharges of copper from the facility in concentrations equal to a chronic limit of 97 µg/l and an acute limit of 144 µg/l would result in downstream copper concentrations equal to the site-specific criteria. These limits are less stringent than those contained in the existing permit.

EPA then evaluated the level of copper removal routinely achieved by the facility (i.e., the past demonstrated performance of the facility) in accordance with the site-specific protocol. As described above, the site-specific protocol provides that limits adjusted pursuant to the site-specific criteria will also reflect the level of copper control routinely achieved by the facility. A statistical analysis of the facility's effluent data from December 2007 to November 2009 (Table 1) indicates that limits based solely on past performance would result in a monthly average limit of 10.6 µg/l and a maximum daily limit of 20.5 µg/l (**Appendix C-1**). These limits are more stringent than the monthly average and daily maximum limits in the prior permit and the limits based on achieving the site-specific acute criterion

Table 2 shows the downstream copper concentrations that would be expected under three different sets of permit limits: (1) the limits in the prior permit, (2) the limits necessary to achieve the site-specific criteria downstream, and (3) the limits based on the past performance of

the facility. The calculations supporting the downstream projections of copper are shown in **Appendix C-2.**

Table 2

Comparison of Effluent Limits and Expected Resultant Downstream Receiving Water Concentrations of Copper

	Monthly Average (Chronic) (Total Recoverable Copper)	**Maximum Daily (Acute) (Total Recoverable Copper)**	**Resultant Downstream Receiving Water Concentration (Dissolved Copper)**
Limits in Prior Permit	28 µg/l	38 µg/l	7.64 µg/l and 8.6µg/l
Limits to Achieve Criteria	97 µg/l	144 µg/l	18.1 µg/l and 25.7 µg/l
Performance-Based Limits	10.6 µg/l	20.5 µg/l	4.2 µg/l and 5.8 µg/l

The above calculations show that the existing limits are more stringent than the site specific limits, and that the wastewater treatment facility is performing within the existing limits. Accordingly, the existing monthly average limit of 28 ug/l and the existing maximum daily limit of 38 ug/l will continue in the draft permit.

Appendix C-1

Daily Maximum Concentration - 99th percentile

u_y = Avg of Nat. Log of daily Discharge (lbs/day) =	1.37748	
σ_y = Std Dev. of Nat Log of daily discharge=	0.70704	
$\sum (y_i - u_y)^2$ =	9.49832	
k = number of daily samples =	24	
σ_y^2 = estimated variance = ($\sum [y_i - u_y)^2]$) / (k-1) =	0.41297	

RP analysis/Limit calculation:

99th percentile daily max limit = exp (u_y + 2.326*σ_y)

Daily Max Limit = 20.5336 ug/L

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

Average Monthly Concentration - 95th percentile

Number of samples per month, n =	1	
E(x) = Daily Avg = exp(u_y + 0.5 σ_y^2) =	4.87424	
V(x) = Daily Variance = exp(2u_y + σ_y^2) * [exp(σ_y^2) – 1] =	12.14757	
E(Xn) = E(x)	4.87424	
V(Xn) = V(x)/n	12.14757308	

RP analysis/Limit Calculation:

95th percentile monthly average limit = E(Xn) + 1.645[V(Xn)]^(1/2)

Monthly Avg Limit* = 10.61 ug/L**

TSD-Table E-3, 95th percentile

***Based on sampling frequency of 1 time per month

Appendix C-2

Downstream Projections of Copper

Using the following equation: $C_r = Q_sC_s + Q_dC_d / Q_r$

Where:
C_r = Dissolved copper concentration in the receiving water downstream of the discharge
C_d = Total recoverable copper concentration in the discharge
Q_d = Design flow of the facility = 0.5 MGD = 0.77 cfs
Q_s = Receiving water flow upstream of the discharge (7Q10 flow) = 3.83 cfs
Q_r = Receiving water flow downstream of the discharge ($Q_d + Q_s$) = 4.6 cfs
C_s = Ambient copper concentration = 3.18 $\mu g/l_{(\text{total recoverable})}$

1. Based on the Concentration of Copper Discharged from the Facility from 12/07-11/09

C_d = maximum concentration of copper concentration discharged from 12/07-11/09 = 10 $\mu g/l_{(\text{total recoverable})}$

$C_r = [(3.83 \text{ cfs} * 3.18 \mu g/l) + (0.77 \text{ cfs} * 10 \mu g/l)] / 4.6 \text{ cfs}$
$C_r = 4.\ 3 \mu g/l_{(\text{total recoverable copper})}$
$C_r = (4.\ 3 \mu g/l * 0.960) = 4.13 \mu g/l_{(\text{dissolved})}$

2. Based on Limits in the Prior Permit

A. $\underline{C_d = \text{Average Monthly Limit} = 28 \mu g/l}$

$C_r = [(3.83 \text{ cfs})(3.18 \mu g/l) + (0.77 \text{ cfs})(28 \mu g/l)] / 4.6 \text{ cfs} = 7.3 \mu g/l_{(\text{total recoverable})}$
$C_r = 7.3 \mu g/l_{(\text{total recoverable})} * 0.960 = 7.64 \mu g/l_{(\text{dissolved})}$

B. $\underline{C_d = \text{Maximum Daily Limit} = 38 \mu g/l}$

$C_r = [(3.83 \text{ cfs})(3.18 \mu g/l) + (0.77 \text{ cfs})(38 \mu g/l)] / 4.6 \text{ cfs} = 9 \mu g/_{l(\text{total recoverable})}$
$C_r = 9 \mu g/_{l(\text{total recoverable})} * 0.960 = 8.6 \mu g/l_{(\text{dissolved})}$

3. Based on the Limits to Achieve Criteria

A. $\underline{C_d = \text{Average Monthly Limit} = 97 \mu g/l}$

$C_r = [(3.83 \text{ cfs})(3.18 \mu g/l) + (0.77 \text{ cfs})(97 \mu g/l)] / 4.6 \text{ cfs} = 18.9 \mu g/l_{(\text{total recoverable})}$
$C_r = 18.9 \mu g/l_{(\text{total recoverable})} * 0.960 = 18.1 \mu g/l_{(\text{dissolved})}$

B. $\underline{C_d = \text{Maximum Daily Limit} = 144 \mu g/l}$

C_r = [(3.83 cfs)(3.18 µg/l) + (0.77 cfs)(144 µg/l)] / 4.6 cfs = 26.8 $\mu g/l_{(\text{total recoverable})}$
C_r = 26.8 $\mu g/l_{(\text{total recoverable})}$ * 0.960 = 25.7 $\mu g/l_{(\text{dissolved})}$

4. Based on the Limits Derived From the Performance of the Facility

A. C_d = Average Monthly Limit = 10.6 µg/l

C_r = [(3.83 cfs)(3.18 µg/l) + (0.77 cfs)(10.6 µg/l)] / 4.6 cfs = 4.4 $\mu g/l_{(\text{total recoverable})}$
C_r = 4.4 $\mu g/l_{(\text{total recoverable})}$ * 0.960 = 4.2 $\mu g/l_{(\text{dissolved})}$

B. C_d = Maximum Daily Limit = 20.5 µg/l

C_r = [(3.83 cfs)(3.18 µg/l) + (0.77 cfs)(20.5 µg/l)] / 4.6 cfs = 6.1 $\mu g/l_{(\text{total recoverable})}$
C_r = 6.1 $\mu g/l_{(\text{total recoverable})}$ * 0.960 = 5.8 $\mu g/l_{(\text{dissolved})}$