

**EXHIBIT C**

Written correspondence of RI Department of Environmental Management containing  
comments on Draft NPDES Permit MA0100595, Dated September 12, 2006



RHODE ISLAND  
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

235 Promenade Street, Providence, RI 02908-5767

TDD 401-222-4462

September 12, 2006

David Pincumbe  
Municipal Permits Branch (CMP)  
Office Of Ecosystem Protection  
US Environmental Protection Agency  
Congress Street, Suite 1100  
Boston, MA 02114-2023

**Re: Draft NPDES Permit for the North Attleborough WWTF No. MA0101036 and  
Attleboro Water Pollution Control Facility, NPDES Permit No. MA0100595**

Dear Mr. Pincumbe:

The Rhode Island Department of Environmental Management (DEM) has reviewed the permit limits contained in the draft permits referenced above and determined that many of these limits will result in violations of Rhode Island Water Quality Standards in RI waters. The Environmental Protection Agency (EPA) established all water quality-based permit limits using background concentration of zero and by allocating 100% of the criteria. As a result, the limits for the Attleboro facility were based on the assumption that the entire pollutant load from the North Attleborough facility was eliminated from the water column before reaching the Attleboro facility. This assumption is not reflective of actual conditions and when coupled with allocation of the entire criteria, results in permit limits that cause violations of RI Water Quality Standards. In addition, EPA has utilized an instream hardness value of 100 mg/l to compute the water quality criteria for metals. This value is significantly higher than values typically observed in RI waters and results in higher water quality criteria than DEM would anticipate. Please provide information to support the use of this hardness value.

The table below, compares the instream concentrations at the MA/RI state line that result from the draft permit limits, to the RI Water Quality Standards (please note that for the sake of this analysis the hardness of 100 mg/l was utilized based on the assumption that EPA will provide justification for using this value). The concentrations that will result at the state line were computed from a mass balance using a 7Q10 flow at the state line of 14.4 cfs (or 2.71 cfs, based on flow data collected from USGS gauge # 01109403 after subtracting out historical WWTF flows), the WWTF flows and pollutant concentration limits contained in the draft permits and are artificially low as the EPA assumption of pollution concentrations of zero upstream of the North Attleborough WWTF was also used. Attached is a spreadsheet that contains the details of this analysis.

	Ten Mile River Concentration at the RI Border <sup>1</sup>	RI Water Quality Standard	% Exceedance of RI Water Quality Standards
Phosphorus	0.177 mg/l	0.025 mg/l <sup>2</sup>	606 %
Copper	10.5 ug/l	9.3 ug/l	12.9%
Lead	3.6 ug/l	3.2 ug/l	14.3%
Aluminum	98.5 ug/l	87 ug/l	13.2%
Zinc	135.5 ug/l	120 ug/l	13.1%
Cadmium	0.32 ug/l	0.27 ug/l	19.0%
Cyanide	.5.2 ug/l	5.2 ug/l	0%

<sup>1</sup>As noted above predicted concentrations are artificially low since the EPA assumption of pollutant concentrations of zero upstream of the North Attleborough WWTF was utilized.

<sup>2</sup>Rule 8.D.(2) of the Rhode Island Water Quality Regulations establishes the following criteria for Nutrients:

*"Average Total Phosphorus shall not exceed 0.025 mg/l in any lake, pond, kettlehole or reservoir, and average Total P in tributaries at the point where they enter such bodies of water shall not cause exceedance of this phosphorus criteria, except as naturally occurs, unless the Director determines, on a site-specific basis, that a different value for phosphorus is necessary to prevent cultural eutrophication."*

Determination of whether the water quality criterion of 25 ug/l is applicable to the Ten Mile River requires an evaluation of whether it flows into a lake, pond or reservoir (including whether run of the river impoundments constitute a lake, pond or reservoir). For the development of nutrient criteria, the EPA document titled *Nutrient Criteria Technical Guidance Manual: Lakes and Reservoirs: First Edition* has defined lakes as natural and artificial impoundments if they have a surface area greater than 10 acres and a minimum mean water residence time of 14 days. The Turner Reservoir on the Ten Mile Rivers meets both criteria and receives most of its flow from the Ten Mile River; therefore, the criterion of 25 ug/l must be met in the Ten Mile River at the point where it enters Turner Reservoir.

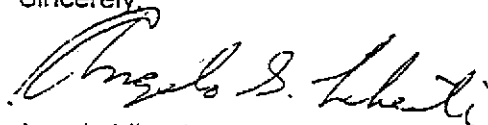
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 Mr. Pincumbe  
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The table below is excerpt from the Final 2004 and the draft 2006 Rhode Island List of Impaired Waters ("303(d) list") and lists several waterbody segments that are impaired due to excessive metals and Phosphorus concentrations. As noted above the limits proposed by EPA would result in continued violation of many of these criteria even under the assumption that no other pollutant sources are present.

Waterbody ID	Waterbody Name	Cause
<b>TEN MILE RIVER BASIN</b>		
RI0004009L-01A	Turner Reservoir	LOW DO, Phosphorus, Lead (Pb), Copper (Cu) PATHOGENS
RI0004009L-01B	Turner Reservoir	LOW DO, Phosphorus, Lead (Pb), Copper (Cu) PATHOGENS
RI0004009L-02	Slater Park Pond	EXCESS ALGAL GROWTH:CHL-A, Phosphorus, PATHOGENS
RI0004009L-03	Omega Pond	Phosphorus, Lead (Pb), Copper (Cu)
RI0004009R-01A	Ten Mile River	Lead (Pb), Copper (Cu), Cadmium (Cd)
RI0004009R-01B	Ten Mile River	BIODIVERSITY IMPACTS, Copper (Cu), Lead (Pb)

As you know, pursuant to the NPDES regulations at 40 CFR 122.44(d) and 33USC Sec.1341(a)(2), NPDES limits must achieve compliance with water quality standards and limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality. As noted above the limits contained in the draft permit will result in violations of RI water quality standards and therefore, the limits must be revised using a Waste Load Allocation (WLA) strategy that includes an appropriate margin of safety to account for any lack of knowledge concerning the relationship between effluent limits and water quality, ensures an equitable distribution of pollutant loads and that at a minimum meets all Rhode Island water quality criteria at the state line.

Sincerely,



Angelo Liberti  
 Chief of Surface Water Protection

enclosure

cc: Paul Hogan, MADEP

**Evaluation of the Impact of the Draft North Attleborough WWTF and Attleboro WPCF  
NPDES Permits of Water Quality at the MA/RI State Line**

**Determine 7Q10 Flow at the MA/RI State Line**

Data from USGS Gauge 01109403 on the Ten Mile River

Drainage Area:	53.1 miles <sup>2</sup>	From USGS Gauge Data
Annual 7Q10 Flow:	15.56 cfs	Based on Data from 1988-1993
7Q10 Flow w/o WWTF Flow:	2.93648 cfs	
Flow/Area:	0.055301 cfs/mile <sup>2</sup>	
Ten Mile River Drainage Area in MA:	49 miles <sup>2</sup>	From USGS Website
Ten Mile River 7Q10 at State Line:	2.709746 cfs	

**Perform Mass Balance for Pollutant Concentrations at the State Line**

Ten Mile River 7Q10 at State Line:	2.709746 cfs	
North Attleborough WWTF Design Flow:	4.61 MGD	From Draft Permit
North Attleborough WWTF Average Flow:	7.13167 cfs	
North Attleborough WWTF WPCF Design Flow:	3.79 MGD	From 5/01 - 3/06 DMR Data
North Attleborough WWTF WPCF Average Flow:	5.86313 cfs	From Draft Permit
Attleboro WPCF Design Flow:	8.6 MGD	From 5/01 - 3/06 DMR Data
Attleboro WPCF Average Flow:	13.3042 cfs	
Attleboro WPCF WPCF Average Flow:	4.37 MGD	From 5/01 - 3/06 DMR Data
Attleboro WPCF WPCF Average Flow:	6.76039 cfs	

Pollutant Concentration at State Line =  $\text{River 7Q10} \times \text{Upstream Conc.} + \text{NA Design Flow} \times \text{NA Conc.} + \text{A Design Flow} \times \text{A Conc.}$   
 $\text{River 7Q10} + \text{NA Design Flow} + \text{A Design Flow}$

$$= 2.709746 \times \text{Upstream Conc.} + 7.13167 \times \text{NA Conc.} + 13.3042 \times \text{A Conc.}$$

23.14561614

**Solve Mass Balance for Various Pollutants:**

*Note predicted concentrations for all pollutants are artificially low since the EPA assumption of pollutant concentrations of zero upstream of the North Attleborough WWTF were utilized.*

Phosphorus:

Upstream Concentration:	0 mg/l
North Attleborough WWTF Concentration:	0.2 mg/l
Attleboro WPCF Concentration:	0.2 mg/l
Pollutant Concentration at State Line:	0.176585 mg/l
Criteria:	0.025 mg/l
	606.3409 % over

## Solve Mass Balance for Various Pollutants:

### Copper:

Upstream Concentration: 0 ug/l  
North Attleborough WWTF Concentration: 9.9 ug/l  
Attleboro WPCF Concentration: 13 ug/l  
Pollutant Concentration at State Line: 10.52286 ug/l  
Criteria: 9.32 ug/l  
12.90625 % over

From Draft Permit  
From Draft Permit

From Rhode Island Water Quality Regulation Appendix B at a Hardness of 100 mg/l

### Lead:

Upstream Concentration: 0 ug/l  
North Attleborough WWTF Concentration: 3.4 ug/l  
Attleboro WPCF Concentration: 4.5 ug/l  
Pollutant Concentration at State Line: 3.634234 ug/l  
Criteria: 3.18 ug/l  
4.28408 % over

From Draft Permit  
From Draft Permit

From Rhode Island Water Quality Regulation Appendix B at a Hardness of 100 mg/l

### Aluminum:

Upstream Concentration: 0 ug/l  
North Attleborough WWTF Concentration: 92 ug/l  
Attleboro WPCF Concentration: 122 ug/l  
Pollutant Concentration at State Line: 68.47334 ug/l  
Criteria: 87 ug/l  
13.18774 % over

From Draft Permit  
From Draft Permit

From Rhode Island Water Quality Regulation Appendix B

### Zinc:

Upstream Concentration: 0 ug/l  
North Attleborough WWTF Concentration: 127 ug/l  
Attleboro WPCF Concentration: 167.7 ug/l  
Pollutant Concentration at State Line: 135.5262 ug/l  
Criteria: 119.82 ug/l  
13.10813 % over

From Draft Permit  
From Draft Permit

From Rhode Island Water Quality Regulation Appendix B at a Hardness of 100 mg/l

### Cadmium:

Upstream Concentration: 0 ug/l  
North Attleborough WWTF Concentration: 0.3 ug/l  
Attleboro WPCF Concentration: 0.4 ug/l  
Pollutant Concentration at State Line: 0.322358 ug/l  
Criteria: 0.271 ug/l  
18.95139 % over

From Draft Permit  
From Draft Permit

From Rhode Island Water Quality Regulation Appendix B at a Hardness of 100 mg/l

### Cyanide:

Upstream Concentration: 0 ug/l  
North Attleborough WWTF Concentration: 5 ug/l  
Attleboro WPCF Concentration: 6.3 ug/l  
Pollutant Concentration at State Line: 5.161876 ug/l  
Criteria: 5.2 ug/l  
-0.733146 % over

From Draft Permit  
From Draft Permit

From Rhode Island Water Quality Regulation Appendix B