



# City of Rochester

Department of Environmental Services  
City Hall Room 300B, 30 Church Street  
Rochester, New York 14614-1290  
[www.cityofrochester.gov](http://www.cityofrochester.gov)



Paul Holahan  
Commissioner

March 8, 2013

Commissioner Joseph Martens  
NY State Department of Environmental Conservation  
625 Broadway  
Albany, NY 12233-1011

Commissioner Martens:

On behalf of the City of Rochester and its residents, I am submitting this comment letter in response to the proposed DEC's Hemlock-Canadice Unit Management Plan (UMP).

We wish to start by thanking the staff from the Department of Environmental Conservation's Region 8 office for doing an excellent job in preparing the draft UMP. In particular, we appreciate their willingness to include three members of the City's Upland Operations Division from start to finish in the development of the Plan.

The City has two comments regarding the draft UMP. First, the final UMP document should include phrasing that states: "All types of gas or oil drilling are prohibited in the Hemlock-Canadice State Forest." Current regulations regarding drilling already make the prospect of drilling extremely unlikely--therefore, why not clearly state what current regulations already prohibit? As you know, Mayor Richards submitted a request to your office to completely ban high-volume hydraulic fracturing in the lakes' watershed (enclosed letters dated Dec. 15, 2011 and Jan. 16, 2013). We plan to continue to pursue this broader action independent of the UMP.

Our second comment relates to future funding for road maintenance and erosion control work in the Hemlock-Canadice State Forest. The City currently has a contract with the State to perform this work, which expires in 2015. However, in the draft Hemlock-Canadice Unit Management Plan, there are no provisions to renew the City's contract, nor provisions to provide adequate funds to continue maintenance activities. We are very concerned that the draft UMP does not provide a clear plan on how to pay for this type of work in the future. Under the current contract between the State and the City, staff from the City's Upland Operations Division is responsible for maintenance work in the Hemlock-Canadice State Forest. This contract was initially set for two years, extendable by an additional three years, with an initial budget of \$182,000. The purpose of this contract was clear and is stated as such in the Scope of Work Contract-C007510: "...maintain the property essentially as is, i.e. similar to conditions maintained under the City's management." To date, the City has submitted invoices for road maintenance and erosion control work totaling \$36,000. This equates to roughly \$15,000 per year for what we would consider a baseline effort for road maintenance and erosion control. Without this minimum level of maintenance, we believe the water quality of the lakes could be jeopardized.



The negative effects of major runoff events will be amplified if culverts and roadways on state lands are not properly maintained.

In closing, we appreciate this opportunity to comment on the draft Hemlock-Canadice Unit Management Plan.

Respectfully,



Paul Holahan  
Commissioner  
Dept. of Environmental Services

Enclosures (2)

xc: Mr. Paul D'Amato, Regional Director, Region 8  
Mr. John Gibbs, Regional Forester, Region 8



December 15, 2011

Mr. Joe Martens, Commissioner  
NYSDEC  
625 Broadway  
Albany, N.Y. 12233-1011

Dear Mr. Martens:

We are writing to let you know that we do not believe the DEC's draft Supplemental Generic Environmental Impact Statement (dSGEIS) adequately protects Rochester's water supply from the potential negative impacts of high-volume hydrofracking (HVHF). Specifically, the setback proposed in the dSGEIS for HVHF adjacent to a public water supply is inadequate for Rochester's water supply.

Since 1876, Rochester residents have relied upon the pristine waters of two of the Finger Lakes, Hemlock Lake and Canadice Lake, for their drinking water supply. These lakes and surrounding 61 square miles of watershed are in the hills of Livingston and Ontario counties, about 30 miles south of Rochester. Watershed protection has been the City's first treatment barrier to ensure the quality of our drinking water. The cornerstone of this effort was the 7,000 acres, including the shorelines of both lakes, owned by the City until the sale of the watershed to the DEC in 2010.

Today this property, a unique asset within the Finger Lakes, is known as the Hemlock-Canadice State Forest. The preservation of this watershed property was a principal consideration for the State's considerable investment in acquiring the property, and continues to be an operational focus of the State and the City.

Because these two lakes have such high quality water, the City of Rochester is able to use a Direct Filtration process. Direct Filtration, however, is only appropriate when treating source waters with low baseline turbidity (i.e., less than 5-10 NTU); and peak turbidity less than 50 NTU<sup>1</sup>. Under existing land-use conditions, source water turbidity averages 1.5 NTU, but peaks can, on rare occasions, approach 50 NTU. Obviously, a significant increase in either the baseline or peak turbidity would have serious public health and financial consequences to Rochester.

The adverse impacts identified by the DEC for the watersheds of New York City and Skaneateles Lake (dSGEIS, Section 6.1.5.3) are also a serious concern for Rochester because of limitations associated with the Direct Filtration process. The City's concern is heightened further because compared to Skaneateles Lake, Hemlock and Canadice Lakes are actually more susceptible to adverse impacts because of their physical characteristics. The difference in susceptibility to contaminants is related to the fact that Skaneateles Lake has a lake volume to watershed area ratio ("dilution ratio") that is ten times greater than the ratios for Hemlock or Canadice<sup>2</sup>. This results in much better dilution of contaminants in Skaneateles Lake than what can occur in Hemlock and Canadice Lakes. Consequently, the water quality concerns the DEC identifies in dSGEIS, Section 6.1.5.3, will actually be amplified in Hemlock and Canadice Lakes.

While there is some debate about the possibility of harm to drinking water should there be contamination beyond turbidity, either as a direct result of HVHF or an accident, the potential consequences of such contamination would be catastrophic. The steep terrain and the marginal nature of the Marcellus deposit near Hemlock and Canadice Lakes make HVHF unlikely to occur

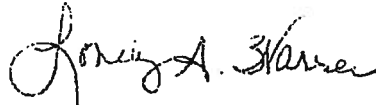
in this area. Therefore, the potential benefit from HVHF is clearly outweighed by the potential harm to this precious watershed resource

Therefore, for the reasons stated above, the City believes that the 2000-foot setback proposed in the dSGEIS is inadequate to protect the water quality in Hemlock and Canadice Lakes. Instead the City is recommending the DEC prohibit HVHF in the entire watershed for both Hemlock and Canadice Lakes. The unique characteristics of Rochester's Direct Filtration process and lakes require no less protection than that afforded to Skaneateles Lake.

Sincerely,



Thomas Richards  
Mayor



Lovely A. Warren  
President, Rochester City Council

<sup>1</sup>Sanks, Robert L., (1978), *Water Treatment Plant Design for the Practicing Engineer*, Ann Arbor Press

<sup>2</sup>Bloomfield, Jay, (1978), *Lakes of New York State*, Academic Press

cc: P. Holahan, DES  
R. Morrison, DES / Water Bureau  
A. Guzzetta, Council Chief of Staff



## City of Rochester

City Hall Room 308A, 30 Church Street  
Rochester, New York 14614-1290  
[www.cityofrochester.gov](http://www.cityofrochester.gov)



Thomas S. Richards  
Mayor

January 16, 2013

Mr. Joe Martens, Commissioner  
New York State Department of Environmental Conservation  
625 Broadway  
Albany, NY 12233-1011

Dear Mr. Martens:

This letter is a follow up to a December 20, 2012 video conference discussion of the City of Rochester's request to ban high-volume hydrofracking (HVHF) in the watersheds of Hemlock and Canadice Lakes. The City's reasons for requesting the HVHF ban were also outlined in a December 15, 2011 letter to the New York State Department of Environmental Conservation (NYSDEC). Below is a summary of our December 20 discussion:

- The City is concerned because NYSDEC concluded in its decision to ban HVHF in the New York City and Skaneateles watersheds, that significant HVHF activity in a watershed has the potential to increase erosion leading to higher turbidity in a lake. The City utilizes a direct filtration process, which has a minimal contact time prior to filters (20 minutes at design flow) to treat Hemlock and Canadice Lake water before it is distributed for public consumption. Source water with low turbidity is required for this type of treatment process to work properly, and the state has determined that HVHF may increase turbidity.
- Compared to Skaneateles Lake, Hemlock and Canadice Lakes are more susceptible to the negative effects of HVHF. The ratio of lake volume to watershed area is roughly ten times greater for Skaneateles Lake, which results in greater dilution of runoff events, resulting in lower lake turbidity. Hence, the City is concerned that the negative impacts of HVHF will be amplified in Hemlock and Canadice Lakes.
- The marginal nature of the Marcellus shale deposit located near Hemlock and Canadice Lakes make HVHF unlikely to occur in this area. Therefore, the City believes that any potential benefit from HVHF is outweighed by the risks for potential harm.

To help assess the merits of the City's request, NYSDEC requested additional information regarding: 1) the direct filtration process; 2) the nature of turbidity in Hemlock; 3) the adverse impacts to the City if turbidity increased and treatment failed; and 4) soliciting feedback from the New York State Department of Health (NYSDOH).

## 1) Direct Filtration Process

The Hemlock Water Treatment Plant is a dual media, high rate direct filtration plant. Basic design criteria for the Plant are listed in Table 1. Attachment 1 provides an overview of the treatment train.

**Table 1: Design Criteria for Hemlock Water Treatment Plant**

Maximum Flow	48 million gallons per day
Number of Filters (1' sand, 3' anthracite)	8
Maximum filtration rate	6 gallons per minute per square foot
Rapid Mix Basins, minimum detention time	1 minute
Flocculator, minimum detention time	20 minutes

The Plant's design was selected following extensive pilot testing during the 1980s. The report *Hemlock Monitoring and Pilot Treatment Plant Study* (Camp, Dresser & McKee, 1981) states, "A direct filtration mode of treatment was selected for piloting because of the excellent raw water quality which is experienced most of the time and because the infrequent turbidity peaks experienced historically have been rare, brief and of low intensity." The highest turbidity tested during the pilot study was 17 NTU.

With current source water quality, the City's direct filtration plant is capable of complying with all applicable NYSDOH treatment standards. Presently, the only operational drawback of direct filtration is short filter runtimes, which can limit Plant production rates during periods of peak demand, especially in summer months.

## 2) Nature of Turbidity in Hemlock Lake

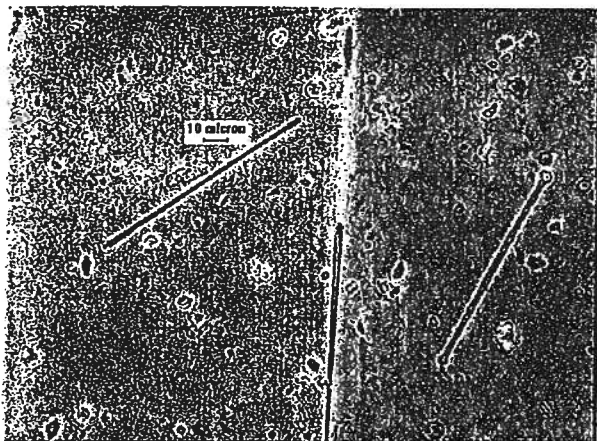
**Table 2: Summary Hemlock Lake Raw Water Turbidity (1984–2012)\***

Statistic	Monthly Average (NTU)	Maximum Day (NTU)
Median	1.49	2.4
75th percentile	1.9	3.4
90 <sup>th</sup> percentile	2.3	5.0
95 <sup>th</sup> percentile	2.6	7.4
99 <sup>th</sup> percentile	3.5	16.2
Maximum	5.0	>24**

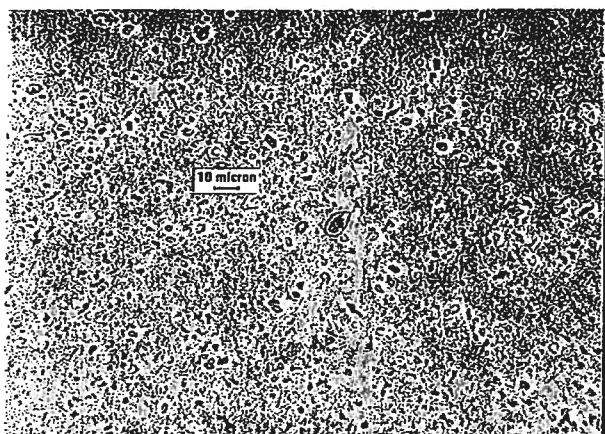
\*Note: Statistics are based on daily averages of hourly readings.

\*\*Result is ">" because hourly readings exceeded online instrument's upper range.

The distribution of turbidity levels in Hemlock Lake Raw Water is summarized in Table 2. Turbidity in Hemlock and Canadice Lakes is primarily inorganic, consisting of clay and silt particles. A study done in the 1980s by the City's Hemlock Water Quality Laboratory found no correlation between algal counts and turbidity. Higher turbidities were found to be associated with an increase in the percentage of inorganic solids, not organic particles (Figures 1 & 2).



**Figure 1: Image 1: Low Hemlock Turbidity (1.2 NTU)**



**Figure 2: High Hemlock Turbidity (6.1 NTU)**

The watersheds for Hemlock and Canadice Lakes are dominated by soils rich in silt and clays, which is why a high turbidity event results in such a dramatic increase in this particle type (Figure 2). All of the Finger Lakes—including Skaneateles Lake—are dominated by this soil type. However, the soils in the Hemlock and Canadice watersheds are more susceptible to erosion than Skaneateles because they are located in the Allegheny Uplands, which is characterized by steeper and longer slopes. The upper three-fourths of the Skaneateles watershed is set in the Lake Ontario plain, which has much less slope.

### **3) Adverse Impacts to Rochester if Turbidity Increased and Treatment Failed**

If significant HVHF activity resulted in an increase in turbidity, especially in the frequency of high turbidity events, significant financial and public health impacts would result, not only for City residents but also for residents living in surrounding communities that receive their water from Hemlock. While Rochester's population is approximately 210,000, there are also 43 connections to the City's conduits that run from Hemlock to Rochester which supply water to a number of communities. Therefore, the potential negative impact would extend well beyond the city limits.

If the severity and frequency of high turbidity events were to increase, both long and short-term impacts would result. Short term, plant production would be severely curtailed because of reduced filter runtimes, poorly finished water quality, or both. If the NYSDOH standard for

finished water turbidity were to be exceeded, a boil water order would need to be issued. The economic and public health impacts of boil water orders are significant and long-lasting.

Long term, the City would need to modify its treatment process at Hemlock to add a particle settling step before filtration. If that would not be possible due to existing physical constraints related to the current plant design, a new treatment plant would need to be built.

Additionally, there would be an immeasurable loss of the public trust if the water quality in Hemlock and Canadice Lakes were degraded as a result of HVHF.

#### **4) Solicit Feedback from New York State Department of Health (NYSDOH)**

On January 10, 2013, a conference call was held with staff from the NYSDOH, Bureau of Water Supply Protection (BWSP) including Roger Sokol, PhD, Director, BWSP; Lloyd Wilson, PhD, Director Special Projects, BWSP; William Gilday, P.E., Chief, Operations Section, BWSP; and David Rowley, P.E., Western Region Supply Engineer. The purpose of the call was to discuss the technical aspects and potential limitations of the direct filtration process. At that time, BWSP staff indicated they are willing to review these issues directly with NYSDEC engineering staff.

BWSP staff can be reached at 518-402-7650 to answer any questions related to the direct filtration process, like that employed at the Hemlock Water Treatment Facility.

I hope you find this additional information helpful when making your final determination regarding the City of Rochester's request to prohibit HVHF in the Hemlock and Canadice watersheds. I sincerely appreciate NYSDEC's professional and objective process used to evaluate our request.

In closing, I hope that you will ultimately conclude that the unique characteristics of Rochester's Direct Filtration process and lakes require no less protection than that afforded to Skaneateles Lake.

Sincerely,



Thomas. S. Richards, Mayor  
City of Rochester, New York

TSR:dtj