

FOR IMMEDIATE RELEASE, October 16, 2012

Contact: Kent Craford, Portland Water Users Coalition 503-961-4191
Floy Jones, Friends of the Reservoirs 503-238-4649

Reprieve granted to Rochester, NY for open reservoirs

Cites economic hardship, gets 10 year delay. A comparable water system to Portland, with engineered open reservoirs set in city parks. City of Portland ratepayer advocates demand the same reprieve for our historic reservoirs at Mt. Tabor and Washington Park.

PORTLAND—It has been revealed that Rochester, New York sought and received a 10-year reprieve from the federal LT2 reservoir covering rule after citing economic hardship. (see attached correspondence)

Documents recently obtained from the City of Rochester's water department reveal how that city with historic open reservoirs set in city parks received a deferral of EPA LT2 reservoir projects, until 2024. Rochester will be able to retain their historic open reservoirs and fully benefit from the LT2 rule revision scheduled for completion in 2016. Rochester argued, successfully, that severely strained budgets are reason for deferral, stating that the LT2 regulation "imposes expenditures that are too onerous..." The revelation is particularly noteworthy, as the Portland Water Bureau has stridently maintained that cities cannot cite economic hardship to secure an LT2 compliance delay.

"What's sauce for the goose is sauce for the gander. If Rochester can delay implementation of the LT2 open reservoir mandate on economic grounds, Portland should be able to as well. Why is a federal rule being applied one way in New York and another way in Portland? And why is the Portland City Council doing nothing about it?" asks Kent Craford, Director of the Portland Water Users Coalition, a group of large industrial water customers.

In August 2011 US Senator Chuck Schumer secured a commitment from EPA to reconsider the LT2 reservoir requirement. Mayor Adams responded to the news on KGW's Straight Talk, "Well it's fantastic if we can get some relief from having to cap all of our reservoirs. That would be an amazing victory. If we're successful I think I'm going to help erect a statue to Senator Schumer."

But while Sen. Schumer has helped Mayor Michael Bloomberg and New York City achieve their reprieve from LT2, and now Rochester as well, Portland Mayor Adams and Water Bureau Commissioner Randy Leonard have thrown in the towel—refusing to appeal to the Congress for further assistance. Rochester's reprieve came one month before PWB Administrator David Shaff met with officials from that City in Washington DC. Ratepayer advocates question whether Shaff knew of Rochester's LT2 reprieve and whether he shared the information with the Portland City Council before they voted to spend another \$80 million on new LT2 reservoir projects last month.

"It's imperative that Commissioners Fish and Saltzman join Commissioner Amanda Fritz, and act now to protect Portland ratepayers from crippling water rates. They must immediately stop work on the unnecessary \$80 million Kelly Butte project. They should demand, as Rochester did, an LT2 compliance delay from the State of Oregon citing out of control water rate increases," said Floy Jones of Friends of the Reservoirs.

The Portland Water Bureau is projecting a 14.8% rate increase in 2013, in part to pay for the new reservoir at Kelly Butte. Portland water rates have skyrocketed 61% since 2008.

XXX



City of Rochester

City Hall Room 308A, 30 Church Street
Rochester, New York 14614-1290
www.cityofrochester.gov



Thomas S. Richards
Mayor

September 12, 2011

The Honorable Lisa Jackson
Administrator
Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Jackson:

The City of Rochester, New York, is seeking clarification on the EPA's position regarding uncovered finished-water reservoirs. My interest stems from your response of August 19, 2011, to the Honorable Charles E. Schumer's letter of July 20, 2011, where you write "the EPA will review the LT2 rule and evaluate whether there are alternate ways to manage risk while assuring equivalent or improved public health protection."

As a result of the LT2 rule, the City is now in the process of making modifications to its three uncovered finished-water reservoirs in order to comply with this regulation. This multi-year, multi-million-dollar project includes reservoir lining, reservoir covering and installation of ultraviolet reactors at a cost of \$25,000,000.

At a time of severely strained budgets and people rightly demanding that public funds be judiciously spent, this regulation imposes expenditures that are too onerous and benefits that are, at best, difficult to measure. Implementation of the LT2 rule also comes at a time when the City needs to make major investments in its aging infrastructure by implementing already-identified system upgrades with clearly quantifiable benefits, such as transmission and distribution pipe renewal, as well as pressure improvements in the high-elevation service area and lead service pipe abatement.

The City of Rochester has provided its citizens and customers high-quality water for 135 years without experiencing any water-related disease outbreaks. Furthermore, there has not been a single confirmed case of *Cryptosporidium* or *Giardia* attributable to the City's water supply system.

The City has been and remains committed to delivering safe water to all its customers. However, since EPA's review of the LT2 rule may identify more cost-effective ways to protect public health than currently required, I request that a moratorium on the implementation of this regulation's requirements specific to uncovered finished-water reservoirs be put into effect immediately and written approval be given to the City of Rochester to suspend its compliance schedule until a final determination is made regarding the rule. I believe this will ensure that scarce public funds are expended in the most productive manner possible for protecting public health.

Sincerely,

Thomas S. Richards
Mayor





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

NOV 30 2011

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The Honorable Thomas S. Richards
Mayor of Rochester
City Hall Room 308A
30 Church Street
Rochester, New York 14614

OFFICE OF WATER

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ms: May

Dear Mayor Richards:

Thank you for your September 12, 2011, letter in which you seek clarification of the U.S. Environmental Protection Agency's (EPA) position on uncovered finished water reservoirs and request an immediate moratorium on implementation of the federal Long Term 2 Enhanced Surface Water Treatment Rule requirements as they relate to the city of Rochester. To effect this change, I understand that you are seeking our written approval to suspend your city's LT2 compliance obligations pending the EPA's regulatory review of the LT2 rule.

The LT2 rule requirements are still in effect. The rule is important for drinking water quality and public health protection. The provision that requires drinking water systems either to cover their finished water reservoirs or to treat the water leaving uncovered reservoirs before distribution to consumers is intended to protect against the potential for recontamination of treated drinking water with disease causing organisms, specifically *Cryptosporidium*, *Giardia* and viruses.

Many public water systems have already taken action to protect their drinking water as required by the rule, and many others are on a path to do so in the near future. In the 1970s, there were an estimated 700 uncovered reservoirs in the United States. In 2006, at the time the LT2 rule was promulgated, the number of uncovered reservoirs had been reduced to 81. Since then, public water systems have taken steps to cover, decommission or treat the water before distributing it to consumers at an additional 38 reservoirs. Today, only 43 uncovered finished water reservoirs are still in use, and all are under enforceable schedules to meet the LT2 rule's cover or treat requirements. Of those 43 reservoirs, most are currently undergoing construction or have schedules to complete construction during the next few years.

In her August 19, 2011, letter to U.S. Senator Charles E. Schumer, Administrator Lisa Jackson said that the EPA will review the LT2 rule and evaluate whether there are alternate ways to manage risk while ensuring equivalent public health protection. As you know, the EPA has committed to reviewing the LT2 rule as part of the agency's *Final Plan for Periodic Retrospective Review of Regulations*. In addition, the LT2 rule is among more than 70 rules that the EPA must review under the Safe Drinking Water Act's next review cycle to be completed by 2016. Under the Safe Drinking Water Act, the EPA must review existing national primary drinking water regulations at least every six years and revise them as appropriate. Additionally, the Safe Drinking Water Act specifies that any rule revision must maintain or provide for greater public health protection.

The EPA will conduct a thorough review of the LT2 rule. As part of the review, the EPA will assess and analyze new data and information regarding occurrence, treatment, analytical methods, health effects and risk from *Cryptosporidium*, *Giardia* and viruses to evaluate whether there are new or additional ways to manage risk while ensuring equivalent or improved public health protection. Science will drive our ultimate decision.

The rule review process does not provide a basis to modify the city's LT2 compliance obligations. However, there may be specific, articulable facts that warrant compliance schedule adjustments. Many public water systems face multiple challenges in managing, maintaining and operating those systems. Infrastructure construction projects can also present challenges. It is entirely appropriate for primacy agencies to consider these system specific facts when evaluating a request to adjust a compliance schedule. If a schedule adjustment is appropriate, the public water system should have in place robust interim measures to ensure public health protection, and those interim measures should remain in effect until that system comes into compliance with the rule.

During the spring of 2012, the EPA intends to hold a public meeting to focus on the uncovered reservoir issue. The city of Rochester is invited to present information, which the EPA would be happy to consider as part of its regulatory review process. We at the EPA look forward to continuing to work with the city of Rochester and other stakeholders.

In the meantime, I thank you for sharing your concerns. The EPA appreciates your city's commitment to delivering safe water to its customers. If you have questions, please feel free to contact me or your staff may call Sarah Hospodor-Pallone, Deputy Associate Administrator for Intergovernmental Relations, at (202) 564-9601.

Sincerely,

A handwritten signature in black ink, appearing to read 'N. Stoner', with a stylized flourish at the end.

Nancy K. Stoner
Acting Assistant Administrator



January 9, 2012

John Felsen, Manager
Division of Environmental Health
Monroe County Department of Public Health
P.O. Box 92832
111 Westfall Road
Rochester, NY 14692-8932

RE: City of Rochester, NY, PWS ID: NY2704518
Bilateral Compliance Agreement

Dear Mr. Felsen:

The City of Rochester respectfully requests your approval to amend the August 18, 2011, Bilateral Compliance Agreement (BCA) regarding compliance with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2 rule). The August 18, 2011, BCA requires the City of Rochester bring its three (3) uncovered finished-water reservoirs into compliance with the LT2 rule by December 31, 2014. We have currently completed the first leg of our BCA agreement to install a synthetic liner on Highland Reservoir at a cost of over \$4 million. We are currently on schedule to complete the second leg of our LT2 compliance program to install a synthetic liner and floating cover on Rush Reservoir by December 31, 2012, at a cost of over \$11 million.

The third and final leg of our compliance plan involves installing ultraviolet disinfection (UV) reactors at Cobbs Hill Reservoir and Highland Reservoir. The total expected cost of this third leg is approximately \$15 million. We are specifically requesting an alteration of the milestone dates for both the Cobbs Hill Reservoir UV project and the Highland Reservoir UV project. We request approval to modify our BCA completion date for the Cobbs Hill Reservoir and the Highland Reservoir UV projects from December 31, 2014, to December 31, 2024.

For reasons described in our December 20, 2011, correspondence we request revisions to the following milestones as detailed below.

Highland Reservoir Ultraviolet Disinfection Project

Milestone Item No.	Original Milestone Date	Revised Milestone Date	Milestone Action
H	November 30, 2011	April 30, 2021	Hire/Retain UV Design Consultant



I	October 31, 2012	April 30, 2022	Submission of UV Plans to DOH
J	January 31, 2013	July 31, 2022	Award Highland UV Construction Contract
K	February 28, 2013	September 30, 2022	Begin Highland UV Construction
L	January 31, 2014	September 30, 2023	Place Highland UV into Service

Cobbs Hill Reservoir Ultraviolet Disinfection Project

Milestone Item No.	Original Milestone Date	Revised Milestone Date	Milestone Action
A	November 30, 2011	November 30, 2021	Hire/Retain UV Design Consultant
B	February 28, 2013	February 28, 2023	Submission of UV Plans to DOH
C	July 31, 2013	July 31, 2023	Award Cobbs Hill UV Construction Contract
D	December 31, 2013	September 30, 2023	Begin Cobbs Hill UV Construction
E	December 31, 2014	December 31, 2024	Place Cobbs Hill UV into Service

If these suggested revisions meet with your approval, the City is prepared to sign a new Compliance Agreement that reflects these new milestone dates.

Please feel free to call upon me to discuss this letter at any time.

Sincerely,

Robert L. Morrison
Director
Rochester Water Bureau

CC: D. Rowley, NYSDOH
P. Holahan



City of Rochester

Department of Environmental Services
10 Felix Street
Rochester, New York 14608
www.cityofrochester.gov



Bureau of Water

March 16, 2012

John Felsen, Manager
Division of Environmental Health
Monroe County Department of Public Health
P.O. Box 92832
111 Westfall Road
Rochester, NY 14692-8932

RE: City of Rochester, NY, PWS ID: NY2704518
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The third and final leg of our compliance plan involves installing ultraviolet disinfection (UV) reactors at Cobbs Hill Reservoir and Highland Reservoir. The total expected cost of this third leg is approximately \$15 million. The City, with assistance from MCDPH and NYSDOH, prepared a *Cryptosporidium* and *Giardia* Action Plan (CGAP) that describes the monitoring, sampling and testing of water discharging from both reservoirs that the City will conduct, and the actions to be taken in case the results show elevated counts of cysts or oocysts.

The CGAP was presented to and approved by the EPA earlier this week. In view of this, the City of Rochester is specifically requesting an alteration of the milestone dates for both the Cobbs Hill Reservoir UV project and the Highland Reservoir UV project. We request approval to modify our BCA completion date for the Cobbs Hill Reservoir and the Highland Reservoir UV projects from December 31, 2014, to December 31, 2024. The CGAP document is attached to this letter.

For reasons described in our December 20, 2011, correspondence we request revisions to the following milestones as detailed below.



Highland Reservoir Ultraviolet Disinfection Project

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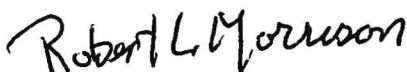
Cobbs Hill Reservoir Ultraviolet Disinfection Project

Milestone Item No.	Original Milestone Date	Revised Milestone Date	Milestone Action
A	November 30, 2011	November 30, 2021	Hire/Retain UV Design Consultant
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C	July 31, 2013	July 31, 2023	Award Cobbs Hill UV Construction Contract
D	December 31, 2013	September 30, 2023	Begin Cobbs Hill UV Construction
E	December 31, 2014	December 31, 2024	Place Cobbs Hill UV into Service

If these suggested revisions meet with your approval, the City is prepared to sign a new Compliance Agreement that reflects these new milestone dates.

Please feel free to call upon me to discuss this letter at any time.

Sincerely,



Robert L. Morrison

Director, Rochester Water Bureau

CC: David Rowley, NYSDOH

Paul Holahan, City of Rochester

City of Rochester, New York
Department of Environmental Services
Bureau of Water



CITY OF ROCHESTER
CRYPTOSPORIDIUM AND GIARDIA
ACTION PLAN

Paul M. Holahan
Environmental Services Commissioner

Robert L. Morrison
Water Bureau Director

March 2012



City of Rochester *Cryptosporidium* and *Giardia* Action Plan

Introduction

The purpose of this document is to provide guidance for intra- and inter-agency action and coordination in response to the presence of *Giardia* cysts or *Cryptosporidium* oocysts in water leaving the City of Rochester's (City) Highland reservoir or Cobbs Hill reservoir.

This *Cryptosporidium* and *Giardia* Action Plan (CGAP) outlines potential responses to test results that show any elevated concentrations of cysts or oocysts in water leaving these reservoirs. The CGAP is required under the City's Bilateral Compliance Agreement (BCA), in accordance with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2 rule), as a condition for the City to postpone the BCA completion date from December 31, 2014, to December 31, 2024.

The CGAP has been tailored to match Rochester's uniquely efficient system design, robustly redundant operational features and consistently high water quality.

Background

Since 1876 the City of Rochester customers 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 "upland" in the hills of Livingston and Ontario counties, about 30 miles south of Rochester.

Over the system's 136-year history, watershed protection has been the City's first treatment barrier to assure drinking water quality. The cornerstone of this effort was the City's ownership of approximately 7,000 acres in the watershed, including the entire shorelines of both lakes. In 2010 the City sold this watershed property to the New York State Department of Environmental Conservation (DEC). The preservation of the watershed controlling runoff into the lakes was a principal consideration in the significant investment by the State and continues to be an operational focus of both the State and the City.

Rules and regulations govern the use of the watershed land restricting public access at the north end (where the intake pipe is located) and limiting activities that might have deleterious effects on the water quality. State DEC and City Water Bureau personnel continue to observe land use and look for any potential threats of pollution or contamination to the lakes.

The fact that no *Giardia* cysts or *Cryptosporidium* oocysts were recovered during the City's LT2-rule monitoring supports the value of the City's watershed protection efforts. Moreover, not one single confirmed incident of giardiasis or cryptosporidiosis has ever been attributable to the City's water system.

Rochester's drinking water system is one of the most reliable systems in the world because of its source water redundancy (Hemlock Lake or Lake Ontario), abundant system storage (over 230 million gallons) and extraordinary operational flexibility.

The City supplements its Hemlock Lake water supply with Lake Ontario water purchased from the Monroe County Water Authority (MCWA). Each system by itself is capable of meeting the city's maximum demand. The two supply systems are located 45 miles apart. This significant geographical separation makes failure (be it an accident or a malevolent act) at one location very unlikely at the other.

The Hemlock Lake and Lake Ontario water treatment plants both employ filtration and disinfection. A third filtration plant on Lake Ontario, about 18 miles east of the existing one, currently under construction and slated to be in service in 2013, will add yet another level of dependability.

Highland and Cobbs Hill reservoirs are located within the city and provide ample reserve capacity to shut down and drain each reservoir for inspection, maintenance or repairs. Highland reservoir has a capacity 26 million gallons and has been in service for 136 years. Cobbs Hill reservoir, with a capacity of 144 million gallons, has been in service for 104 years. In the past, each reservoir has been removed from service for inspection, cleaning and repair work without any diminution in water quality or quantity delivered into the system.

Significant improvements were made to Highland reservoir in 2010, including installing a synthetic liner, as well as reconfiguring the reservoir inlet piping to provide better circulation that results in enhanced water quality.

A third reservoir in the town of Rush, also in service for 136 years, provides 63 million gallons of additional balancing storage. This reservoir will be lined and covered in 2012 as part of the City's ongoing program to achieve compliance with the LT2 rule.

Considering that the city's average daily water demand is 20 million gallons, there is sufficient storage capacity to last for several days in case of an emergency. Multiple connections to the MCWA distribution system that are normally closed can be readily opened to provide additional supply, thus increasing the overall reliability of the system.

Attachment A shows a schematic of the City's water system including the Hemlock Lake and Lake Ontario supply sources, as well as the treatment, transmission and storage facilities in between the two lakes. Attachment E provides a skeletonized block diagram depicting the salient features of the supply system and the interaction among its various components.

Located in parkland settings and surrounded by eminently residential and light commercial areas, Highland and Cobbs Hill reservoirs are protected from industrial

contamination. Sitting atop the two highest peaks in the city with no neighboring land above them precludes any storm water runoff from emptying into the reservoir bowls.

Chlorine is added at the reservoir outlet lines. Continuous chlorine residual monitoring and frequent laboratory testing for turbidity, total coliform and *E coli* ensure the safety of the drinking water. See Attachment G for a full monthly report of all sampling, testing, monitoring and related activities.

Aerial photographs of the two City reservoirs are shown below. For additional photos see Attachment D.



Highland and Cobbs Hill Reservoirs

Because of redundancy in source waters and ample system storage, the City is able to operate with one or both reservoirs bypassed. Piping and valving reconfigurations to automate the shutdown and bypassing of the reservoirs have already been made at Highland reservoir and will be made at Cobbs Hill reservoir within the next two years. Operationally, this means that a reservoir can be quickly removed from service in the event of a contamination episode.

Expeditious shutdown and bypassing of the reservoirs, in addition to a long-established water main isolation and flushing strategy, make for a rapid and effective means of disposing to waste any water of questionable quality that might enter the distribution system from either reservoir. Also, pumping from the Lake Ontario supply source would ensure that the customers receive safe water should such an episode occur.

City Water Bureau personnel assigned to the storage facilities conduct daily inspections of the reservoirs (see Attachment F), as well as all appurtenant equipment and instrumentation. Periodic Engineering assessment of the structures (including underwater inspection) assures the proper operation of the system.

Access to the reservoirs by the public or wildlife is restricted and monitored. A perimeter fence surrounds each reservoir to prevent direct access by the public. Video

surveillance cameras are strategically positioned at each reservoir and monitored 24 hours a day by City staff. Bird wiring installed at both reservoirs serves as a deterrent for geese, ducks and other fowl and has proven to be remarkably effective in preventing avian intrusion.

In addition to the safeguards in place at the supply source and storage reservoirs, the following annual inspection, maintenance, repair and replacement programs provide the necessary means to avert any water quality degradation within the distribution piping:

- Water main replacement and rehabilitation (practically all the transmission and trunk mains have an interior cement liner to impede corrosion and iron bacteria, while 65% of all the smaller distribution mains are also lined).
- Water main flushing (to remove corrosion products and maintain adequate chlorine residuals).
- Valve exercising and verification (to provide adequate isolation and prevent dead-end conditions).
- Leak detection and control (8.7 breaks/year/100 miles of main as opposed to the national average of 27 breaks/year/100 miles*).

Since water entering each reservoir has been filtered and disinfected at the treatment plant and has not been exposed to the elements on its 30-mile route into the City's service area, the City infers that any elevated counts, in either cysts or oocysts, must be related to circumstances within or adjacent to Highland and Cobbs Hill reservoirs. Therefore, the focus of the CGAP is on operations and water quality at these reservoirs.

To monitor the concentration of *Giardia* cysts and *Cryptosporidium* oocysts during the BCA-completion postponement period, the City will collect 50-L samples twice a month at each reservoir outlet. Samples will be tested by a certified laboratory using EPA Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA (EPA 815-R-05-002, Dec. 2005). At the conclusion of each year of testing, the City will provide the EPA and the NYSDOH with a technical memorandum describing any proposed changes to the CGAP.

**From EPA's August 15, 2002, Distribution System Issue Paper entitled, New or Repaired Water Mains, published by the USEPA Office of Water/Office of Ground Water and Drinking Water.*

***Cryptosporidium* and *Giardia* Action Plan**

Guidelines for Inter-Agency Notifications and Coordination

“No Action” Level: 0-3 *Giardia* Cysts/50 L or 0-1 *Cryptosporidium* Oocysts/50 L detected in water leaving either Highland reservoir or Cobbs Hill reservoir

- Highland and Cobbs Hill monitoring results will be emailed by the City’s contract laboratory to distribution list included as Attachment B.
- NYSDOH, MCDPH and City staff will routinely review water quality and disease/syndromic surveillance data for parameters listed in Attachment C.
- Continue routine sanitary surveys (Attachment C) of reservoir facilities by City staff.

Action Level 1: 4-7 *Giardia* Cysts/50 L or 2-4 *Cryptosporidium* Oocysts/50 L detected in water leaving either Highland reservoir or Cobbs Hill reservoir

- Follow steps in “No Action” Level above.
- The City’s contract laboratory will immediately contact by email and phone the City’s Manager of Water Production and Treatment when concentrations of cysts or oocysts meet Action Level 1 conditions.
- The Manager of Water Production and Treatment will contact by email and phone the key individuals for the involved agencies (MCDPH, Water Bureau, NYSDOH) as indicated in Attachment B.
- City staff will assemble all available relevant water quality (Attachment C), water system operations, meteorological data and protozoan data (*Giardia* and *Cryptosporidium*). NYSDOH and MCDPH will provide relevant disease/syndromic surveillance information for the period surrounding the sampling date. These data will be assembled and reviewed by staff at the City, MCDPH and NYSDOH.
- City staff will immediately collect repeat sample from reservoir outlet for *Giardia* and *Cryptosporidium* analysis.
- City staff will also assemble and review information concerning operations at the Hemlock Filtration Plant and at Rush reservoir.
- As soon as possible after notification, City staff will confer with MCDPH and the NYSDOH to determine if any further action is warranted. Further action could include:
 - No further action;
 - More frequent and expanded *Giardia* and *Cryptosporidium* monitoring to include samples from inlet and outlet structures and within reservoir bowl;
 - Expanded turbidity, total coliform and *E. coli* monitoring to include samples from inlet and outlet structures and within reservoir bowl;
 - Expedited sample processing times;

- Sanitary survey of reservoir facilities by City and MCDPH staff;
- Shutdown reservoir; or
- Escalation to Action Level 2.

Action Level 1: De-escalation Plan

If results from two successive sampling events indicate that *Giardia* or *Cryptosporidium* concentrations have dropped below 3 cysts/50 L or 1 oocysts/50 L:

- All available relevant water quality, water system operations, meteorological data and disease/syndromic surveillance information for the period surrounding the sampling date (taking into account the incubation period for *Giardia* or for *Cryptosporidium*) will again be reviewed by City and MCDPH staff. If data indicate there is no need for continued response actions, Action Level 1 will be rescinded or modified, as appropriate.

Action Level 2: >7 *Giardia* Cysts/50 L or >4 *Cryptosporidium* Oocysts/50 L detected in water leaving either Highland reservoir or Cobbs Hill reservoir

- Follow steps in Action Level 1 above.
- The City's contract laboratory will immediately contact by email and phone the City's Manager of Water Production and Treatment when concentrations of cysts or oocysts meet Action Level 2 conditions.
- The Manager of Water Production and Treatment will contact by email and phone the key individuals for the involved agencies (Water Bureau, MCDPH, NYSDOH) as indicated in Attachment B.
- The City will immediately start weekly monitoring for *Giardia* and *Cryptosporidium* at inlet and outlet structures and within the reservoir bowl. Samples will also be collected daily for total coliform, E. coli and turbidity at inlet and outlet structures and within the reservoir bowl. The first samples will be collected within 24 hours of notification. To the extent practicable, sample turnaround time will be expedited.
- City staff will assemble all available relevant water quality (Attachment C), water system operations, meteorological and protozoan data (*Giardia* and *Cryptosporidium*). NYSDOH and MCDPH will provide relevant disease/syndromic surveillance information for the period surrounding the sampling date. These data will be assembled and reviewed by staff at the City, MCDPH and NYSDOH.
- In deciding if additional actions are warranted, the data will be evaluated with respect to historic seasonal and temporal trends.
- MCDPH and City staff will conduct a sanitary survey of the impacted reservoir to qualitatively assess and document possible issues associated with existing sanitary barriers. This will include but not be limited to documenting:

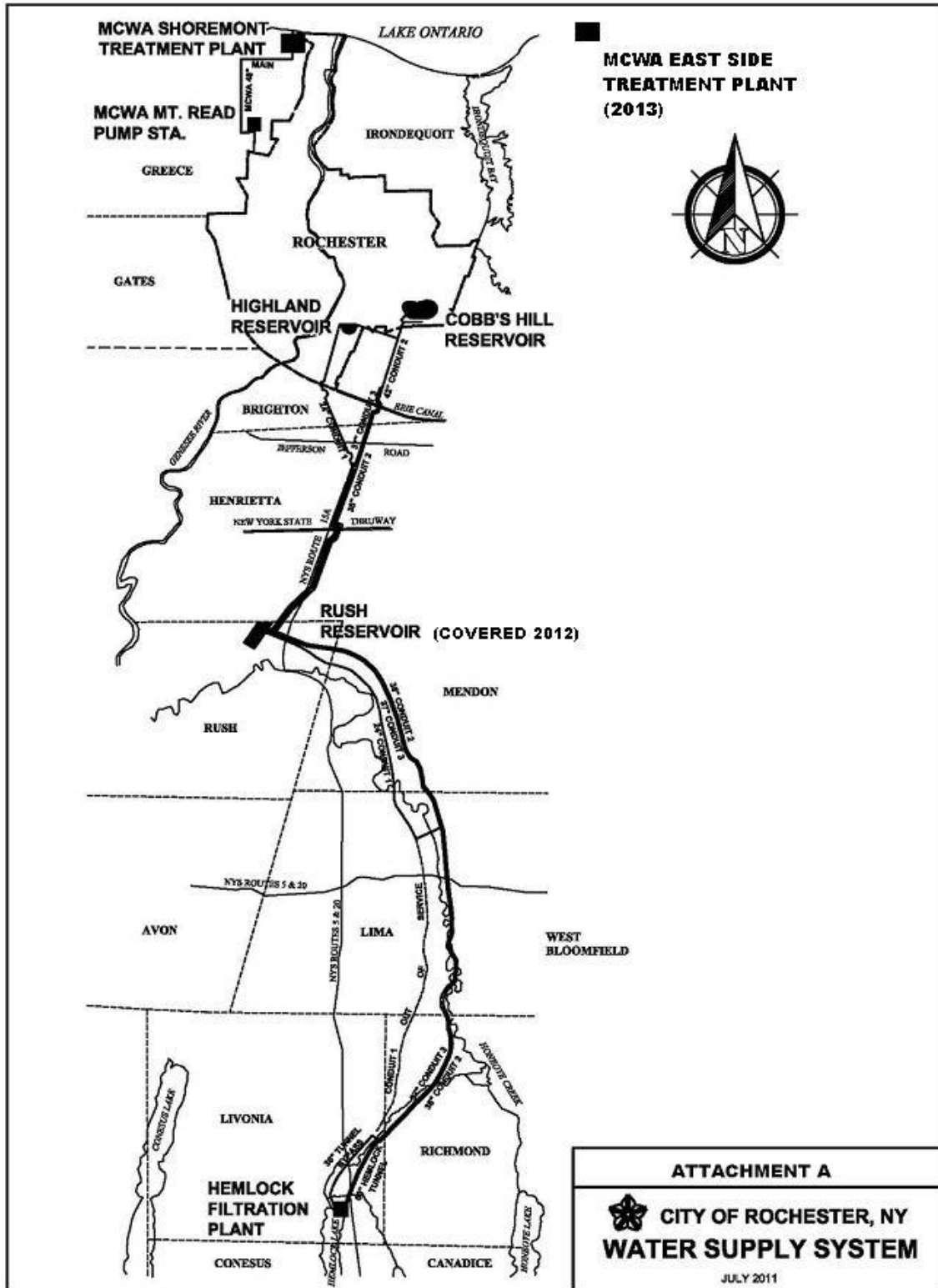
- Evidence of increased presence of waterfowl, birds and other wildlife;
- Evidence of increased fecal matter in/near the affected reservoir;
- Visual inspection of wiring, fencing and other barriers to wildlife
- Senior staff at the City, MCDPH and NYSDOH will confer as soon as possible. Based on consideration of all available relevant information and data, senior staff will decide: (1) whether to bypass the affected reservoir; (2) whether to notify the public and/or health care provider organizations; (3) whether to undertake any other response actions; (4) whether to escalate to a boil-water advisory for the affected reservoir's service area; (5) the form, content and mechanism for effectively and rapidly communicating with the public; and (6) whether there are potential concerns or issues with the existing conditions at the reservoirs that might have contributed to the elevated levels of *Giardia* and *Cryptosporidium*; (7) whether to collect *Giardia* and *Cryptosporidium* samples from distribution system locations.

Action Level 2: De-escalation Plan for either Highland reservoir or Cobbs Hill reservoir

If results from two successive sampling events indicate that *Giardia* or *Cryptosporidium* concentrations have dropped to No Action levels of 0-3 *Giardia* cysts/50 L or 0-1 *Cryptosporidium* oocysts/50 L, de-escalation may occur as follows:

- All available relevant water quality, water system operations, meteorological data and disease/syndromic surveillance information for the period surrounding the sampling date (taking into account the incubation period for *Giardia* or for *Cryptosporidium*) will again be reviewed by City and MCDPH staff. If data indicate there is no need for continued response actions, Action Level 2 will be rescinded or modified, as appropriate.
- Any parties notified of the alert will be informed that the alert has been rescinded (e.g., via the HAN).

Attachment A



Attachment B

Distribution List for Action Plan

Paul Holahan (City of Rochester – Environmental Services Commissioner)

Robert Morrison (City of Rochester – Water Bureau Director)

Leonard Schantz (City of Rochester – Production and Treatment Manager)

David Rowley, P.E. (NYSDOH – Senior Sanitary Engineer)

John Frazer, P.E. (MCDPH – Associate Public Health Engineer)

Kenneth Naugle, P.E. (MCDPH – Senior Public Health Engineer)

Attachment C

Water Quality, Water System and Disease/Syndromic Surveillance Parameters to be reviewed

A. Water Quality and Water System Parameters

- *Cryptosporidium* and *Giardia* test results for reservoirs.
- Meteorological data for the period in question.
- Reservoir operational data, including flows, chlorine residual (In, Out), algae counts, pre- and post-chlorine total coliform and *E. coli* test results and turbidity data. The table below summarizes sampling frequency for each parameter.

Frequency	Parameter	Locations	Comment
Continuous	Free chlorine, conductivity, flows	Reservoir Outgoing water	Cl calibration checked daily, conductivity weekly and flow annually
Daily	Turbidity, free chlorine	Reservoir Incoming and Outgoing water	Daily Operator grab sample checks
Weekdays	Total coliform, <i>E. coli</i> , Heterotrophic Plate Count bacteria, pH, conductivity	Reservoir Incoming and Outgoing water	Samples tested at City's ELAP certified laboratory
Weekly during summer	Microscopic algae counts	Reservoir Outgoing water	Total cell count using inverted microscope
Data are archived in a database to facilitate statistical analyses, e.g. trend analysis.			

- Available test results from distribution system at coliform sample sites and at fire houses with chlorine/conductivity sensors.
- Operational records for Hemlock Filtration Plant and Rush reservoir.
- Customer Complaints.
- Source water data.
- Protocol for collecting samples within the reservoir bowl can include surface samples as well as samples collected at different depths within the water column.

B. Disease/Syndromic Surveillance Parameters

- Giardiasis and cryptosporidiosis Surveillance Data by MCDPH staff using EDSERV.
- Clinical Lab Surveillance Data.

C. Base Elements of Sanitary Survey

- Documentation of wildlife activity, such as birds and waterfowl, entering the reservoir.
- Documentation of any fecal matter near the reservoir.
- Inspection of bird wiring, fencing and other barriers to wildlife.

Attachment D
Reservoir Photos

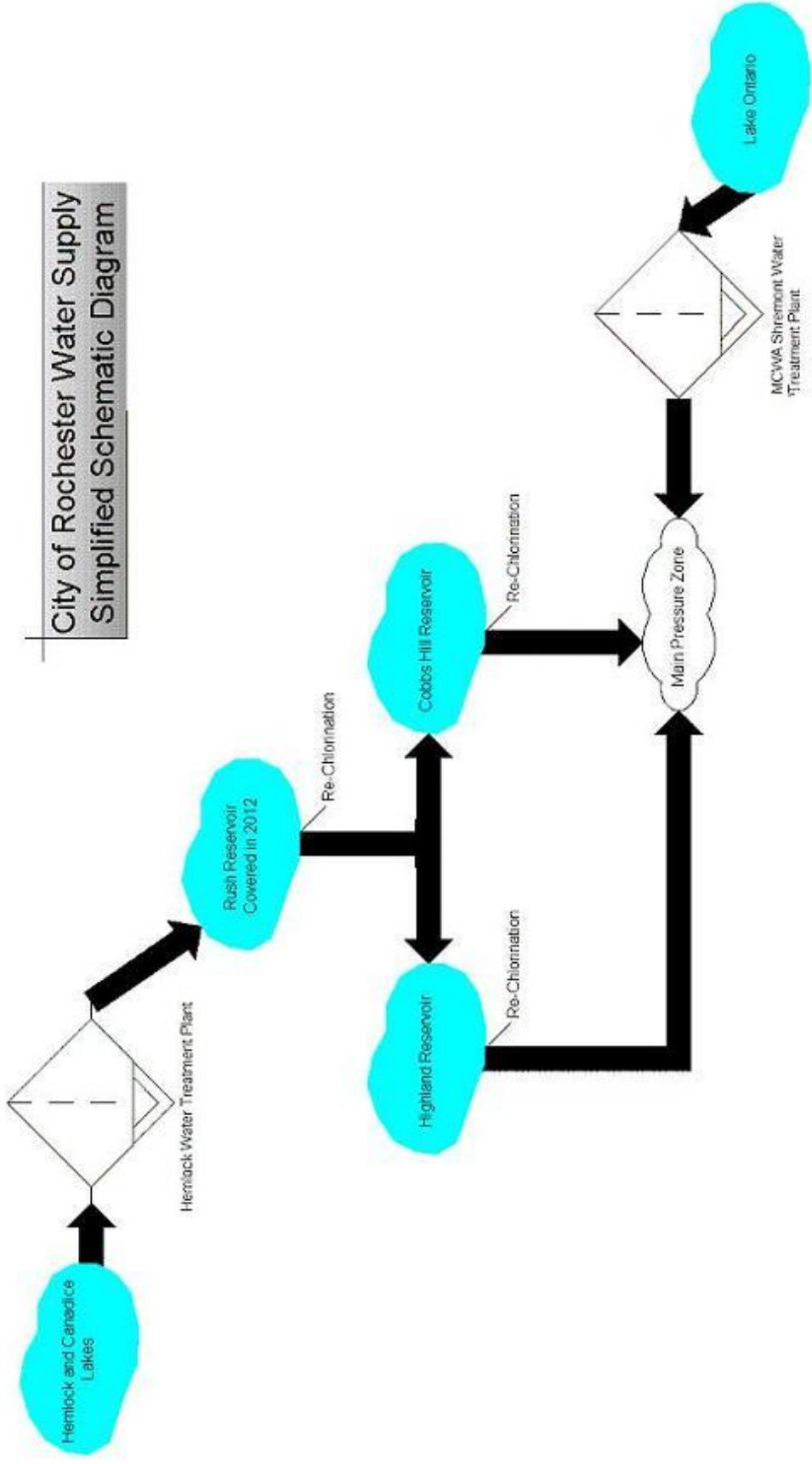
Highland Reservoir



Cobbs Hill Reservoir



Attachment E



Attachment F

Sample Daily Reservoir Inspection Notes

Date	Time	Reservoir	ID	Comments
02-06-12	09:45	Highland	RC	Leaf mass in east corner. Slight algae growth. Two bird wires down.
	10:30	Cobbs Hill	RC	Expansion joint for electric lights-first pole east of Radio Center. Two bird wires down. Floating trash east side (cleaned).
02-07-12	08:30	Cobbs Hill	RC	Good
	09:30	Highland	RC	Good
02-08-12	08:30	Cobbs Hill	RC	Four ducks east end.
	09:30	Highland	RC	Good
02-09-12	08:30	Cobbs Hill	RC	Good
	09:30	Highland	RC	Good
02-10-12	08:20	Cobbs Hill	RC	Good
	09:30	Highland	RC	Good
02-11-12	08:00	Cobbs Hill	RC	Good
	09:15	Highland	RC	Algae getting darker & thicker.
02-12-12	08:30	Cobbs Hill	RC	Good
	09:30	Highland	RC	Good. Same as yesterday.
02-13-12	08:00	Cobbs Hill	RC	Good
	10:30	Highland	KM	Good. Same as yesterday
02-14-12	13:00	Highland	KM	Sycamore seeds at west end and floating at east end. Starting to plug the screens.
	16:00	Cobbs Hill	RC	Good
02-15-12	09:00	Cobbs Hill	RC	Good
	10:30	Highland	RC	Seeds floating east end.

Attachment G

WATER PRODUCTION OPERATIONS

January 2012 MONTHLY REPORT

City of Rochester
Bureau of Water
10 Felix Street
Rochester, New York 14607

March 30, 2012

Attn.: Mr. Paul Holahan, Commissioner – Department of Environmental Services

Re.: **Long Term 2 Enhanced Surface Water Treatment Rule**
Bilateral Compliance Agreement – Revision #4
City of Rochester (PWS # 2704518) – New York

BILATERAL COMPLIANCE AGREEMENT

Gentlemen:

The Long Term 2 Enhanced Surface Water Treatment Rule (LT-2), (Federal Register, Part 141.714) requires that all uncovered finished water storage facilities meet one of the following requirements no later than April 1, 2009:

1. Install a cover;
2. Install treatment to achieve 2-log cryptosporidium inactivation;
3. Be on a state approved compliance schedule for achieving one the first two requirements.

The New York State Department of Health (NYSDOH), the Monroe County Department of Public Health (MCDOPH), and the City of Rochester have been actively engaged in developing a realistic time frame for compliance with LT2. At this time, MCDOPH and NYSDOH require the City of Rochester to formally agree to an enforceable compliance schedule to ensure compliance with LT-2.

Based on the project schedule developed by City of Rochester staff, and logistics of the improvements required, the project has been divided into three sections, based on the City's three existing uncovered finished water storage facilities; Highland, Cobbs Hill, and Rush Reservoirs. The following compliance dates have been established for each reservoir:

Highland Reservoir:

Milestone Item No.:	Milestone Date:	Milestone Action:
A.	April 1, 2009	Hire / Retain Consultant
B.	November 1, 2009	Submit Plans to DOH
C.	April 30, 2010	Award Highland Construction Contract
D.	May 24, 2010	Begin Phase I Construction: <i>Structural Modifications</i>
E.	August 2, 2010	Begin Phase II Construction: <i>Liner Improvements</i>
F.	August 30, 2010	Complete Phase I Construction
G.	February 1, 2011	Complete Phase II Construction
H.	April 30, 2021	Hire / Retain UV Design Consultant

Highland Reservoir: (Continued)

Milestone Item No.:	Milestone Date:	Milestone Action:
I.	April 30, 2022	Submission of UV Plans to DOH
J.	July 31, 2022	Award Highland UV Construction Contract
K.	September 30, 2022	Begin Highland UV Construction
L.	September 30, 2023	Place Highland UV into Service

Cobbs Hill Reservoir:

Milestone Item No.:	Milestone Date:	Milestone Action:
A.	November 30, 2021	Hire / Retain UV Consultant
B.	February 28, 2023	Submit UV Plans to DOH
C.	July 31, 2023	Award Cobbs Hill UV Construction Contract
D.	September 30, 2023	Begin Cobbs Hill UV Construction
E.	December 31, 2024	Place Cobbs Hill UV into Service

Rush Reservoir:

Milestone Item No.:	Milestone Date:	Milestone Action:
A.	March 31, 2010	Hire / Retain Design Consultant
B.	December 13, 2010	Submit Plans to DOH
C.	April 30, 2011	Award Rush Construction Contract
D.	May 31, 2011	Begin Rush Liner & Floating Cover Construction
E.	October 1, 2012	Complete Liner & Floating Cover Construction
F.	October 31, 2012	Place Rush into Service

Please note that any alteration to the Milestone Items, Milestone Dates, and/or Milestone Actions listed above requires approval by MCDOPH and NYSDOH, and the execution of a new **Compliance Agreement** reflecting the modified items. Should the City of Rochester fail to meet these compliance dates, it will be subjected to enforcement action and penalties as deemed necessary by MCDOPH and NYSDOH.

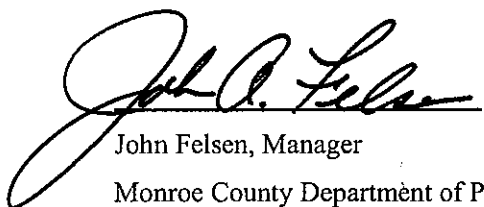
In entering into this compliance agreement, the City of Rochester agrees to fully implement all sampling and action items outlined in the Cryptosporidium Giardia Action Plan (CGAP) attached to this BCA for the duration of the compliance agreement period (through 2024).

The undersigned parties agree to this **Bilateral Compliance Agreement**.



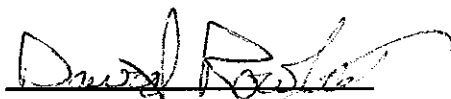
Paul Holahan, Commissioner
City of Rochester
Department of Environmental Services

Dated: March 30, 2012



John Felsen, Manager
Monroe County Department of Public Health
Division of Environmental Health

Dated: March 30, 2012



David Rowley, P.E., Western Region Water Supply Field Coordinator
New York State Department of Health
Western Region Field Office

Dated: March 30, 2012

Attachment(s):

1. City of Rochester Cryptosporidium and Giardia Action Plan (CGAP) -

March 2012

Bilateral Compliance Agreement (BCA) Document Amendment(s):

1. Original Agreement - March 25, 2009
2. Revision # 1 - December 29, 2009
3. Revision # 2 - March 11, 2011
4. Revision # 3 - August 18, 2011
5. Revision # 5 - March 30, 2012

4

End.