

**Carpenter Environmental Associates, Inc.
Comments on Potential Significant Environmental Impacts from the Proposed
Niagara Water Bottling Facility (Niagara) in the Town of Ulster, New York and
from the Acquisition from City of Kingston's Town of Woodstock Based Water
Supply for the Water Required by that Facility.
CEA No. 21438
November 17, 2014**

Introduction

At the request of Riverkeeper, Inc. (Riverkeeper), Carpenter Environmental Associates, Inc., (CEA) evaluated the potential environmental impacts of the proposed Niagara Water Bottling facility (Niagara) to determine if there is the potential for significant adverse environmental impacts associated with the proposed action that would require the preparation of a full Environmental Impact Statement (EIS) as required by the New York State Environmental Quality Review Act (SEQRA).¹ The proposed action includes the construction and operation of the proposed facility in the Town of Ulster, and the acquisition from and transmission of 1.75 million gallons per day (MGD) of water from the City of Kingston's source waters in the Town of Woodstock to support bottling plant operations at full build out. Our evaluation included the potential for significant adverse environmental impacts associated with the whole action, including the withdrawal from the City of Kingston's source waters in the Town of Woodstock and the use of its Woodstock-based storage, conveyance and treatment infrastructure.

Section 617.7 of the New York Codes Rules and Regulations, which sets forth the criteria for determining significance under SEQRA was relied upon to evaluate whether the proposed Niagara facility project may have a significant adverse impact on the environment.

Scope of Our Review

We reviewed the following documents to evaluate whether there is the potential for significant adverse environmental impacts from the proposed Niagara Facility and the use of the City of Kingston's water supply:

- New York State Department of Environmental Conservation (NYSDEC) Correspondence to Ulster Town Hall. RE: SEQR Lead Agency Designation. October 24, 2014.
- Kingston Water Department Correspondence to Niagara Bottling, LLC. RE: Will Serve for Niagara Bottling at 300 Enterprise Drive. September 15, 2014.

¹ New York Codes Rules and Regulations, Part 6, State Environmental Quality Review, 617.7(c).

- Niagara Water Media Release. Proposed Sale of Water to Niagara Bottling, LLC. October 6, 2014.
- Niagara Bottling, LLC Application for Sketch Plan Review.
- Full Environmental Assessment Form - Niagara Water Bottling Facility. Prepared by The Chazen Companies. Prepared for Town of Ulster Planning Board. September 15, 2014. (LEAF).
- Riverkeeper Correspondence to Town of Ulster, NYSDEC. RE: SEQRA Coordinated Review for Niagara Water Bottling Facility. October 14, 2014.
- Riverkeeper Correspondence to Town of Ulster. RE: Environmental Review of Niagara Water Bottling Facility. October 27, 2014.
- Beaverkill at Mt. Tremper Flow Data.
- Ashokan Watershed Stream Management Program, *Stream Management Plan: Beaver Kill Towns of Woodstock and Shandaken, Ulster County, New York*, Draft. Print.

CEA has not completed a comprehensive, in-depth analysis of all the potential environmental impacts associated with the proposed project and the acquisition and transmission of up to 1.75 MGD of water from the City of Kingston’s source waters in the Town of Woodstock. Rather, we conducted an analysis of selected potential impacts based upon potential significance.

Description of Proposed Action

The proposed action entails construction of a 414,800 square foot facility and associated parking areas within a 57.50 acre property located along the Lower Esopus Creek in the Town of Ulster, New York. Water is to be provided from both the Town of Ulster and the City of Kingston’s Woodstock-based water supply. The Niagara Bottling Facility, as proposed, will require transmission of 1 MGD of water for the initial project build out and 1.75 MGD of water to satisfy full build conditions. Improvements to the City of Kingston’s current conveyance and treatment infrastructure will be required to accommodate the new demand.²

Potential Impacts at the Niagara Facility Site

Stormwater Discharges to the Lower Esopus Creek

The Lower Esopus Creek is a NYS Class B stream and is listed under the *New York State Section 303(d) List of Impaired/Total Maximum Daily Load (TMDL) Waters* for turbidity, indicating the water body does not support its appropriate uses because of elevated levels of turbidity.^{3,4,5} Materials that cause turbid water include clay, silt, and finely divided

² The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

³ The Final New York State 2014 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy, September 2014.

⁴ NYSDEC Environmental Resource Mapper.

inorganic and organic matter that is suspended in the water.⁶ Class B surface waters are best used for primary and secondary contact recreation and fishing, and are suitable for fish, shellfish, and wildlife propagation and survival.⁷

Stormwater flows that result in increased turbidity and sediment concentrations in the Lower Esopus Creek can decrease the abundance of benthic organisms that fish prey on, decrease the ability for fish to feed opportunistically, increase fish stress levels, reduce fish growth rate, and reduce resistance to disease.^{8,9}

Furthermore, as per the NYSDEC Stormwater Design Manual (SWDM):

“Both suspended and deposited sediments can have adverse effects on aquatic life in streams, lakes and estuaries. Turbidity resulting from sediment can reduce light penetration for submerged aquatic vegetation critical to estuary health. In addition, the reflected energy from light reflecting off of suspended sediment can increase water temperatures (Kundell and Rasmussen, 1995). Sediment can physically alter habitat by destroying the riffle-pool structure in stream systems, and smothering benthic organisms such as clams and mussels. Finally, sediment transports many other pollutants to the water resource.”

Stormwater discharges during and after construction have the potential to result in increased turbidity in the Lower Esopus Creek and the ability to further impact the habitat and life stages of already impacted resident aquatic species.

The proposed Niagara Facility is bordered on three sides by the Lower Esopus Creek and will result in an increase of approximately 19 acres of impervious area.¹⁰ Impervious surfaces generate greater runoff volumes and stormwater drainage systems will deliver these increased volumes of stormwater more rapidly to the Lower Esopus Creek than the natural drainage systems did prior to construction.¹¹ Impervious surfaces accumulate pollutants between storm events from atmospheric deposition, leaks from vehicles, or windblown erosion from adjacent areas. The Niagara facility will have 520 trucks per day entering the facility at full build out and 160 parking spaces.¹² During rainfall events, these pollutants are picked up in stormwater runoff and can be delivered to

⁵ Turbidity is a measure of the amount of light that is scattered by material in the water when a light is shined through the water, with greater light scattering resulting in higher turbidity.

⁶ USGS, The USGS Water Science School, Turbidity, Accessed November 13, 2013, <http://water.usgs.gov/edu/turbidity.html>

⁷ NYSDEC §701.7 Class B fresh surface waters.

⁸ Birtwell, Ian K. The Effects of Sediment on Fish and Their Habitat. Canadian Stock Assessment Secretariat Research Document 99/139. Ottawa, 1999.

⁹ USEPA, Quality Criteria for Water 1986, EPA 440/5-86-001, May 1, 1986

¹⁰ The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

¹¹ NYSDEC. SWDM. August 2010.

¹² The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

downstream water bodies.¹³ Increased flows to water bodies as a result of increased impervious surfaces can result in erosion of stream banks and increased pollutant loads.¹⁴

The size and resulting hydrologic characteristics of the proposed Niagara facility will require extensive analysis to mitigate the impacts of stormwater on the Lower Esopus Creek. The Applicant indicates that the increased stormwater runoff will be handled in accordance with NYSDEC regulations, however the LEAF does not identify any post-construction stormwater management practices (SMPs) or how the project will comply with NYSDEC stormwater regulations. No site specific stormwater volumes or flows had been determined at the time the LEAF was submitted, and the Applicant has not provided any information on how it will meet post-construction stormwater quality and quantity requirements.

The proposed Niagara facility site contains physical constraints that will limit options for post-construction stormwater management and make design more difficult. The Applicant indicates the estimated depth to groundwater on the property as zero inches below grade.¹⁵ As a result, SMPs relying upon infiltration will not conform to NYSDEC design standards and will not be effective SMPs for the proposed project.¹⁶ Failure to meet NYSDEC regulations for water quality treatment, runoff reduction, and water quantity (peak flow attenuation) may result in increased stormwater flows, increased stream bank erosion, and increased discharges of pollutants to the Lower Esopus Creek.

During construction of the Niagara facility, erosion and sediment controls (E&SCs) need to be properly implemented to ensure sediment laden stormwater runoff does not reach the Lower Esopus Creek. E&SCs need to be properly designed, implemented, and maintained in accordance with the NYS Standards and Specifications for Erosion and Sediment Control. A failure to properly design the E&SCs used during the construction phase of the proposed Niagara Facility can result in the discharge of sediment laden stormwater into the Lower Esopus Creek.

Stormwater discharges to the Lower Esopus Creek from the Niagara facility present the potential for a significant adverse environmental impact to the Lower Esopus Creek as a result of decreased water quality caused by stormwater runoff and the potential for a substantial increase in erosion during construction of the proposed Niagara facility.¹⁷ It is essential to the already stressed aquatic life in the Lower Esopus Creek which is impaired due to turbidity that sediment laden discharges that can increase turbidity in the Lower Esopus Creek from the proposed Niagara Facility do not occur.

Potential Flood Hazard Impacts

¹³ NYSDEC. SWDM. August 2010.

¹⁴ NYSDEC. SWDM. August 2010.

¹⁵ The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

¹⁶ NYSDEC. SWDM. August 2010.

¹⁷ New York Codes Rules and Regulations, Part 6, State Environmental Quality Review, 617.7(c).

The proposed project lies within the Federal Emergency Management Agency (FEMA) designated 100-year and 500-year floodplain.¹⁸ One hundred year floods can be very destructive and can pose a threat to human life and property.¹⁹ NYSDEC's October 24, 2014, correspondence to the Ulster Town Hall explicitly states "potential impacts of development within these areas should be evaluated during the review of the project pursuant to SEQR." Increases in impervious area and a reduction in green space, such as those that will result from the proposed Niagara facility, exacerbate downstream flooding by increasing peak flow rates that will have the potential to impact downstream areas.²⁰

Flooding events that inundate the Niagara facility have the potential to carry industrial wastes, pollution, and raw materials (plastic pellets) associated with the facility's operations downstream if the Niagara facility does not follow good housekeeping practices and ensure proper industry best management practices (BMPs) are followed. Wastes and potential pollutants associated with Niagara's operations are known to include water bottle lids, trash, oil drums, chemicals from vehicle maintenance, and batteries.²¹

Especially concerning is the potential for plastic pellets from the Niagara facility to get picked up in flood waters and discharged into the Lower Esopus Creek and its downstream environment. Plastic pellets are typically one to five millimeters in diameter and can come in various shapes and sizes. In the event that flood waters transport plastic pellets downstream from the Niagara facility, their small size would allow the pellets to be widely dispersed, embedded in natural elements such as sediments or plant matter, and would make clean-up costly and difficult. Aquatic or other wildlife may mistake the plastic pellets for food and ingest them. Plastics are known to contain toxic pollutants, such as bisphenol A (BPA) that can adversely impact water quality and aquatic life. The time it takes for plastic to fully degrade in the environment is unknown and it may never fully degrade to naturally occurring compounds. The presence of plastic pellets would degrade the aesthetic qualities of the Lower Esopus Creek and downstream water bodies, which diminishes recreational opportunities for the public to enjoy.^{22,23}

Flood events that inundate the Niagara facility present the potential for a significant adverse environmental impact to the Lower Esopus Creek as a result of decreased water quality caused by flood waters containing industrial waste, trash or raw materials from the proposed Niagara facility.²⁴

¹⁸ FEMA. Flood Insurance Rate Map. Ulster County, NY. Map number 36111C0460E. September 25, 2009.

¹⁹ NYSDEC. SWDM. August 2010.

²⁰ NYSDEC. SWDM. August 2010.

²¹ State of California Regional Water Quality Control Board Santa Ana Region, In the Matter of: Niagara Bottling, LLC Complaint No. R8-2008-0010 for Administrative Civil Liability, May 27, 2008.

²² California Environmental Protection Agency, State Water Resources Control Board, Preproduction Plastic Debris Program, 2014, Accessed November 17, 2014, http://www.swrcb.ca.gov/water_issues/programs/stormwater/plasticdebris.shtml

²³ USEPA, Plastic Pellets in the Aquatic Environment Sources and Recommendations, August 1993.

²⁴ New York Codes Rules and Regulations, Part 6, State Environmental Quality Review, 617.7(c).

The Potential Impact of Wastewater Discharges on the Lower Esopus Creek

The Applicant indicates that 342,500 gallons per day (gpd) of “non-biologic” wastewater will be conveyed via installation of a separate sanitary sewer main to the Town of Ulster’s Wastewater Treatment Plant (WWTP) property and directly discharged without treatment via a new permitted outfall to the Lower Esopus Creek.²⁵ Although the Applicant implies the outfall will be permitted, no information regarding the composition or temperature of the wastewater is provided.

Lower Esopus Impaired Water Body Listing

The Lower Esopus Creek is listed under the *New York State Section 303(d) List of Impaired/Total Maximum Daily Load (TMDL) Waters* for turbidity. It is unknown at this time if the wastewater will include any suspended materials. Turbidity in the Lower Esopus Creek will increase if the wastewater contains suspended materials.²⁶

Potential Thermal Discharges

Production at the Niagara facility will include formation of water bottles, a process which consists of introducing plastic pellets into a heat mold and forms the bottles. Once the bottles are formed, cool water is circulated around the mold in a closed loop system. The cooling water is eventually discharged from the facility as wastewater.²⁷

Thermal discharges can affect growth in aquatic species and spawning, which only occur at certain times during each year.²⁸ The fact that essential growth and life cycles only take place during certain times of the year magnifies the significance of the potential adverse impact of a thermal plume that may result in the Lower Esopus Creek near the proposed outfall for the discharge of wastewater from the proposed Niagara facility.

The discharge of 342,500 gpd of wastewater from the proposed Niagara facility to the Lower Esopus Creek presents the potential for a significant adverse environmental impact due to the potential for a substantial change in the water quality of the Lower Esopus Creek.²⁹ Without knowing the potential pollutants contained in the wastewater and the temperature of the discharge, the potential for significant adverse impacts to the Lower Esopus Creek and its aquatic population exists.

Potential Impact on the Niagara Facility’s Water Sources

²⁵ The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

²⁶ USGS, The USGS Water Science School, Turbidity, Accessed November 13, 2013. <http://water.usgs.gov/edu/turbidity.html>

²⁷ The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

²⁸ PSEG Fossil LLC. Mercer Generating Station 316(a) Demonstration. November 2001.

²⁹ New York Codes Rules and Regulations, Part 6, State Environmental Quality Review, 617.7(c).

The proposed Niagara facility will purchase the water used for its operations from the City of Kingston's Water Department (Water Department).³⁰ The Water Department's water supply originates from Mink Hollow Brook (Mink Hollow) and is piped into Cooper Lake Reservoir, both of which are located in the Town of Woodstock.³¹ The initial stage of the proposed Niagara facility will require delivery of 1 MGD from the Water Department's water supply. To satisfy full build out conditions of the proposed Niagara facility, it is estimated by the Applicant that approximately 1.75 MGD of water will need to be supplied by the Water Department and a new water main will need to be constructed to meet this demand.³² The Applicant is relying on experience in similar facilities for the estimation of the amount of water that will be required from municipal sources under full build out conditions.³³ The demand on the City of Kingston's water supply is estimated to be increased by approximately 45% at full build conditions, as estimated by the Applicant.^{34,35}

An increase in demand on the City of Kingston's water supply has the potential to increase the drawdown of water from Cooper Lake Reservoir.

Mink Hollow

Mink Hollow (also known downstream as the Beaver Kill) is classified as a class A(T) stream at the intake pipe location for the City of Kingston's water supply.³⁶ Class A(T) indicates the water is suitable for drinking water and may support a trout population.³⁷

Downstream from the City of Kingston's intake pipe Mink Hollow is classified as a class C(TS) stream.³⁸ Class C(TS) indicates the water is suitable for supporting fisheries, for non-contact activities and may support trout spawning.³⁹ Sections of Mink Hollow downstream from the City of Kingston's intake pipe consist of gentle slopes and a wider stream channel which allow for sediment deposition and aggradation.⁴⁰

³⁰ Kingston Water Department, Letter from Judith A. Hansen to Geoff Kamansky, Subject: Will Serve Letter for Niagara Bottling at 300 Enterprise Drive, September 15, 2014.

³¹ Kingston Water Department. Annual Drinking Water Quality Report for 2006.

³² The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

³³ The Chazen Companies. Full Environmental Assessment Form - Niagara Water Bottling Facility. September 15, 2014.

³⁴ Current demand averages 3.9 MGD.

³⁵ Kirby, Paul. Daily Freeman. *Kingston Water Department says system improvements needed to accommodate Niagara Bottling plan*. October 6, 2014.

³⁶ NYSDEC §861: Lower Esopus Creek Drainage Basin. Accessed November 12, 2014. <http://www.dec.ny.gov/regs/4553.html>.

³⁷ NYSDEC. Protection of Waters Program: Protection of Waters Program – Article 15, Environmental Conservation Law Implementing Regulations 6NYCRR Part 608. Accessed November 12, 2014. <http://www.dec.ny.gov/permits/6042.html>.

³⁸ NYSDEC Environmental Resource Mapper.

³⁹ NYSDEC. Protection of Waters Program: Protection of Waters Program – Article 15, Environmental Conservation Law Implementing Regulations 6NYCRR Part 608. Accessed November 12, 2014. <http://www.dec.ny.gov/permits/6042.html>.

⁴⁰ Ashokan Watershed Stream Management Program, *Stream Management Plan: Beaver Kill Towns of Woodstock and Shandaken, Ulster County, New York*, Draft. Print.

Saw Kill and Saw Kill Tributary from Cooper Lake

A tributary to the Saw Kill exits Cooper Lake Reservoir and is classified as a C(TS) stream.⁴¹ The Saw Kill downstream of the confluence with the tributary from Cooper Lake is classified as a C(TS) stream.⁴² Class C(TS) indicates the water is suitable for supporting fisheries, for non-contact activities and may support trout spawning.⁴³

Potential Adverse Impacts on Trout Populations in Mink Hollow (the Beaver Kill) and the Saw Kill

The increased demand on the Water Department's water supply as a result of the proposed Niagara facility has the potential to create a drawdown in the Cooper Lake reservoir. A drawdown in water levels in Cooper Lake may result in the Water Department needing to divert more water from Mink Hollow than it currently does to meet the increased demand of the Niagara facility.

In addition, a decrease in water levels in Cooper Lake has the potential to reduce or even eliminate its flow contribution to the tributary to the Saw Kill, which in turn reduces flows in the Saw Kill.

Although trout are an adaptable species, they cannot survive much human interference with their environment. All trout require a specific habitat consisting of cool, clean water.⁴⁴ Faster running water dissolves more oxygen than still water and cold water can hold more dissolved oxygen than warm water.^{45,46} Trout need high levels of dissolved oxygen to survive.⁴⁷ A decrease in flow in Mink Hollow (below the City of Kingston's water intake), the tributary to the Saw Kill (below the City of Kingston's reservoir, Cooper Lake), and the Saw Kill as a result of increased water demand from the proposed Niagara facility has the potential to lead to more stagnant waters in Mink Hollow and the Saw Kill. Stagnant water in Mink Hollow, the tributary to the Saw Kill, and the Saw Kill will hold less dissolved oxygen than fast flowing, cold water and make it more difficult for trout to spawn and survive under these conditions. Any drawdown in Mink Hollow is especially concerning due to the areas of reduced slopes, wide stream channels, and aggradation downstream from the City of Kingston's intake pipe which magnify the impacts of reduced flows.

⁴¹ NYSDEC Environmental Resource Mapper.

⁴² NYSDEC Environmental Resource Mapper.

⁴³ NYSDEC. Protection of Waters Program: Protection of Waters Program – Article 15, Environmental Conservation Law Implementing Regulations 6NYCRR Part 608. Accessed November 12, 2014. <http://www.dec.ny.gov/permits/6042.html>.

⁴⁴ NYSDEC. Trout. Accessed November 12, 2014. <http://www.dec.ny.gov/animals/7016.html>.

⁴⁵ USEPA. Water Monitoring and Assessment. 5.2 Dissolved Oxygen and Biochemical Oxygen Demand. <http://water.epa.gov/type/rs/monitoring/vms52.cfm>. Accessed November 12, 2014.

⁴⁶ USGS, The USGS Water Science School, Water Properties: Dissolved Oxygen, Accessed November 13, 2014, <http://water.usgs.gov/edu/dissolvedoxygen.html>

⁴⁷ NYSDEC. Trout. Accessed November 12, 2014. <http://www.dec.ny.gov/animals/7016.html>.

Withdrawing 1.75 MGD of water from Cooper Lake for the proposed Niagara facility could result in a significant adverse environmental impact due to the potential for a substantial change in the quantity of water in Cooper Lake, Mink Hollow and the Saw Kill and the potential for substantial interference with habitat of trout and other resident fish in Mink Hollow, the tributary from Cooper Lake to the Saw Kill, and the Saw Kill.⁴⁸

Conclusion

CEA has determined that there is potential for a number of significant adverse environmental impacts as defined by section 617.7(c) of the New York Codes Rules and Regulations, which sets forth the criteria for determining significance under SEQRA, associated with the proposed Niagara facility and its proposed use of up to 1.75 MGD from the City of Kingston's water supply source, Mink Hollow, which feeds its Cooper Lake reservoir in the Town of Woodstock.

Section 617.7 of the New York Codes Rules and Regulations, which sets forth the criteria for determining significance under SEQRA was relied upon to evaluate whether the proposed Niagara facility project may have a significant adverse impact on the environment.

The potential significant adverse environmental impacts that may affect water quality include:

- The discharge of sediment laden stormwater during construction that would increase turbidity in the Lower Esopus Creek.
- A failure to meet NYSDEC stormwater regulations for treating stormwater quality, attenuating peak flow, and reducing runoff that result in the discharge of pollutants in stormwater after construction is completed.
- An exacerbation of downstream flooding impacts from a reduction in green space and an increase in impervious area
- The discharge of industrial wastes and raw materials, especially plastic pellets, into the Lower Esopus Creek and downstream water bodies during flooding events
- An increase in turbidity in the Lower Esopus Creek, a water body that is impaired for turbidity, from the discharge of 342,500 gpd of "non-biological" wastewater to the Lower Esopus Creek
- The creation of a thermal plume near the proposed wastewater outfall to the Lower Esopus Creek as a result of the discharge of 342,500 gpd of "non-biological" wastewater
- The discharge of an unknown quantity of pollutants to the Lower Esopus Creek associated with the Niagara facility's industrial processes as a result of the discharge of 342,500 gpd of "non-biological" wastewater.
- A substantial adverse change to surface water quantity and interference with the habitat of trout and other fish species.

⁴⁸ New York Codes Rules and Regulations, Part 6, State Environmental Quality Review, 617.7(c).

- The reduction in water flows in Cooper Lake, Mink Hollow, and the Saw Kill, two trout supporting and/or trout spawning streams, that may adversely impact aquatic life, especially the ability of trout in those two streams to survive and reproduce.

As a result of its analysis, CEA concludes that there is potential for a number of significant adverse environmental impacts from the proposed Niagara facility.

Company Profile: Carpenter Environmental Associates (CEA)

CEA has extensive and varied experience in the assessment of environmental impacts, including those from stormwater runoff and wastewater discharges, and how such impacts may affect surface water quality and aquatic species. Since the implementation of the Phase II Stormwater Regulations, CEA has completed numerous Stormwater Pollution Prevention Plans (SWPPP) and designed a number of stormwater treatment systems. CEA offers a wide spectrum of wastewater and stormwater management expertise, including preparation and review of stormwater management plans, environmental impact statements (EIS), and ecological investigations for sites ranging from small residential and commercial development to large sites.