



## WATER ENGINEER'S REPORT

Saratoga BioChar Solutions, LLC  
Farnan Road  
Town of Moreau, NY

March 30, 2022

**OWNER:**

Saratoga Biochar Solutions, LLC  
26 F Congress St. #346  
Saratoga Springs, NY 12866

**CONTRACTOR:**

Munter Enterprises  
881 Murray Road  
Middle Grove, NY 12850

**PREPARED BY:**

Studio A Landscape Architecture + Engineering, D.P.C.  
38 High Rock Ave, Suite 3 | PO Box 272  
Saratoga Springs, NY 12866

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## **PROJECT DESCRIPTION**

The proposed Saratoga Biochar Solutions carbon fertilizer manufacturing facility utilizes biosolids and wood waste feedstock to produce a marketable carbon fertilizer through lower temperature drying and pyrolysis processes. The facility will be provided with potable water via connection to the Town of Moreau Water District #3. Proposed infrastructure and connection include the installation of an 8-inch diameter class 52 ductile iron pipe water service line. This report summarizes the anticipated water use and fire protection for the proposed development for consideration and review by the Town of Moreau.

## **DESCRIPTION OF EXISTING SITE**

The project site is comprised of two parcels located at the terminus of Farnan Road within the Moreau Industrial Park in the Town of Moreau, NY (Tax Map IDs 50.-4-22 and 50.-4-16). The site is approximately 5.89 ± acres of undeveloped land. The western portion of the site is currently wooded while the eastern extremities are primarily grassed with no existing development. Majority of the surrounding parcels are undeveloped with the exception of roads, a sanitary sewer pump station with perimeter fencing located at the southeast corner of the site, and a chemical manufacturing facility, Hexion, Inc., located across Farnan Road to the east of the project site.

The Moreau Industrial Park is currently serviced by the Moreau Water District #3 via a 10-inch diameter ductile iron pipe running along the west side of Farnan Road. Two fire hydrants exist proximal to the site to provide fire protection flow as required.

## **DESCRIPTION OF PROPOSED DEVELOPMENT**

Proposed site development includes the construction of a carbon fertilizer manufacturing facility (Facility), a parking lot and required stormwater management practices. The proposed Facility will consist of a metal building constructed in three separate phases between 2022 and 2026. The Facility will manufacture a Class A carbon fertilizer from feedstock of primarily biosolids sourced from wastewater treatment plants. The manufacturing process implements drying and pyrolysis to produce the carbon fertilizer for use as soil fertilizer.

Proposed water infrastructure includes an 8-inch diameter class 52 ductile iron pipe extending from the 10-inch water main running on the west side of Farnan Road. The proposed service line was sized in accordance with anticipated water and fire flow demand described below. A meter pit equipped with a back flow preventer will be constructed near the northeastern property line in accordance with Town of Moreau requirements. Water main tapping and service line requirements will be coordinated with the Town.

## **ANTICIPATED WATER DEMAND**

The anticipated water consumption for the proposed SWMF is 30,079 gallons per day (GPD) after the buildout of Phase 3. The breakdown of water consumption at each phase is provided below and in Appendix A of this report. It is anticipated that two to six employees will be tending operations on a daily basis. The anticipated water demand generated by employees is minimal in

comparison to the total reported demand provided below. The Facility is anticipated to operate 24 hours, 7 days a week, with operational uptime estimated at 95% and downtime anticipated at 5% for scheduled maintenance. As such, anticipated water demand for the facility was calculated assuming continuous consumption with no peaking factors applied or anticipated for the proposed operations. In addition, the building will be sprinklered for internal fire protection.

<b>Anticipated Water Consumption</b>				
	<b>Phase 1</b>	<b>Phase 2</b>	<b>Phase 3</b>	<b>Total</b>
Hourly Demand (GPH)	458	398	398	1,253
Daily Demand (GPD)	10,986	9,546	9,546	30,079

Note: See Appendix A for breakdown of water use following the buildout of each project phase.

*Fire Flow Analysis*

**Needed Fire Flow = 1,250 gallons/minute (gpm)**

Note: See Appendix B for breakdown of fire flow requirement calculations and assumptions.

*Required Instantaneous Demand*

**1,271 gallons/minute** (fire flow + hourly demand)

**AVAILABLE WATER SUPPLY**

The Town of Moreau receives its water supply from the Town of Queensbury and Saratoga County. Both these municipalities receive raw water from the Hudson River via surface water extraction. Per the 2020 *Annual Drinking Water Quality Report* for the Town of Moreau (Appendix D) the average daily demand for the water system was 686,000 gallons, while the peak daily use was reported at 1.42 million gallons (MG). As such, the anticipated average daily demand generated by proposed development presents a minimal 4% increase in the average daily water use for the Moreau water system.

A hydrant flow test was completed by T.K.Flaherty on February 28, 2022 in the vicinity of the project site. Static and residual pressures were recorded at a ‘read hydrant’ located north of the site on Lakeshore drive at an elevation of ±283 feet. The static pressure at the ‘read hydrant’ was reported at 80 pounds per square inch (psi) with the residual pressure reported at 60 psi. A pitot pressure was recorded at a ‘flow hydrant’ located adjacent to the site at an elevation of 281 feet. The pitot pressure was recorded at 70 psi with a flow of 1,405 gpm. Based on provided fire flow measurements it is anticipated that the flow hydrant can provide a flow of 2544.4 gpm at 20 psi, meeting the potential instantaneous demand of 1,271 gpm required for proposed development. Additionally, in accordance with the facility fire protection requirements (Appendix B), the minimum static pressure required in the service line is anticipated to be 51 psi, while the static pressure noted during the flow test was 80 psi (Appendix C).

**CONCLUSION**

It is our opinion that the Town water system has adequate capacity to accommodate the connection of proposed development within the Moreau Industrial Park. Additionally, based on results of the completed hydrant flow test, the existing infrastructure has adequate flow and pressure to meet or exceed the potential instantaneous flow produced by proposed development.

Water Engineer's Report Prepared by:

A handwritten signature in black ink, appearing to read "Matthew Huntington". The signature is fluid and cursive, with the first name "Matthew" and last name "Huntington" clearly distinguishable.

Matthew E. Huntington, PE

Principal

For

Studio A | Landscape Architecture + Engineering, DPC

**APPENDIX A**  
SARATOGA BIOCHAR ESTIMATED WATER CONSUMPTION

*Providing Essential Services – Manufacturing Carbon Fertilizer – Benefiting Host Communities & Environment*

### SBS Water & Wastewater Requirements

Note: SBS intends to recycle the wastewater from the ammonia scrubber into the carbon fertilizer to avoid nutrient discharge to the sewer. The wastewater replaces water that would otherwise be consumed from the municipality to hydrate the carbon fertilizer.

SBS Water					
	Phase 1	Phase 2	Phase 3	Total	Units
<b>Process</b>	<b>368</b>	<b>368</b>	<b>368</b>	<b>1,103</b>	<b>GPH</b>
Venturi Scrubber	259	259	259	<b>778</b>	GPH
Sulfur Dioxide (SO2) Scrubber	74	74	74	<b>223</b>	GPH
Ammonia (NH4) Scrubber	13	13	13	<b>39</b>	GPH
Bioscrubber	21	21	21	<b>63</b>	GPH
<b>Office</b>	<b>30</b>	<b>5</b>	<b>5</b>	<b>40</b>	<b>GPH</b>
<b>Truck Wash</b>	<b>60</b>	<b>25</b>	<b>25</b>	<b>110</b>	<b>GPH</b>
<b>Total, hourly</b>	<b>458</b>	<b>398</b>	<b>398</b>	<b>1,253</b>	<b>GPH</b>
<b>Total, daily</b>	<b>10,986</b>	<b>9,546</b>	<b>9,546</b>	<b>30,079</b>	<b>GPD</b>

SBS Wastewater					
	Phase 1	Phase 2	Phase 3	Total	Units
<b>Process</b>	<b>391</b>	<b>391</b>	<b>391</b>	<b>1,174</b>	<b>GPH</b>
Venturi Scrubber					
Discharge	259	259	259	<b>778</b>	GPH
Dust (biosolids)	2.2	2.2	2.2	<b>6.7</b>	lbs/h
Sulfur Dioxide (SO2) Scrubber					
Discharge	92	92	92	<b>276</b>	GPH
Calcium Sulfite CaSO <sub>3</sub> ·x(H <sub>2</sub> O)	147	147	147	<b>440</b>	lbs/h
Ammonia (NH4) Scrubber					
Discharge	19	19	19	<b>57</b>	GPH
Ammonium Sulfate (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	49	49	49	<b>146</b>	lbs/h
Bioscrubber					
Discharge	21	21	21	<b>64</b>	GPH
Office	25	5	5	<b>35</b>	GPH
Truck Wash	25	25	25	<b>75</b>	GPH
<b>Total, hourly</b>	<b>441</b>	<b>421</b>	<b>421</b>	<b>1,284</b>	<b>GPH</b>
<b>Total, daily</b>	<b>10,593</b>	<b>10,113</b>	<b>10,113</b>	<b>30,819</b>	<b>GPD</b>
<b>Total, minus NH4 Scrubber, hourly</b>	<b>422</b>	<b>402</b>	<b>402</b>	<b>1,227</b>	<b>GPH</b>
<b>Total, minus NH4 Scrubber, daily</b>	<b>10,139</b>	<b>9,659</b>	<b>9,659</b>	<b>29,456</b>	<b>GPD</b>

**APPENDIX B**  
FIRE FLOW CALCULATIONS



**Fire Protection Requirements**

Occupancy Classification: Extra Hazard Group 1 – 2019 NFPA 13-4.3.5\*

Water Flow:

Design Criteria: 0.3 gpm/s.f. over most remote 2500 s.f. =	750 GPM
Hose Stream (inside & outside) =	<u>500 GPM</u>
Total GPM requirement:	<b>1250 GPM</b> (8" supply)

Pressure:

Minimum sprinkler pressure:	7.0 PSI
Backflow preventer :	12 PSI
Bldg. height: 45'/2.31 ft./psi	20 PSI
Pipe loss: (500 ft. x 2.5'/100')/2.31ft./psi	<u>5 PSI</u>
Total pressure loss:	<b>44 PSI</b>
Safety factor: 44 psi x 0.15 (15%)	<u>7 PSI</u>
Minimum required pressure:	<b>51 PSI</b>

- **Owner should verify with their insurance carrier for proper classification. Extra Hazard, Group 1 was selected as there were similar type facilities listed in 2019 NFPA 13-A4.3.5.**

## Chapter 4 General Requirements

### 4.1 Level of Protection.

**4.1.1** A building, where protected by an automatic sprinkler system installation, shall be provided with sprinklers in all areas except where specific sections of this standard permit the omission of sprinklers.

#### 4.1.2 Limited Area Systems.

**4.1.2.1** When partial sprinkler systems are installed, the requirements of this standard shall be used insofar as they are applicable.

**4.1.2.2** The authority having jurisdiction shall be consulted in each case.

**4.2\* Owner's Certificate.** The owner(s) of a building or structure where the fire sprinkler system is going to be installed or their authorized agent shall provide the sprinkler system installer with the following information prior to the layout and detailing of the fire sprinkler system [see Figure A.27.1(b)]:

- (1) Intended use of the building including the materials within the building and the maximum height of any storage
- (2) A preliminary plan of the building or structure along with the design concepts necessary to perform the layout and detail for the fire sprinkler system
- (3) Water supply information as identified in 5.2.2
- (4)\* Any special knowledge of the water supply, including known environmental conditions that might be responsible for corrosion, including microbiologically influenced corrosion (MIC)

#### 4.3\* Classification of Hazard.

##### N 4.3.1 General.

**4.3.1.1** Occupancy classifications for this standard shall relate to sprinkler design, installation, and water supply requirements only.

**4.3.1.2** Occupancy classifications shall not be intended to be a general classification of occupancy hazards.

**N 4.3.1.3** Commodity classification and storage arrangements for miscellaneous and low-piled storage specified in 4.3.1.5 through 4.3.1.8 shall be determined in accordance with Sections 20.3 through 20.5.

##### N 4.3.1.4\* Miscellaneous Storage.

**N 4.3.1.4.1** Miscellaneous storage shall not constitute more than 10 percent of the building area or 4000 ft<sup>2</sup> (370 m<sup>2</sup>) of the sprinklered area, whichever is greater.

**N 4.3.1.4.2** Miscellaneous storage shall not exceed 1000 ft<sup>2</sup> (93 m<sup>2</sup>) in one pile or area.

**N 4.3.1.4.3** Miscellaneous storage shall be separated from other storage piles or areas by at least 25 ft (7.6 m).

##### 4.3.1.5 Low-Piled Storage.

**4.3.1.5.1** For storage of Class I through Class IV commodities 12 ft (3.7 m) or less in height that do not meet the definition of *Miscellaneous Storage* that is on solid shelf racks, in-rack sprinklers shall be provided in accordance with 25.6.1, and ceiling

sprinkler protection shall be provided in accordance with this chapter for the applicable occupancy hazard criteria.

**4.3.1.5.2** For storage of Group A plastic commodities 5 ft (1.5 m) or less in height that do not meet the definition of *Miscellaneous Storage* that is on solid shelf racks, in-rack sprinklers shall be provided in accordance with 25.6.1, and ceiling sprinkler protection shall be provided in accordance with this chapter for the applicable occupancy hazard criteria.

##### N 4.3.1.6 Miscellaneous Tire Storage.

**N 4.3.1.6.1** Miscellaneous tire storage shall not exceed 2000 ft<sup>2</sup> (185 m<sup>2</sup>).

**N 4.3.1.6.2** Miscellaneous tire storage piles on-tread, regardless of storage method, shall not exceed 25 ft (7.6 m) in the direction of the wheel holes.

##### N 4.3.1.7 Protection Criteria for Miscellaneous and Low-Piled Storage.

**N 4.3.1.7.1** The protection criteria for miscellaneous and low-piled storage protected by ceiling sprinklers only shall be selected from Table 4.3.1.7.1 and Figure 19.3.3.1.1 in accordance with the density/area method of 19.3.3.2.

**N 4.3.1.7.1.1** The protection criteria for rack storage of miscellaneous and low-piled storage with in-rack sprinklers shall be in accordance with 25.2.2.

**N 4.3.1.7.2** Except as provided in 4.3.1.6.1, the maximum design area for miscellaneous and low-piled storage shall not exceed 3000 ft<sup>2</sup> (279 m<sup>2</sup>).

**4.3.1.8 In-Rack Sprinklers.** Miscellaneous and low-piled storage per 4.3.1.5 through 4.3.1.7 that require in-rack sprinklers shall follow Chapter 25 for their installation and design requirements.

**4.3.2\* Light Hazard.** The following shall be protected with light hazard occupancy criteria in this standard:

- (1) Spaces with low quantity and combustibility of contents

**4.3.3\* Ordinary Hazard (Group 1).** The following shall be protected with OH1 occupancy criteria in this standard:

- (1) Spaces with moderate quantity and low combustibility of contents
- (2) Stockpiles of contents with low combustibility that do not exceed 8 ft (2.4 m)

**4.3.4\* Ordinary Hazard (Group 2).** The following shall be protected with OH2 occupancy criteria in this standard:

- (1) Spaces with moderate to high quantity and combustibility of contents
- (2) Stockpiles of contents with moderate to high combustibility that do not exceed 12 ft (3.7 m)

**4.3.5\* Extra Hazard (Group 1) (EH1).** The following shall be protected with EH1 occupancy criteria in this standard:

- (1) Spaces with very high quantity and combustibility of contents
- (2) Spaces where dust, lint, or other materials are present, introducing the probability of rapidly developing fires

**4.3.6\* Extra Hazard (Group 2) (EH2).** The following shall be protected with EH2 occupancy criteria in this standard:

- (1) Spaces with very high quantity and combustibility of contents
- (2) Spaces with substantial amounts of combustible or flammable liquids
- (3) Spaces where shielding of combustibles is extensive

**N 4.3.7 High-Piled Storage.** Storage arrangements that do not meet the requirements of 4.3.1.5 through 4.3.1.8 shall be protected in accordance with Chapters 20 through 25.

**4.3.8\* Special Occupancy Hazards. (Reserved)**

**N 4.3.9** Where K-11.2 (160) or larger sprinklers are used with EH1 or EH2 design curves, the design area shall be permitted to be reduced by 25 percent but not below 2000 ft<sup>2</sup> (185 m<sup>2</sup>), regardless of temperature rating.

**4.4 Hose Connections.** Hose connections shall not be required for the protection of miscellaneous storage.

**4.5 System Protection Area Limitations.**

**4.5.1** The maximum floor area on any one floor to be protected by sprinklers supplied by any one sprinkler system riser or combined system riser shall be as follows:

- (1) Light hazard — 52,000 ft<sup>2</sup> (4830 m<sup>2</sup>)
- (2) Ordinary hazard — 52,000 ft<sup>2</sup> (4830 m<sup>2</sup>)
- (3)\* Extra hazard — Hydraulically calculated — 40,000 ft<sup>2</sup> (3720 m<sup>2</sup>)
- (4) High-piled Storage — High-piled storage (as defined in 3.3.95) and storage covered by other NFPA standards — 40,000 ft<sup>2</sup> (3720 m<sup>2</sup>)
- (5) In-rack Storage — 40,000 ft<sup>2</sup> (3720 m<sup>2</sup>)

**N 4.5.2** The floor area occupied by mezzanines shall comply with 4.5.2.1, 4.5.2.2, or 4.5.2.3.

**N 4.5.2.1** In a building with only one sprinkler system, the floor area occupied by mezzanines shall not be included in the area limits of 4.5.1.

**N 4.5.2.2** In a building with more than one sprinkler system, if a mezzanine is located entirely within the same sprinkler system boundary as the sprinklers protecting the ceiling above, the floor area occupied by mezzanine(s) shall not be included in the area limits of 4.5.1.

**N 4.5.2.3** In a building with more than one sprinkler system, if any portion of the mezzanine floor area that is located outside the system boundary of the riser supplying the sprinklers under the mezzanine, the area of the mezzanine of the system boundary shall be added to the system area from which it is supplied, and the total system area shall meet the limits of 4.5.1.

**4.5.3** Where single systems protect extra hazard, high-piled storage, or storage covered by other NFPA standards, and ordinary or light hazard areas, the extra hazard or storage area coverage shall not exceed the floor area specified for that hazard and the total area coverage shall not exceed 52,000 ft<sup>2</sup> (4830 m<sup>2</sup>).

**N 4.5.4** The area protected by a single in-rack system includes all of the floor area occupied by the racks, including aisles, regardless of the number of levels of in-rack sprinklers.

**N 4.5.4.1** Multiple buildings attached by canopies, covered breezeways, common roofs, or a common wall(s) shall be permitted to be supplied by a single fire sprinkler riser.

**4.5.5** The maximum system size shall comply with 4.5.1.

**4.5.6\* Detached Buildings.**

**4.5.6.1** Unless the requirements of 4.5.6.2 apply, detached buildings, regardless of separation distance, that do not meet the criteria of 4.5.4 shall be provided with separate fire sprinkler systems.

**4.5.6.2** When acceptable to the authority having jurisdiction, detached structures shall be permitted to be supplied by the fire sprinkler system of an adjacent building.

**4.6 Water Supply Information.**

**4.6.1 Water Supply Capacity Information.** The following information shall be included:

- (1) Location and elevation of static and residual test gauge with relation to the riser reference point
- (2) Flow location
- (3) Static pressure, psi (bar)
- (4) Residual pressure, psi (bar)
- (5) Flow, gpm (L/min)
- (6) Date
- (7) Time
- (8) Name of person who conducted the test or supplied the information
- (9) Other sources of water supply, with pressure or elevation

**4.6.1.1\*** Where a waterflow test is used for the purposes of system design, the test shall be conducted no more than 12 months prior to working plan submittal unless otherwise approved by the authority having jurisdiction.

**4.6.2 Water Supply Treatment Information.** The following information shall be included when water supply treatment is provided in accordance with 5.1.5:

- (1) Type of condition that requires treatment
- (2) Type of treatment needed to address the problem
- (3) Details of treatment plan

**4.7\* Additives.** Additives or chemicals intended to stop leaks, such as sodium silicate or derivatives of sodium silicate, brine, or similar acting chemicals, shall not be used in sprinkler systems.

**4.8 Air, Nitrogen, or Other Approved Gas.** Where air is used to charge, maintain, or supervise sprinkler systems, nitrogen or other approved gas shall also be permitted to be used.

**4.9\* Support of Nonsprinkler System Components.** Sprinkler system components shall not be used to support nonsprinkler system components unless expressly permitted by this standard.

**4.10 Noncombustible Materials and Limited-Combustible Materials.**

**4.10.1\* Noncombustible Material.**

**4.10.1.1** A material that complies with any of the following shall be considered a noncombustible material:

- (1)\* The material, in the form in which it is used, and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors when subjected to fire or heat.

- (4) Canneries
- (5) Dairy products manufacturing and processing
- (6) Electronic plants
- (7) Glass and glass products manufacturing
- (8) Laundries
- (9) Restaurant service areas
- (10) Porte cocheres
- (11) Mechanical rooms

**A.4.3.4** Ordinary hazard (Group 2) occupancies include occupancies having uses and conditions similar to the following:

- (1) Agricultural facilities
- (2) Barns and stables
- (3) Cereal mills
- (4) Chemical plants — ordinary
- (5) Confectionery products
- (6) Distilleries
- (7) Dry cleaners
- (8) Exterior loading docks (Note that exterior loading docks only used for loading and unloading of ordinary combustibles should be classified as OH2. For the handling of flammable and combustible liquids, hazardous materials, or where utilized for storage, exterior loading docks and all interior loading docks should be protected based upon the actual occupancy and the materials handled on the dock, as if the materials were actually stored in that configuration.)
- (9) Feed mills
- (10) Horse stables
- (11) Leather goods manufacturing
- (12) Libraries — large stack room areas
- (13) Machine shops
- (14) Metal working
- (15) Mercantile
- (16) Paper and pulp mills
- (17) Paper process plants
- (18) Piers and wharves
- (19) Plastics fabrication, including blow molding, extruding, and machining; excluding operations using combustible hydraulic fluids
- (20) Post offices
- (21) Printing and publishing
- (22) Racetrack stable/kennel areas, including those stable/kennel areas, barns, and associated buildings at state, county, and local fairgrounds
- (23) Repair garages
- (24) Resin application area
- (25) Stages
- (26) Textile manufacturing
- (27) Tire manufacturing
- (28) Tobacco products manufacturing
- (29) Wood machining
- (30) Wood product assembly

**A.4.3.5** Extra hazard (Group 1) occupancies include occupancies having uses and conditions similar to the following:

- (1) Aircraft hangars (except as governed by NFPA 409)
- (2) Combustible hydraulic fluid use areas
- (3) Die casting
- (4) Metal extruding
- (5) Plywood and particleboard manufacturing
- (6) Printing [using inks having flash points below 100°F (38°C)]
- (7) Rubber reclaiming, compounding, drying, milling, vulcanizing

- (8) Saw mills
- (9) Textile picking, opening, blending, ginning, or carding, combining of cotton, synthetics, wool shoddy, or burlap
- (10) Upholstering with plastic foams

**A.4.3.6** Extra hazard (Group 2) occupancies include occupancies having uses and conditions similar to the following:

- (1) Asphalt saturating
- (2) Flammable liquids spraying
- (3) Flow coating
- (4) Manufactured home or modular building assemblies (where finished enclosure is present and has combustible interiors)
- (5) Open oil quenching
- (6) Plastics manufacturing
- (7) Solvent cleaning
- (8) Varnish and paint dipping
- (9) Car stackers and car lift systems with 2 cars stacked vertically

**A.4.3.8** Other NFPA standards contain design criteria for fire control or fire suppression (*see 4.3.8 and Chapter 2*). While these can form the basis of design criteria, this standard describes the methods of design, installation, fabrication, calculation, and evaluation of water supplies that should be used for the specific design of the system.

Other NFPA standards contain sprinkler system design criteria for fire control or suppression of specific hazards. This information has been either referenced or copied into Chapter 26 using NFPA's extract policy.

**A.4.5.1(3)** Pipe schedule — 25,000 ft<sup>2</sup> (2320 m<sup>2</sup>).

**A.4.5.6** Buildings adjacent to a primary structure can be protected by extending the fire sprinkler system from the primary structure. This eliminates the need to provide a separate fire sprinkler system for small auxiliary buildings. Items that should be considered before finalizing fire sprinkler design should include the following:

- (1) Actual physical distance between adjacent structures
- (2) Potential for the property to be split into separate parcels and sold separately
- (3) Square footage of both the primary and auxiliary structures
- (4) Difficulties in providing a separate water supply to the auxiliary structure
- (5) Occupancy/hazard of the auxiliary structure
- (6) Ability of emergency response personnel to easily identify the structure from which waterflow is originating

**A.4.6.1.1** Alternative means of determining available water supplies should be considered where drought or other concerns are present.

**A.4.7** Bacterial inhibitors and other chemicals that are approved and used for the prevention and mitigation of MIC and that do not adversely affect the fire-fighting properties of the water or the performance of the fire sprinkler system components are not prohibited.

**A.4.9** Non-system components can adversely affect the operation and longevity of the fire sprinkler system. Objects connected to the sprinkler system can displace sprinkler system piping, causing obstruction to the spray pattern of sprinklers, delay the activation of a sprinkler, or cause chemical compati-

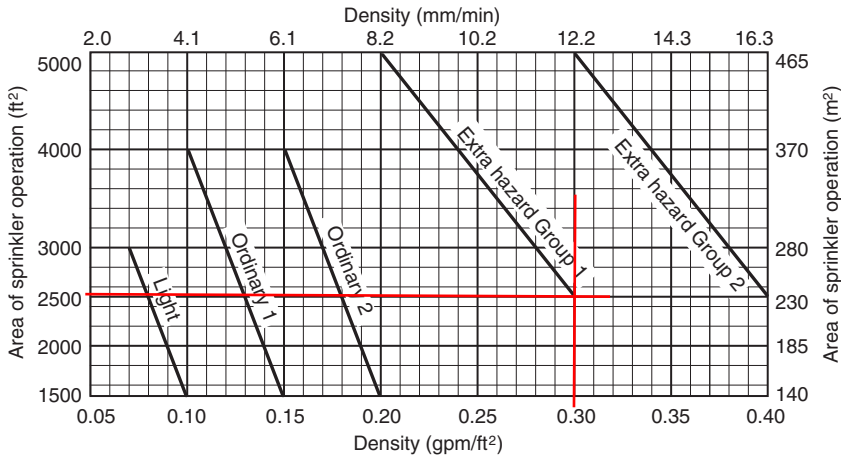


FIGURE 19.3.3.1.1 Density/Area Curves.

19.3.3.1.5 Unsprinklered Combustible Concealed Spaces.

19.3.3.1.5.1\* When using the density/area or room design method, unless the requirements of 19.3.3.1.5.2 are met for buildings having unsprinklered combustible concealed spaces, as described in 9.2.1 and 9.3.18, the minimum area of sprinkler operation for that portion of the building shall be 3000 ft<sup>2</sup> (280 m<sup>2</sup>).

(A) The design area of 3000 ft<sup>2</sup> (280 m<sup>2</sup>) shall be applied only to the sprinkler system or portions of the sprinkler system that are adjacent to the qualifying combustible concealed space.

(B) The term *adjacent* shall apply to any sprinkler system protecting a space above, below, or next to the qualifying concealed space except where a barrier with a fire resistance rating at least equivalent to the water supply duration completely separates the concealed space from the sprinklered area.

19.3.3.1.5.2 The following unsprinklered concealed spaces shall not require a minimum area of sprinkler operation of 3000 ft<sup>2</sup> (280 m<sup>2</sup>):

- (1) Noncombustible and limited-combustible concealed spaces with minimal combustible loading having no access. The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.
- (2) Noncombustible and limited-combustible concealed spaces with limited access and not permitting occupancy or storage of combustibles. The space shall be considered a concealed space even with small openings such as those used as return air for a plenum.
- (3) Combustible concealed spaces filled entirely with noncombustible insulation.
- (4)\* Light or ordinary hazard occupancies where noncombustible or limited-combustible ceilings are directly attached to the bottom of solid wood joists or solid limited-combustible construction or noncombustible construction so as to create enclosed joist spaces 160 ft<sup>3</sup> (4.5 m<sup>3</sup>) or less in volume, including space below insulation that is laid directly on top or within the ceiling joists in an otherwise sprinklered concealed space.

Table 19.3.3.1.2 Hose Stream Allowance and Water Supply Duration Requirements for Hydraulically Calculated Systems

Occupancy	Inside Hose		Total Combined Inside and Outside Hose		Duration (minutes)
	gpm	L/min	gpm	L/min	
Light hazard	0, 50, or 100	0, 190, or 380	100	380	30
Ordinary hazard	0, 50, or 100	0, 190, or 380	250	950	60–90
Extra hazard	0, 50, or 100	0, 190, or 380	500	1900	90–120

- (5) Concealed spaces where rigid materials are used and the exposed surfaces comply with one of the following in the form in which they are installed in the space:
  - (a) The surface materials have a flame spread index of 25 or less and the materials have been demonstrated to not propagate fire more than 10.5 ft (3.2 m) when tested in accordance with ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, extended for an additional 20 minutes in the form in which they are installed in the space or
  - (b) The surface materials comply with the requirements of ASTM E2768, *Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 min Tunnel Test)*.
- (6) Concealed spaces in which the exposed materials are constructed entirely of fire-retardant-treated wood as defined by NFPA 703.
- (7) Concealed spaces over isolated small rooms not exceeding 55 ft<sup>2</sup> (5.1 m<sup>2</sup>) in area.

**APPENDIX C**  
FIRE HYDRANT FLOW TEST REPORT

# Hydrant Flow Test Report

Test Date 2/28/2022

Test Time 9:00 am

## Location

Moreau Industrial Park

## Tested by

T.K. Flaherty, CPII, NICET

## Notes

Temp. 21 deg Winter Conditions Moreau Water Dept  
Rick

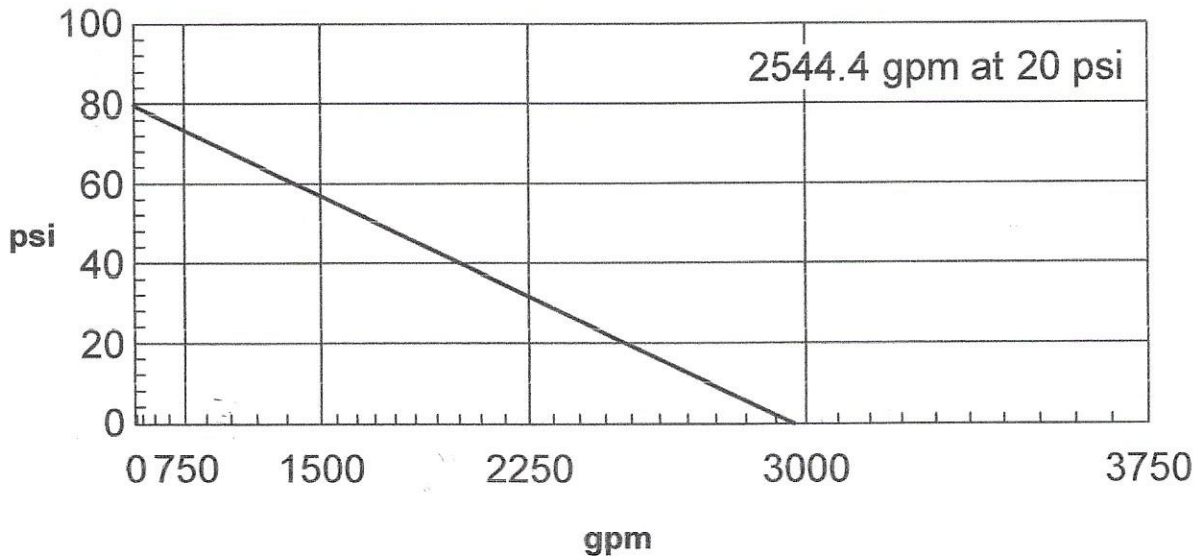
## Read Hydrant

80 psi static pressure  
60 psi residual pressure  
283 ft hydrant elevation

## Flow Hydrant(s)

Outlet	Elev	Size	C	Pitot Pressure	Flow
#1	281	2.5	.90	70	1405 gpm

## Flow Graph



**APPENDIX D**  
TOWN OF MOREAU  
ANNUAL DRINKING WATER QUALITY REPORT FOR 2020



**Annual Drinking Water Quality Report for 2020**  
**Town of Moreau Water Department**  
**351 REYNOLDS ROAD**  
**MOREAU, NY 12828**  
**(Public Water Supply ID# 4500177)**

**INTRODUCTION**

To comply with State and Federal regulations, the Town of Moreau Water Department will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

We in the Town of Moreau get our water from two different sources, the Town of Queensbury and Saratoga County. Both of these municipalities take water from the Hudson River and treat it. We at the Town of Moreau, by using both, supply a blend of water to our residents. On the following pages you will find reports from both Queensbury and Saratoga County and within these reports are facts and information to ensure that good potable water is being sent to our residents.

Listed on the following pages are the Town of Moreau disinfection by-products reports and lead and copper testing results for 2020.

**In an effort to reduce the costs of printing and mailing this report to over 2,000 water customers annually, we will be making this Annual Drinking Water Quality Report available for review on the town's website at [www.townofmoreau.org/Water/AnnualWaterQualityReport.pdf](http://www.townofmoreau.org/Water/AnnualWaterQualityReport.pdf). If you do not have access to a computer and would prefer to continue receiving these reports manually please call the Town Clerk's Office at (518) 792-1030 ext. 3 and you will be put on a mailing list.**

If you have any questions about this report or concerning your drinking water, please contact **Jesse Fish, Town of Moreau Water Superintendent at 792-5541**. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled Town Board meetings. The meetings are held on the 2<sup>nd</sup> & 4<sup>th</sup> Tuesdays of each month at the Town Hall, 351 Reynolds Road, Moreau, NY.

**WHERE DOES OUR WATER COME FROM?**

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The State Health Department and the FDA's regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

The Town of Moreau purchases drinking water from the Queensbury Water District and the Saratoga County Water Authority. The Queensbury Water District source is the Hudson River, a surface water supply that is located at the Sherman Island Dam and The Saratoga County Water Authority source is the Hudson River, a surface water supply. During 2020, our system did not experience any restriction of our water source.

**SOURCE WATER ASSESSMENT**

The NYS Department of Health has evaluated the Hudson River's susceptibility to contamination under the Source Water Assessment Program (SWAP), and their findings are summarized in the paragraph below. It is important to stress that these assessments were created using available information and only estimate the potential for source water contamination. Elevated susceptibility ratings do not mean that source water contamination has or will occur for this water supply. The Queensbury Water District and Saratoga County Water Authority provide treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

Based on documented polychlorinated biphenyl (PCBs) contamination of sediments upstream of the intake, the Queensbury Water District is tested quarterly for PCBs. During 2020, PCBs were not detected in source or finished drinking water. It should also be noted that rivers in general are highly sensitive to microbial contaminants.

**HOW IS OUR WATER TREATED?**

Town of Queensbury water is pumped from the river into a complete treatment facility consisting of the following: chemical pre-treatment, flocculation, coagulation, sedimentation, pre-chlorination, filtration, post-chlorination, and corrosion control. The treatment plant is manned 24 hours a day, 365 days per year under the supervision of two IA operators. The water source for the SCWA is also the Hudson River. Water treatment consists of addition of a coagulant and filtration through 0.1 micron membrane filters and granular activated carbon filters. Caustic soda is added for pH adjustment and orthophosphate is added for corrosion control. Sodium hypochlorite is added for disinfection and to maintain a residual through the transmission system.

**FACTS AND FIGURES**

The Moreau Water District provides water to approximately 6,600 people through 2,300 service connections. The total amount of water used in 2020 in the Town of Moreau was 250,147,000 gallons. The daily average water used in the distribution system is 686,000 gallons. Our highest single daily usage was 1,420,000 gallons.

**ARE THERE CONTAMINANTS IN OUR DRINKING WATER?**

Moreau Water District staff are responsible for testing the water in the distribution system. The water is tested monthly for Total Coliform bacteria (7 samples per month), quarterly for disinfection byproducts, and once every year for lead and copper. Source water monitoring is completed by the Queensbury Water District and Saratoga County Water Authority. The Queensbury Water District and Saratoga County Water Authority test the source water for inorganic compounds, volatile organic compounds, synthetic organic compounds, nitrate, and radiologicals. The tables presented below summarize what was detected in your drinking water. The State allows some contaminants to be tested less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, is more than one year old.

It should be noted that all drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA’s Safe Drinking Water Hotline (800-426-4791) or the (New York State Department of Health – Glens Falls District Office) at (518) 793-3893.

Table of Detected Contaminants Queensbury Water District							
Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measurement	MCLG	Regulatory Limit MCL	Likely Source of Contamination
<i>Combined Filter Effluent Turbidity (5 filters)</i>							
Turbidity <sup>1</sup>	No	10/07/2020	0.11	NTU	N/A	TT=<1 NTU	Soil Runoff
Turbidity <sup>1</sup>	No	October	100%	%	100%	TT=95% of samples <0.3 NTU	Soil Runoff
<i>Primary Inorganic Chemicals</i>							
Barium	No	2/5/2020	0.005	mg/l	2.0 mg/l	2.0 mg/l	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
<i>Secondary Inorganic Chemicals</i>							
Sodium <sup>2</sup>	No	2/5/2020	19.1 <sup>2</sup>	mg/l	N/A	N/A	Naturally occurring, road salt, animal waste, sodium carbonate
Chloride	No	2/6/2019	9.4	mg/l	N/A	250 mg/l	Erosion of natural deposits, water disinfection by-product
Sulfate	No	2/6/2019	19.2	mg/l	N/A	250 mg/l	Erosion of natural deposits, Runoff from fertilizer
Zinc	No	2/6/2019	0.002	Mg/l	N/A	5.0 mg/l	Erosion of natural deposits.
Manganese	No	2/6/2019	0.005	mg/l	N/A	0.3 mg/l	Erosion of natural deposits
Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measurement	MCLG	Regulatory Limit MCL	Likely Source of Contamination
Nitrates							

Nitrate	No	2/6/2019	0.11	mg/l	10 mg/l	10.0 mg/l as Nitrogen	Erosion of natural deposits, Runoff from fertilizer
<i>Principal Organic Compounds</i>							
Bromomethane	No	2/3/16 4/6/16 7/13/16 11/2/16	0.58 ND ND ND	ug/l	N/A	N/A	Erosion of Natural Deposits
<i>Disinfection Byproducts</i>							
Total Organic Carbon	No	Monthly	Annual Range <sup>5</sup> 1.2 – 2.1  Average – 1.66	mg/l	N/A	TT	Naturally present in the environment
<i>Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)<sup>4</sup></i>							
Giardia	No	Jan – Sept 2018	Range 0-21 Average 5.6	Total Count	N/A	N/A	Soil runoff
Cryptosporidium	No	Jan – Sept 2018	0-1 Average 0.3	Total Count	N/A	N/A	Soil runoff
<i>Unregulated Contaminant Monitoring Regulation 3 (UCMR3)<sup>8</sup></i>							
Strontium <sup>8</sup>	No	Quarterly Samples 2/13/15, 4/13/15, 7/16/15, 10/15/15	22 – 28 Annual Range	ug/L	N/A	N/A	Erosion of Natural Deposits
Chlorate <sup>8</sup>	No	Quarterly Samples 2/13/15, 4/13/15, 7/16/15, 10/15/15	44-160 Annual Range	ug/L	N/A	N/A	Agriculture Runoff
Vanadium <sup>8</sup>	No	Quarterly Samples 2/13/15, 4/13/15, 7/16/15, 10/15/15	0.2-0.5 Annual Range	ug/L	N/A	N/A	Erosion of Natural Deposits
Chromium <sup>8</sup> (hexavalent)	No	Quarterly Samples 2/13/15, 4/13/15, 7/16/15, 10/15/15	ND-0.03 Annual Range	ug/L	N/A	N/A	Erosion of Natural Deposits

1 - Turbidity is a measure of the cloudiness of the water. We measure it because it is a good indicator of the effectiveness of our filtration system. Our highest combined filter effluent turbidity measurement for the year occurred on 10/7/2020 (0.11 NTU). State regulations require that combined filter effluent point turbidity must always be below 1.0 NTU. The regulations also require that 95% of the combined filter effluent point turbidity samples collected have measurements below 0.3 NTU. All levels recorded were well below the acceptable range allowed and did not constitute a treatment violation.

2 - Water containing more than 20 mg/l sodium should not be used for drinking by people on severely restricted diets. This represents 4.73 mg of sodium in one 8 fluid oz. glass of water.

3 - The level presented represents the 90<sup>th</sup> percentile of the 32 sites tested. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90<sup>th</sup> percentile is equal to or greater than 90% of the copper values detected at your water system. In this case, 32 samples were collected at your water system and the 90<sup>th</sup> percentile value was 20.0 ug/l. The action level for copper was not exceeded at any of the sites tested with the highest level being 27.0 ug/l.

4 - The level presented represents the 90<sup>th</sup> percentile of the 32 samples collected. The 90<sup>th</sup> percentile is equal to or greater than 90% of the lead values detected at your water system. In this case, 32 samples were collected at your water system and the 90<sup>th</sup> percentile value was 4.2. Of the 32 samples taken, 24 results were **NON-DETECTS**. The highest level being 190.0 ug/l. ND (**NON-DETECTS**) is any sample less than 1.0 ug/L. The sample that detected 190.0 ug/L was tested from a; location that was not used often at the residence. Retesting the residence at a more commonly used location resulted in 2.9 ug/L.

5 - Total Organic Carbon is not regulated, but it's calculated removal and compliance ratio must equal or exceed performance requirements established by the US-EPA. All levels recorded were well below the acceptable range allowed and did not constitute a treatment technique violation.

6 - Stage 2 of the Disinfection Byproduct Rule calculates the highest average at a single location- Locational Running Annual

Average (LRAA).

7 – The Long Term 2 Enhanced Surface Water Treatment Rule was implemented by the US-EPA to monitor drinking water sources. Specifically, Giardia and Cryptosporidium which are highly resistant to traditional water treatment practices. Our system is required to test monthly for two years, starting October 2016. Please note that these results are prior to any water treatment. For more information, please review the US-EPA website.

8 - In 2015, we were required to collect and analyze drinking water samples under the Unregulated Contaminant Monitoring Regulation 3 (UCMR3). The contaminants currently do not have a maximum contaminant level but are being tested for future regulations. More information can be found on the EPA website under UCMR3.

9 – In 2019, we tested according to unregulated contaminant monitoring rule #4 (UCMR4) similar to UCMR3. The contaminants currently do not have a maximum contaminant level.

**INFORMATION ON CRYPTOSPORIDIUM – QUEENSBURY**

Cryptosporidium is a microbial pathogen found in surface water and groundwater under the influence of surface water. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. During 2018, as part of our routine sampling, eight samples were collected of untreated Hudson River source water and analyzed for Cryptosporidium oocysts. Of these samples, one showed the presence of oocysts. Therefore, our testing indicates there was presence of Cryptosporidium in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, a gastrointestinal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their health care provider regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

**INFORMATION ON GIARDIA - QUEENSBURY**

Giardia is a microbial pathogen present in varying concentrations in many surface waters and groundwater under the influence of surface water. Giardia is removed/inactivated through a combination of filtration and disinfection or by disinfection. During 2018, as part of our routine sampling, monthly samples were collected of untreated Hudson River source water and analyzed for Giardia cysts. Of these samples five showed cysts, with the yearly average being 5.6. Therefore, our testing indicates the presence of Giardia in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Giardia may cause giardiasis, an intestinal illness. People exposed to Giardia may experience mild or severe diarrhea, or in some instances no symptoms at all. Fever is rarely present. Occasionally, some individuals will have chronic diarrhea over several weeks or a month, with significant weight loss. Giardiasis can be treated with anti-parasitic medication. Individuals with weakened immune systems should consult with their health care providers about what steps would best reduce their risks of becoming infected with Giardiasis. Individuals who think that they may have been exposed to Giardiasis should contact their health care providers immediately. The Giardia parasite is passed in the feces of an infected person or animal and may contaminate water or food. Person-to-person transmission may also occur in day care centers or other settings where hand washing practices are poor.

Saratoga County Water Authority							
Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measurement	MCLG	Regulatory Limit MCL	Likely Source of Contamination
<b>Microbiological Contaminants</b>							
Turbidity (Highest Result - Entry Point)	No	8/17/2020	0.207 <sup>1</sup>	NTU	N/A	TT-1.0	Soil runoff
<b>Inorganics</b>							
Nitrate	No	3/10/2020	0.15	mg/l	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Manganese	No	4/8/2020	2	ug/l	N/A	300	Naturally occurring; Indicative of landfill contamination
Sodium	No	4/8/2020	8.7	mg/l	N/A	270*	Naturally occurring; Road salt; Water softeners; Animal waste.

Chloride	No	4/8/2020	11.3	mg/l	N/A	250	Naturally occurring or indicative of road salt contamination.
Barium	No	3/10/2020	5	ug/l	2	2000	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Giardia	No	Monthly	0.5 ND-2	Total count	N/A	N/A	Soil runoff
Cryptosporidium	No	Monthly	0.09 ND-1	Total count	N/A	N/A	Soil runoff

1 – Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The level detected represents the highest level detected. The standard for distribution, or transmission, system turbidity is 5 NTU.

\* Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used for drinking by people on moderately restricted sodium diets.

**INFORMATION ON CRYPTOSPORIDIUM – SARATOGA COUNTY WATER AUTHORITY**

Cryptosporidium is a microbial pathogen found in surface water and groundwater under the influence of surface water. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. The Saratoga County Water Authority utilizes membrane filtration technology which removes these contaminants at higher rates than conventional water treatment technologies. During 2018, as part of our routine sampling, eight samples were collected of untreated Hudson River source water and analyzed for Cryptosporidium oocysts. Of these samples, no oocysts were detected. Therefore, our testing indicates there was no presence of Cryptosporidium in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, a gastrointestinal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their health care provider regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

**INFORMATION ON GIARDIA – SARATOGA COUNTY WATER AUTHORITY**

Giardia is a microbial pathogen present in varying concentrations in many surface waters and groundwater under the influence of surface water. Giardia is removed/inactivated through a combination of filtration and disinfection or by disinfection. During 2018, as part of our routine sampling, eight samples were collected of untreated Hudson River source water and analyzed for Giardia cysts. Of these samples, four showed two cysts, one showed four cysts and two showed no cysts. Therefore, our testing indicates the presence of Giardia in our source water. No results were detected in the treated water distributed to customers. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Giardia may cause giardiasis, an intestinal illness. The Saratoga County Water Authority utilizes membrane filtration technology which removes these contaminants at higher rates than conventional water treatment technologies. People exposed to Giardia may experience mild or severe diarrhea, or in some instances no symptoms at all. Fever is rarely present. Occasionally, some individuals will have chronic diarrhea over several weeks or a month, with significant weight loss. Giardiasis can be treated with anti-parasitic medication. Individuals with weakened immune systems should consult with their health care providers about what steps would best reduce their risks of becoming infected with Giardiasis. Individuals who think that they may have been exposed to Giardiasis should contact their health care providers immediately. The Giardia parasite is passed in the feces of an infected person or animal and may contaminate water or food. Person to person transmission may also occur in day care centers or other settings where hand washing practices are poor.

Moreau Water District							
Contaminant	Violation Yes/No	Date of Sample	Level Detected	Unit Measurement	MCLG	Regulatory Limit MCL	Likely Source of Contamination

Total Trihalomethanes Amy Drive	No	Quarterly Samples 2/7/20, 5/7/20, 8/6/20, 11/5/20	69.8 <sup>1</sup> (52-77) <sup>2</sup>	ug/l	N/A	80 ug/l	By-products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter.
Total Trihalomethanes Spier Falls	No	Quarterly Samples 2/7/20, 5/7/20, 8/6/20, 11/5/20	37.5 <sup>1</sup> (15-23) <sup>2</sup>	ug/l	N/A	80 ug/l	By-products of drinking water chlorination. TTHM's are formed when source water contains large amounts of organic matter.
Total Haloacetic Acids Amy Drive	No	Quarterly Samples 2/7/20, 5/7/20, 8/6/20, 11/5/20	39 <sup>1</sup> (20-38) <sup>2</sup>	ug/l	N/A	60 ug/l	By-products of drinking water chlorination. HAA5's are formed when source water contains large amounts of organic matter.
Total Haloacetic Acids Spier Falls	No	Quarterly Samples 2/7/20, 5/7/20, 8/6/20, 11/5/20	25.7 <sup>1</sup> (11.6-20) <sup>2</sup>	Ug/l	N/A	60 ug/l	By-products of drinking water chlorination. HAA5's are formed when source water contains large amounts of organic matter.
Copper	No	8/28/19-9/5/19	0.108 <sup>3</sup> (0.006-1.08) <sup>4</sup>	mg/l	1.3 mg/l	AL – 1.3 mg/l	Corrosion of household plumbing systems; Erosion of natural deposits
Lead	No	8/28/19-9/5/19	7.6 <sup>3</sup> (ND-128) <sup>4</sup>	ug/l	15 ug/l	AL-15 ug/l	Corrosion of household plumbing systems; Erosion of natural deposits

1- The level presented represents the highest quarterly running annual average from the samples collected for 2020. The highest running annual average results occurred during the second quarter 2020 except for the highest THMs average at Amy Drive occurred during the third quarter.

2- The level presented represents the range of results of the quarterly samples collected in 2020.

3 – The level presented represents the 90<sup>th</sup> percentile of the 20 sites tested in August-September 2019. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90<sup>th</sup> percentile is equal to or greater than 90% of the values detected at your water system. No sites exceeded the action level for copper. One site exceeded the action level for lead.

4 – This represents the range of lead and copper results.

#### Definitions:

**Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.

**Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.

**Action Level (AL):** The concentration of a contaminant, which, if exceeded, triggers treatment, or other requirements that a water system must follow.

**Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

**Non Detects (ND):** Laboratory analysis indicates that the constituent is not present.

**Non-Applicable (NA)**

**Nephelometric Turbidity Unit (NTU):** A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**Milligrams per liter (mg/l):** one part per million corresponds to one minute in two years or a single penny in \$10,000.

**Micrograms per liter (ug/l):** one part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

**Picocuries per liter (pCi/L):** A measure of the radioactivity in water.

**Nanograms per liter (ng/l):** Corresponds to one part of liquid to one trillion parts of liquid (parts per trillion - ppt).

### **WHAT DOES THIS INFORMATION MEAN?**

As you can see by the table, neither our system, the Queensbury Water District nor the Saratoga County Water Authority exceeded any contaminant MCL levels. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the state. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

### **IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?**

During 2020, both the Queensbury WD and the Saratoga County Water Authority were in compliance with all applicable State drinking water requirements. All testing was performed and reported in the required time. During June – September 2019 we were required to collect 20 lead and copper samples. Of the 20 samples taken, one sample showed a higher level of lead than allowed and one sample showed a higher level of copper than allowed. No additional action needed to be taken.

### **INFORMATION ON LEAD IN DRINKING WATER**

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Queensbury WD is responsible for providing high quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

### **DO I NEED TO TAKE SPECIAL PRECAUTIONS?**

Although our drinking water met or exceeded state and federal regulations, some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

### **WHY SAVE WATER AND HOW TO AVOID WASTING IT?**

Although our system has an adequate amount of water to meet present and future demands, there are a number of reasons why it is important to conserve water:

- ◆ Saving water saves energy and some of the costs associated with both of these necessities of life.
  - ◆ Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers.
  - ◆ Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential firefighting needs are met.
- You can play a role in conserving water by becoming conscious of the amount of water your household is using, and by looking for ways to use less whenever you can. It is not hard to conserve water. Conservation tips include:
- ◆ Automatic dishwashers use up to 10 gallons for every cycle, regardless of how many dishes are loaded.
  - ◆ Turn off the tap when brushing your teeth.
  - ◆ Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
  - ◆ Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.
  - ◆ Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances, then check the meter after 15 minutes, if it moved, you have a leak.

### **SYSTEM IMPROVEMENTS:**

In 2020: We painted and numbered all of the fire hydrants (351). Upgraded meters.

In 2021: We will add more hydrants for fire protection in all Districts. And, we will be continuing to locate service lines in all Districts for our card file.

We have meters that are failing. Please help us when we leave a tag by calling to set up an appointment.

Thank you,

Jesse Fish  
Water Superintendent