NYC Environmental Protection

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June 7, 2019

Li Huang, P.E.
New York City Department of Health and Mental Hygiene
Environmental Sciences & Engineering
42-09 28th Street, 14th Floor CN# 56
Long Island City, NY 11101

Patrick Palmer
New York State Department of Health
Bureau of Water Supply Protection, NYC Watershed Section
Empire State Plaza, Corning Tower, Room 1198
Albany, NY 12237

Katie Lynch
United States Environmental Protection Agency
Clean Water Division - New York City Water Supply Protection Program
290 Broadway, 24th Floor
New York, New York 10007-1866

RE: Monthly Water Quality Report for May 2019

Dear Ms. Huang, Mr. Palmer and Ms. Lynch:

Enclosed, please find the New York City Water Quality report for the month of **May 2019**. There was no well pumpage to distribution in the Groundwater System this month. Croton water fed into distribution from May 1, 2019 through May 31, 2019. In addition to the following list of compliance reports, a disc of electronic files containing compliance and non-compliance data for this month is enclosed with this report.

- Raw Water Fecal Coliform Report
- Raw Water Turbidity Report
- Distribution Microbiological Compliance Reports
  - Summary
  - Positive Samples
  - Resamples
- Chlorine Residual Reports
  - Entry Point Online
  - Entry Point Daily Minimum
  - Heterotrophic Plate Count
  - Monthly Summary
- Distribution Turbidity Reports
  - Distribution Turbidity Report
  - Source Water > 1.49 NTU Table

- Color Entry Point Report
- Fluoride Reports
  - Fluoride Entry Point Report
  - Distribution Fluoride Report
- Quarterly Disinfection By-products Report

The reports are summarized as follows:

FAD REQUIREMENTS

1. *Raw Water Fecal Coliform Concentrations* (Section 141.71(a)(1)):
Requirements met. The Delaware Aqueduct effluent from Kensico Reservoir exhibited fecal coliform concentrations in water prior to disinfection at levels less than or equal to 20 CFU/100 mL in at least 90% of the samples collected in the six-month period from December 1, 2018 to May 31, 2019. The six month running percentage of samples collected with fecal coliform concentrations >20 CFU/100 mL was 0.00% for the Catskill/Delaware System for this time period.

2. *Raw Water Turbidity* (Section 141.71(a)(2)):
Requirements met. The raw water leaving Kensico Reservoir via the Delaware Aqueduct in compliance samples collected at DEL18DT, just prior to disinfection, exhibited turbidity levels less than or equal to 5 NTU on an ongoing basis during the month. The highest reported turbidity value was 0.9 NTU on the Catskill/Delaware System for the month.

3. *Entry Point Chlorine Residual* (Section 141.71(b)(1)(iii) and 141.72(a)(3)):
Requirements met. As required, continuous monitoring for free chlorine residual was maintained at the distribution entry points throughout the month and at no time did the concentration fall below 0.2 mg/L for more than four hours. The minimum daily free chlorine residual value for entry point readings for the Catskill/Delaware System from sites 1S03 (Tunnel 1) was 0.41 mg/L, 1S03A (Tunnel 2) was 0.70 mg/L, and 1S03B (Tunnel 3) was 0.20 mg/L for the Catskill/Delaware System. Chlorine residual levels on Tunnel 3 dipped to 0.2 ppm for one minute at the entry point at 9:45 AM on May 13, 2019, when pressure was lost following the weekly switch of the Tunnel 3 carrier water pumps from pump #1 to pump #2 in Downtake 2. The pressure was quickly reestablished by switching back to pump #1. The source of the issue was identified as a leaking flanged joint. On May 15, 2019, corrective action was completed, replacing both pumps' suction lines, eliminating flanged joints, and returning to the use of glued 80 PVC pipe.

The Croton Filtration Plant was online and continuously feeding the Croton Low Service entry point from May 1, 2019 through May 31, 2019. The Croton High Service entry point was offline throughout May 2019. The minimum daily free chlorine residual value for Croton entry point readings from site 1SCL1 (Low Service) was 0.54 mg/L.

4. *Distribution System Disinfection Residuals* (Section 141.71(b)(1)(iv) and 141.72(a)(4)):
Requirements met. All free chlorine residuals measured at compliance sites within the distribution system during the month were greater than or equal to 0.02 mg/L.

A total of 1370 distribution samples were tested for free chlorine residual this month. For all distribution sites free chlorine residual ranged from 0.02 mg/L to 1.04 mg/L, and averaged 0.55 mg/L for the month.

5. *Trihalomethane Monitoring / HAA5 Monitoring* (Section 141.71(b)(6)):
Requirements met. The System's TTHM System-Wide Running Average (RAA) for the second quarter of 2019 was 38 µg/L, and the Locational Running Annual Averages (LRAA) ranged from 32 µg/L to 46 µg/L. These values meet the MCL of 80 µg/L for LRAA and RAA. TTHM quarterly results averaged 35 µg/L.

The System's HAA5 RAA for the second quarter of 2019 was 43 µg/L, and the LRAA ranged from 38 µg/L to 47 µg/L. These values meet the MCL of 60 µg/L for LRAA and RAA. HAA5 quarterly results averaged 44 µg/L.

6. Total Coliform Monitoring (Section 141.71(b)(5)):
Requirements met. The results of monthly coliform monitoring performed in the distribution system are enclosed. A total of 832 compliance samples were tested for total coliform during this period. HPC were all ≤500 CFU/mL, equivalent to a measurable free chlorine residual. Zero percent of the samples had an undetectable free chlorine residual or HPC >500 CFU/mL. This meets the requirements that a free chlorine residual be maintained at representative points in the distribution system, and that no more than 5% of the free chlorine residual samples be undetectable in any two months. During the month, there were two (2) samples that tested positive for total coliform. No samples tested positive for *E. coli*.

- A sample collected on 05/26/2019 from Site 47550 (sample station east side of Beach 105 St., and second sampling station north of Shore Front Parkway, 12 inch main) was positive for total coliform. Repeat sampling on 5/28/2019 was coliform negative at all locations.
- A sample collected on 05/28/2019 from Site 51350 (sample station west side of Clove Road, and first sampling station south of Tyler Ave, 12 inch main) was positive for total coliform. Repeat sampling on 5/30/2019 was coliform negative at all locations.

OTHER WATER QUALITY MONITORING

7. *Microbiological Monitoring:*
Coliform monitoring at distribution sites near first service connections, in response to source water having a turbidity >1.49 NTU, was not required this month, but all of these samples were negative for total coliform.

The analyses of 538 distribution Operational samples resulted in three (3) samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 247 Pre-Finished samples resulted in two (2) samples testing positive for total coliform. One (1) sample tested positive for *E. coli*.

The analyses of 487 Autosampler Pre-finished samples resulted in six (6) samples testing positive for total coliform. No *E. coli* were detected.

8. *Distribution Turbidity Monitoring:*
For distribution sites turbidity ranged from <0.10 to 14.1 NTU and averaged 0.70 NTU for the month. This meets the MCL of 5 NTU for the monthly average of all distribution samples.

9. *Color Monitoring:*
The MCL of 15 units for color was met at each Catskill/Delaware and Croton entry point for the month. Daily analyses of entry point samples (124 samples in total), produced monthly average color values of six (6) units for sites 1S03 (Tunnel 1), 1S03A (Tunnel 2), 1S03B (Tunnel 3), and four (4) units for site 1SCL1 (Croton Low Service).

10. *Volatile Organic/TTHM/HAA5 Monitoring:*
Monthly Results: Twenty (22) distribution and four (4) entry point samples were collected for volatile organic contaminant (VOC) analysis. All VOC samples from distribution sites and entry points were below detection. Twenty (22) TTHM distribution samples were collected ranging from 19 µg/L to 47 µg/L. Four (4) TTHM entry point samples were collected ranging from 19 µg/L to 40 µg/L. Twenty (22) HAA5 distribution samples were collected ranging from 30 µg/L to 57 µg/L. Four (4) HAA5 entry point samples were collected ranging from 32 µg/L to 41 µg/L.

11. *Semivolatile and Other Organic Chemicals/parameters:*
EPA Method 525.3 monitoring for 112 compounds of specified and unspecified organic parameters was conducted on May 20, 2019 at the three Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), the Croton Low Service entry point (1SCL1) and the Croton High Service entry point (1SCH3), which represented distribution Catskill/Delaware water, and four (4) distribution points. All semi-volatile organic contaminant samples from distribution sites and entry points were below detection limits.

Monitoring for Method 505 organohalide pesticides was conducted on April 22, 2019 at three (3) Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), and at the Croton Low Service and High Service entry points (1SCL1 and 1SCH3). All results were below detection.

12. *Fluoride Monitoring:*
Daily analyses of entry point samples (124 samples in total), produced monthly average fluoride levels of 0.71 mg/L for site 1S03 (Tunnel 1), 0.72 mg/L for sites 1S03A (Tunnel 2), and 1S03B (Tunnel 3), and 0.73 mg/L for site 1SCL1 (Croton Low Service). The fluoride levels at the entry points did not exceed the MCL of 2.2 mg/L at any time during the month.

13. *Other Monitoring:*
Sampling for Taste and Odor (T&O) compounds Geosmin and 2-Methylisoborneol (MIB) was conducted in May on 14 Croton water samples from New Croton Reservoir, Jerome Park Reservoir, and Croton Low Service Entry Point. Results from the May 28, 2019 sampling are pending. Other results for Geosmin ranged from ND to 3.1 ng/L, and for MIB were below detection. Contract laboratory reports of available data are included as pdf files on the disc of electronic files enclosed with this report.

Please feel free to contact me at (845) 340-7701 if you would like to discuss any of this information in greater detail.

Sincerely,

Steven C. Schindler
Director, Water Quality

Enclosure

cc:

Mr. James Flaherty, Inspector General for NYCDEP
Mr. Kenneth Kosinski, NYSDEC
Mr. David Kvinge, Westchester County Water Agency (by email only)
Mr. Huan Li, NYCDOHMH
Mr. Trevor McProud, NYCDOHMH
Mr. Andy Tse, NYSDOH (by email only)
Mr. Steven Zahn, NYSDEC – Region 2

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RAW WATER FECAL COLIFORM CONCENTRATIONS
(FAD Requirement)

NYCDEP Division of Watershed Water Quality Operations

Catskill/Delaware System Raw Water Fecal Coliform Compliance Report

Hawthorne Laboratory, ELAP Lab ID No. 10771
15 Skyline Drive, Hawthorne, NY 10532

Deputy Chief: David Robinson
914-345-4973

Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water **Period: 03/17 To: 05/19**

Date	Number of Fecal Coliform Samples Examined per Month	Number of Fecal Coliform Samples with >20 colonies per 100 mL	Percent of Monthly Fecal Coliform Samples with >20 colonies per 100 mL	Percent of Monthly Fecal Coliform Samples with >20 colonies per 100 mL for Previous Six Months
3-17	31	0	0.00	0.00
4-17	30	0	0.00	0.00
5-17	31	0	0.00	0.00
6-17	30	0	0.00	0.00
7-17	31	0	0.00	0.00
8-17	31	0	0.00	0.00
9-17	30	0	0.00	0.00
10-17	31	0	0.00	0.00
11-17	30	0	0.00	0.00
12-17	31	0	0.00	0.00
1-18	31	0	0.00	0.00
2-18	28	1	3.57	0.55
3-18	31	0	0.00	0.55
4-18	30	0	0.00	0.55
5-18	31	0	0.00	0.55
6-18	30	0	0.00	0.55
7-18	31	0	0.00	0.55
8-18	31	0	0.00	0.00
9-18	30	2	6.67	1.09
10-18	31	2	6.45	2.17
11-18	30	0	0.00	2.19
12-18	31	0	0.00	2.17
1-19	31	0	0.00	2.17
2-19	28	0	0.00	2.21
3-19	31	0	0.00	1.10
4-19	30	0	0.00	0.00
5-19	31	0	0.00	0.00

J.W. Robinson 6/4/19

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 6/4/2019

All results that fall within the scope of the NELAP program meet that program's requirements unless stated in the qualifiers addendum printed at the end of this

RAW WATER TURBIDITY
(FAD Requirement)

NYCDEP Division of Watershed Water Quality Operations

Water Systems Operation Report - Catskill/Delaware System

Hawthorne Laboratory, ELAP Lab ID No. 10771
15 Skyline Drive, Hawthorne, NY 10532

Deputy Chief: David Robinson
914-345-4973

Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water — **Period: May, 2019**

Date	Turbidity (NTU) 12 AM	4 AM	8 AM	12 PM	4 PM	8 PM	Total Coliform (Colonies per 100 mL)	Fecal Coliform (Colonies per 100 mL)
5/1/19	0.80	0.80	0.70	0.70	0.70	0.70	E9	<1
5/2/19	0.70	0.75	0.75	0.60	0.75	0.75	E7	<1
5/3/19	0.70	0.75	0.75	0.75	0.65	0.80	E2	<1
5/4/19	0.60	0.65	0.75	0.70	0.75	0.70	E4	<1
5/5/19	0.70	0.80	0.70	0.80	0.85	0.75	E11	<1
5/6/19	0.75	0.80	0.70	0.80	0.80	0.70	E9	<1
5/7/19	0.80	0.75	0.80	0.80	0.75	0.75	E13	E1
5/8/19	0.70	0.65	0.70	0.80	0.75	0.60	E8	<1
5/9/19	0.70	0.65	0.70	0.75	0.65	0.55	E4	E1
5/10/19	0.55	0.65	0.65	0.75	0.65	0.75	E3	<1
5/11/19	0.70	0.65	0.75	0.75	0.85	0.80	E4	<1
5/12/19	0.70	0.65	0.70	0.75	0.75	0.65	E5	<1
5/13/19	0.60	0.75	0.75	0.70	0.70	0.65	E11	E1
5/14/19	0.65	0.65	0.70	0.85	0.75	0.65	E8	<1
5/15/19	0.75	0.75	0.75	0.70	0.65	0.65	29	E5
5/16/19	0.70	0.80	0.75	0.85	0.85	0.80	>=E36	E3
5/17/19	0.75	0.80	0.75	0.80	0.80	0.85	E9	E1
5/18/19	0.75	0.80	0.85	0.85	0.85	0.70	E50	E2
5/19/19	0.85	0.75	0.80	0.80	0.80	0.85	E20	E4
5/20/19	0.80	0.85	0.70	0.85	0.85	0.90	E12	E3
5/21/19	0.85	0.75	0.70	0.80	0.75	0.80	E26	E3
5/22/19	0.75	0.85	0.80	0.85	0.85	0.80	E18	E3
5/23/19	0.75	0.90	0.80	0.80	0.90	0.90	E28	<1
5/24/19	0.85	0.80	0.90	0.85	0.80	0.85	E10	<1
5/25/19	0.70	0.85	0.80	0.85	0.85	0.85	E8	<1
5/26/19	0.80	0.85	0.80	0.80	0.85	0.80	E15	E1
5/27/19	0.80	0.80	0.75	0.75	0.75	0.80	E6	E3
5/28/19	0.80	0.85	0.80	0.75	0.80	0.80	E20	E1
5/29/19	0.80	0.75	0.80	0.85	0.75	0.80	E16	<1
5/30/19	0.80	0.80	0.80	0.80	0.70	0.75	E26	E1
5/31/19	0.80	0.85	0.80	0.80	0.80	0.80	E18	E2

.: Aqueduct Shutdown, CONF: Confluent Growth (+ indicates positive coliform growth), LE: Lab Error, FE: Field Error,
E: estimated count based on non-ideal plate, >=: plate count may be biased low based on heavy growth, >: observed count replaced with dilution based value

1. Does a raw water turbidity M & R violation exist? ___ Yes _X_ No
2. Does the turbidity reading exceed 5 NTU at any time? ___ Yes _X_ No
   If yes, check for MCL violation, and notify state by the end of the next business day.
3. Minimum number of microbiological samples required per week: _5_
4. A daily microbiological sample is required every day the raw water turbidity exceeds 1 NTU.

Additional Comments:

D.W Robinson 6/4/19

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 6/4/2019

All results that fall within the scope of the NELAP program meet that program's requirements unless stated in the qualifiers addendum printed at the end of this report.

Report Printed on 06/04/201912:21 pm

NYCDEP Division of Watershed Water Quality Operations

Water Systems Operation Report - Qualifiers and Methods Addendum

Hawthorne Laboratory, ELAP Lab ID No. 10771
15 Skyline Drive, Hawthorne, NY 10532

Deputy Chief: David Robinson
914-345-4973

Data Qualifiers and Additional Notes

Date/Time	Site	Analytes Affected	Qualifier

Analytical Methods

Coliform, Fecal	-	SM 9222D (2006)
Coliform, Total	-	SM 9222B (2006)
Turbidity	-	SM 2130B (01)

ENTRY POINT CHLORINE RESIDUAL
(FAD Requirement)

New York City Department of Environmental Protection
Bureau of Water Supply

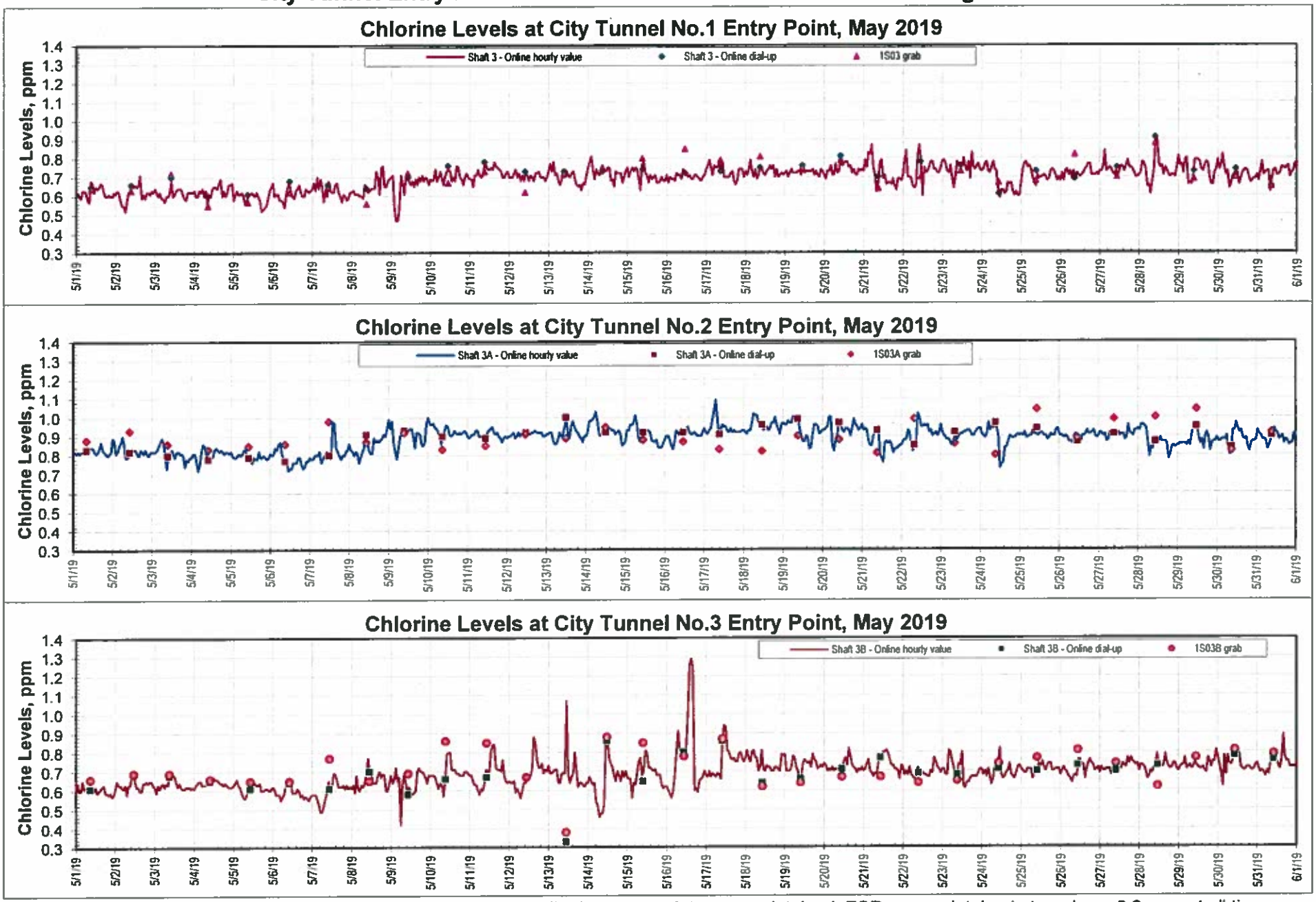
Daily Minimum Chlorine Readings Recorded at Tunnel Entry Shafts for Catskill/Delaware System

Tunnel No.1 (Catskill) at Shaft 3			Tunnel No.2 (Delaware) at Shaft 3A			Tunnel No.3 (Cat/Del) at Shaft 3B		
Date	MinCl_1DL	Remark 1	Date	MinCl_2DL	Remark 2	Date	MinCl_3DL	Remark 3
05/01/19	0.56		05/01/19	0.80		05/01/19	0.53	
05/02/19	0.52		05/02/19	0.76		05/02/19	0.58	
05/03/19	0.55		05/03/19	0.73		05/03/19	0.59	
05/04/19	0.57		05/04/19	0.71		05/04/19	0.61	
05/05/19	0.52		05/05/19	0.76		05/05/19	0.55	
05/06/19	0.48		05/06/19	0.70		05/06/19	0.54	
05/07/19	0.52		05/07/19	0.76		05/07/19	0.47	
05/08/19	0.59		05/08/19	0.75		05/08/19	0.55	
05/09/19	0.41		05/09/19	0.76		05/09/19	0.36	
05/10/19	0.62		05/10/19	0.86		05/10/19	0.57	
05/11/19	0.66		05/11/19	0.86		05/11/19	0.57	
05/12/19	0.65		05/12/19	0.88		05/12/19	0.55	
05/13/19	0.62		05/13/19	0.83		05/13/19	0.20	Tun 3 service water lost pressure during weekly pump switch over and caused chlorine dip to 0.2ppm at 9:45am.
05/14/19	0.63		05/14/19	0.84		05/14/19	0.45	
05/15/19	0.63		05/15/19	0.83		05/15/19	0.55	
05/16/19	0.68		05/16/19	0.82		05/16/19	0.55	
05/17/19	0.66		05/17/19	0.90		05/17/19	0.64	
05/18/19	0.66		05/18/19	0.90		05/18/19	0.62	
05/19/19	0.64		05/19/19	0.83		05/19/19	0.63	
05/20/19	0.67		05/20/19	0.81		05/20/19	0.68	
05/21/19	0.60		05/21/19	0.75		05/21/19	0.66	
05/22/19	0.58		05/22/19	0.81		05/22/19	0.62	
05/23/19	0.64		05/23/19	0.83		05/23/19	0.60	
05/24/19	0.58		05/24/19	0.72		05/24/19	0.63	
05/25/19	0.64		05/25/19	0.88		05/25/19	0.64	
05/26/19	0.66		05/26/19	0.83		05/26/19	0.62	
05/27/19	0.68		05/27/19	0.85		05/27/19	0.66	
05/28/19	0.58		05/28/19	0.74		05/28/19	0.66	
05/29/19	0.62		05/29/19	0.82		05/29/19	0.67	
05/30/19	0.61		05/30/19	0.79		05/30/19	0.61	
05/31/19	0.60		05/31/19	0.80		05/31/19	0.65	

Legend: MinCl_1DL: Shaft 3's minimum chlorine level measured at the shaft and recorded at the location via data logger, in ppm.
MinCl_2DL: Shaft 3A's minimum chlorine level measured at the shaft and recorded at the location via data logger, in ppm.
MinCl_3DL: Shaft 3B's minimum chlorine level measured at the shaft and recorded at the location via data logger, in ppm.

New York City Department of Environmental Protection
Bureau of Water Supply

City Tunnel Entry Point Residual Chlorine Continuous Monitoring Results



Note: Continuous monitoring of free chlorine residual (FCR) at distribution entry points was maintained. FCR was maintained at or above 0.2 ppm at all times. Since 3/10/19, all online readings, grab and online dial-up readings were recorded in Eastern Daylight Saving Time.

New York City Department of Environmental Protection
Bureau of Water Supply

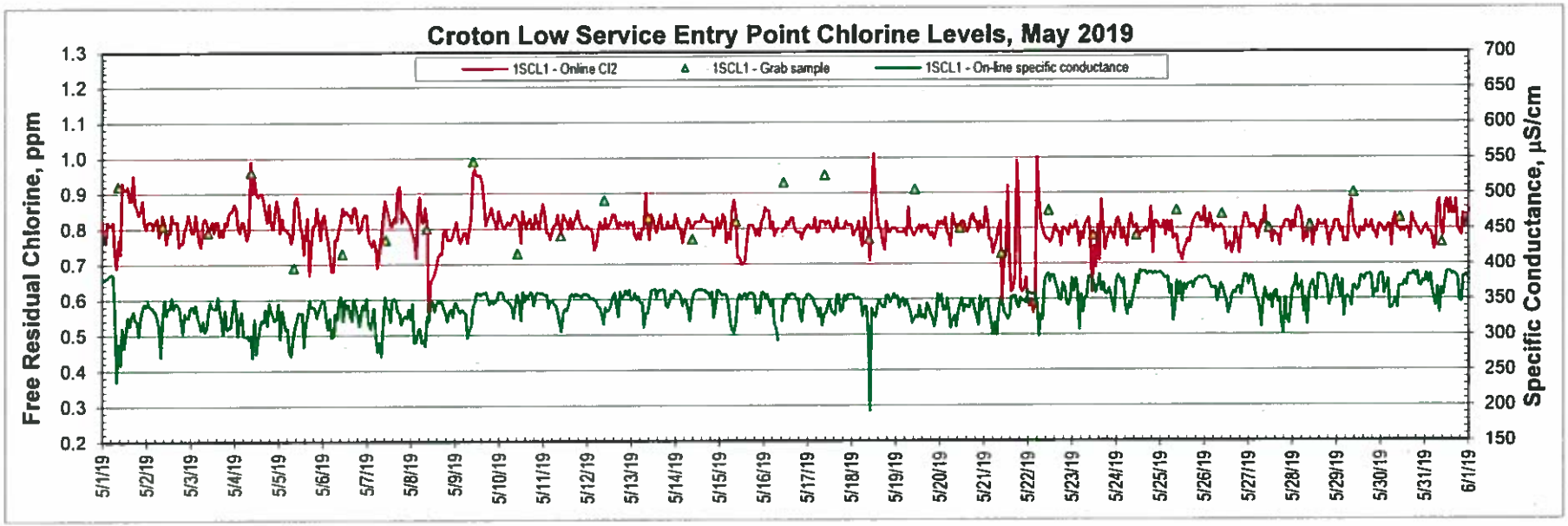
Daily Minimum Chlorine Readings Recorded at Croton Distribution Entry Points

Low Service			High Service		
Date	MinCl_1SCL1	Remark 1	Date	MinCl_1SCH3	Remark 2
05/01/19	0.63		05/01/19		
05/02/19	0.73		05/02/19		
05/03/19	0.69		05/03/19		
05/04/19	0.73		05/04/19		
05/05/19	0.67		05/05/19		
05/06/19	0.67		05/06/19		
05/07/19	0.68		05/07/19		
05/08/19	0.54		05/08/19		
05/09/19	0.73		05/09/19		
05/10/19	0.75		05/10/19		
05/11/19	0.73		05/11/19		
05/12/19	0.74		05/12/19		
05/13/19	0.65		05/13/19		
05/14/19	0.74		05/14/19		
05/15/19	0.68		05/15/19		
05/16/19	0.75		05/16/19		No Croton water.
05/17/19	0.74		05/17/19		
05/18/19	0.61		05/18/19		
05/19/19	0.74		05/19/19		
05/20/19	0.74		05/20/19		
05/21/19	0.59		05/21/19		
05/22/19	0.56		05/22/19		
05/23/19	0.59		05/23/19		
05/24/19	0.71		05/24/19		
05/25/19	0.70		05/25/19		
05/26/19	0.57		05/26/19		
05/27/19	0.71		05/27/19		
05/28/19	0.70		05/28/19		
05/29/19	0.74		05/29/19		
05/30/19	0.73		05/30/19		
05/31/19	0.70		05/31/19		

Legend: MinCl_1SCL1: 1SCL1's minimum chlorine level measured and recorded at the location via data logger, in ppm.
MinCl_1SCH3: 1SCH3's minimum chlorine level measured and recorded at the location via data logger, in ppm.

Note: Croton water fed to High Service time period was determined by specific conductance greater than 150 uS/cm.

New York City Department of Environmental Protection
Bureau of Water Supply
Croton Distribution Entry Point Residual Chlorine Continuous Monitoring Results



Note: Continuous monitoring of free chlorine residual (FCR) at distribution entry points was maintained. FCR was maintained above 0.2 ppm at all times. Since 3/10/19, all online readings, grab and online dial-up readings were recorded in Eastern Daylight Saving Time.

DISTRIBUTION SYSTEM DISINFECTION RESIDUAL

(FAD Requirement)

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Residual Chlorine (mg/L) Distribution Samples

May 2019

All Distribution Sites			
Samples	Min	Max	Average
1370	0.02	1.04	0.55

Hach DPD Method (analyte is not ELAP certified)

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	RESIDUAL CHLORINE	COMMENT
14803	5/25/19	1S03A	Sub	1.04	Max
15170	5/29/19	1S03A	Sub	1.04	Max
13888	5/16/19	3ISL4	Regular	0.02	Min

A FCR is to be maintained at representative points in the distribution system and no more than 5% of the samples can be undetectable in any two months.

TOTAL COLIFORM MONITORING
(FAD Requirement)

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Summary of Results for Microbiological Quality
Compliance Samples

5/1/2019 to 5/31/2019

Location	Number of Sampling Points	Number of Samples Collected	Number of Samples Tested	Number of Samples with Positive Coliform *	Number of Samples with Positive E. coli *	Percent of Samples with Positive Coliform **
Bronx	46	135	135	0	0	0.0%
Brooklyn	70	201	201	0	0	0.0%
Manhattan	57	173	173	0	0	0.0%
Queens ***	79	236	236	1	0	0.4%
Staten Island	28	87	87	1	0	1.1%
Ground Water Supply ***	-	-	-	-	-	-
Total	280	832	832	2	0	0.2%

* As determined by Colilert Quanti-Tray-18 Method (SM 9223 B).

** If more than 5.0 % of all monthly TCR compliance samples are positive for total coliform, a Level I Assessment must be conducted.

*** There was no groundwater sample this month because no well was in operation to distribution.

Supervisor: Rupa Aggarwal Date: 06/05/19

Director: [signature] Date: 6/5/19

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Results for Microbiological Quality
Positive Compliance Samples
5/1/2019 to 5/31/2019

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
5/26/2019	9:07	47550	Queens	SS - E/S Beach 105th St, 2nd SS N/O Shore Front Pkwy, 12 "	17.8	<1	0.23	To Be Resampled
5/28/2019	10:22	51350	Staten Island	SS - W/S Clove Rd, 1st SS S/O Tyler Ave (also 1st S/O Broadway), 12 "	1.0	<1	0.21	To Be Resampled

* As determined by Colilert Quanti-Tray-18 Method (SM 9223 B). Results expressed in "MPN/100 mL."

** As determined by Hach DPD Method (analyte is not ELAP certified).

Supervisor: Rupa Aggarwal Date: 06/05/19

Director: Ken Bar Date: 6/5/19

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Results for Microbiological Quality
Resamples for Positive Compliance Samples

5/1/2019 to 5/31/2019

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
5/28/2019	8:19	47550	Queens	SS - E/S Beach 105th St, 1st SS S/O Rockaway Beach Blvd	<1	<1	0.40	Upstream
5/28/2019	8:44	47550	Queens	SS - E/S Beach 105th St, 2nd SS N/O Shore Front Pkwy, 12 "	<1	<1	0.39	Original Location
5/28/2019	9:03	47550	Queens	SS - E/S Beach 105th St, 1st SS N/O Shore Front Pkwy	<1	<1	0.36	Downstream
5/30/2019	9:26	51350	Staten Island	SS - W/S Clove Rd, 2nd SS S/O Tyler Ave (or 2nd S/O B'Way)	<1	<1	0.18	Upstream
5/30/2019	9:42	51350	Staten Island	SS - W/S Clove Rd, 1st SS S/O Tyler Ave (also 1st S/O Broadway), 12 "	<1	<1	0.23	Original Location
5/30/2019	10:01	51350	Staten Island	SS - W/S Clove Rd, 1st SS N/O Tyler Ave (or 1st N/O B'Way)	<1	<1	0.29	Downstream

* As determined by Colilert Quanti-Tray-18 Method (SM 9223 B). Results expressed in "MPN/100 mL."
** As determined by Hach DPD Method (analyte is not ELAP certified).

Supervisor: Rupe Aggarwal Date: 06/05/19

Director: [signature] Date: 6/5/19

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Results for Microbiological Quality
Free Chlorine Residual and Heterotrophic Plate Count
Compliance Samples

5/1/2019 to 5/31/2019

Location	Number of Sampling Points	Number of Samples Collected	Number of Samples Tested (Free Chlorine Residual)	Number of Samples Tested (Heterotrophic Plate Count)	Number of Samples with Free Chlorine Residual *		Range of Heterotrophic Plate Count (CFU/mL) for Free Chlorine Residual of 0.00 mg/L **	Number of Samples with Free Chlorine Residual of 0.00 mg/L and HPC > 500	Percent of Samples with Free Chlorine Residual of 0.00 mg/L and HPC > 500 ***
					< 0.20 mg/L	0.00 mg/L			
Bronx	46	135	135	96	1	0	--	0	0.0%
Brooklyn	70	201	201	144	2	0	--	0	0.0%
Manhattan	57	173	173	125	5	0	--	0	0.0%
Queens †	79	236	236	174	22	0	--	0	0.0%
Staten Island	28	87	87	65	9	0	--	0	0.0%
Ground Water Supply †	-	-	-	-	-	-	--	-	-
Total	280	832	832	604	39	0	--	0	0.0%

* Free chlorine residual is determined by Hach DPD Method (analyte is not ELAP certified).
** Heterotrophic plate count is determined by method SM 9215 B, PCA medium, 35°C, 48hrs. HPC result ≤ 500 CFU/mL is equivalent to a measurable FCR.
*** No more than 5 % of FCR samples shall be undetectable in any 2 consecutive months.

† There was no groundwater sample this month because no well was in operation to distribution.

Supervisor: Rupa Agarwal Date: 06/05/19

Director: Ken Bar Date: 6/5/19

MICROBIOLOGICAL MONITORING

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Coliform Monitoring Results at Sample Sites near the First Service Connection When Source Water Turbidity Exceeds 1.49 NTU

May 2019

Source water		Distribution site near first service connection			
Date Turb>1.49 NTU	System	Sample Date	Sample Site	Coliform *	E.coli *

No official four-hour turbidity readings from Cat-Del source water were greater than 1.5 NTU this month.

* As determined by Colilert Quanti-Tray-18 Method (SM 9223B). Results expressed in "MPN /100mL."

VOLATILE ORGANIC / THM / HAA MONITORING

(FAD Requirement)

REPORT

NYC DEPT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

SUMMARY OF DISINFECTION BY-PRODUCTS ANALYSES (µg/L)

SECOND QUARTER, 2019

Site	Location	Sample Date	TTHM (µg/L) [a]				HAA5 (µg/L) [b]			
			Analysis Date	Result	LRAA	OEL	Analysis Date	Result	LRAA	OEL
15150	SS - IFO 1420 E/S Grand Concourse, 1st SS S/O E 171st St, 20"	5/7/19	5/7/19	42	39	35	5/10/19	47	40	43
18650	SS - N/S Dewey Ave, btw Quincy & Swinton Aves, 12"	5/7/19	5/7/19	32	33	30	5/10/19	42	40	41
23450	SS - N/S Jefferson Avenue, 2nd SS W/O Lewis Avenue, 20"	5/7/19	5/8/19	32	37	32	5/11/19	43	41	44
24350	SS - W/S Brighton 11th Street, 2nd SS S/O Cass Place, 12"	5/7/19	5/8/19	32	42	35	5/10/19	46	47	48
31750	SS - IFO 427 N/S W 26th St, 2nd SS W/O 9th Ave, 12"	5/7/19	5/7/19	39	43	41	5/9/19	46	41	45
31850	SS - IFO 82 S/S Warren St, 2nd SS E/O Greenwich St, 12"	5/7/19	5/7/19	30	40	33	5/9/19	42	45	46
32350	SS - IFO 116 E/S Ave C, 2nd SS N/O E 7th St, 12"	5/7/19	5/7/19	43	42	40	5/9/19	49	43	46
33450	SS - IFO 135 N/S W 112th St, 2nd SS W/O St Nicholas Ave, 12"	5/7/19	5/8/19	31	33	30	5/11/19	50	46	49
33950	SS - N/S E 104th Street, 2nd SS E/O 3rd Avenue, 12"	5/7/19	5/8/19	31	33	32	5/11/19	48	45	47
37950	SS - IFO 325 N/S E 12th Street, 2nd SS E/O 2nd Ave, 12"	5/7/19	5/7/19	47	43	44	5/9/19	42	41	44
38250	SS - IFO 309 N/S E 87th St, 2nd SS W/O 1st Ave, 12"	5/7/19	5/8/19	40	35	35	5/11/19	53	47	50
39650	SS - IFO 229 N/S E 49th St, 2nd SS W/O 2nd Ave, 12"	5/7/19	5/8/19	44	35	38	5/11/19	57	47	51
44350	SS - IFO 21-55 N/S 34th Ave, 1st SS W/O 24th St, 12"	5/7/19	5/8/19	42	46	42	5/10/19	41	44	44
45250	SS - E/S Beach 58th St, 2nd SS N/O Beach Channel Drive, 12"	5/7/19	5/8/19	31	34	31	5/11/19	44	43	44
50250	SS - IFO 937 N/S Victory Blvd, 2nd SS E/O Highland Ave, 20"	5/7/19	5/8/19	25	32	29	5/10/19	44	46	45
50750	SS - E/S Woodhull Ave, 1st SS S/O Albourne Ave, 8"	5/7/19	5/8/19	32	38	33	5/9/19	32	38	37
50850	SS - IFO 512 W/S Arlene St, 1st SS N/O Dawson Ct, 12"	5/7/19	5/8/19	34	35	34	5/9/19	38	42	41
52050	SS - IFO 218 W/S Nicholas Ave, 1st SS S/O Charles Ave, 12"	5/7/19	5/8/19	31	35	34	5/10/19	41	47	45
58650	SS - IFO 510 W/S Main St, 2nd SS S/O Hylan Blvd, 12"	5/7/19	5/8/19	34	42	39	5/9/19	39	41	41
77650	SS - OPP 110-52 E/S 207th St	5/7/19	5/8/19	28	34	30	5/11/19	41	39	40

	TTHM		HAA5
25	QUARTERLY MINIMUM	32	
47	QUARTERLY MAXIMUM	57	
35	QUARTERLY AVERAGE	44	
38	SYSTEM-WIDE RAA	43	

[a] : analyzed by EPA Method 524.3

[b] : analyzed by EPA Method 552.3

LRAA: The Locational Running Annual Average (LRAA) is calculated by taking the value of this quarter and the three previous consecutive quarters.

RAA: The System-wide Running Annual Average (RAA) is calculated by taking the average of the Quarterly Average of this quarter and the three previous consecutive quarters.

OEL: The Operational Evalution Level (OEL) is calculated by averaging 2 times this quarter's value and the two previous consecutive quarters.

Both the LRAA and the System-wide RAA is not to exceed 80 µg/L for TTHM and 60 µg/L for HAA5.

DISTRIBUTION TURBIDITY MONITORING

REPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY, DISTRIBUTION LAB (NYSDOH ELAP #10770; USEPA #NY01351)

Turbidity (NTU) Distribution Samples

May 2019

All Distribution Sites			
Samples	Min	Max	Average
1370	<0.10	14.1	0.70

Analytical Method SM 2130 B

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	TURBIDITY	COMMENT
13986	5/17/19	13550	Reg Stop	14.1	Max
12422	5/2/19	1SCL1	Reg Stop	<0.10	Min
12424	5/2/19	3SC26	Reg Stop	<0.10	Min

The monthly average of all distribution samples is not to exceed 5 NTU.

COLOR MONITORING

REPORT

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY DISTRIBUTION LABORATORY (NYSDOH ELAP #10770; USEPA #NY01351)

Color (U) for Distribution Entry Points

May 2019

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Catskill/Delaware 1S03 (Tunnel 1)	6	6	6	6	6	6	7	6	6	6	6	6	5	6	6	5	6	7	5	7	6	6	6	6	6	6	6	6	5	7	6
Catskill/Delaware 1S03A (Tunnel 2)	6	7	6	5	7	7	6	6	6	7	7	7	6	6	6	6	6	7	5	6	6	6	6	6	7	6	6	6	5	7	7
Catskill/Delaware 1S03B (Tunnel 3)	6	7	6	6	7	6	7	6	7	6	6	6	5	6	6	5	6	6	6	6	7	6	6	7	7	6	6	6	5	7	7
Croton System 1SCL1 [a]	5	4	4	4	4	4	4	4	4	3	3	3	4	4	4	4	4	4	4	4	4	3	4	3	4	4	3	4	4	3	4
Croton System 1SCH3 [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Analytical Method SM 2120 B. Apparent color.

The average of two consecutive samples from the same site is not to exceed the MCL of 15 color units.

[a] Croton System online as of 4/29/19 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	31	5	7	6
Catskill/Delaware 1S03A (Tunnel 2)	31	5	7	6
Catskill/Delaware 1S03B (Tunnel 3)	31	5	7	6
Croton System 1SCL1 [a]	31	3	5	4
Croton System 1SCH3 [a]	-	-	-	-

Supervisor _____ **Date** 06/04/19

Director _____ **Date** 6/4/19

FLUORIDE MONITORING

REPORT

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATER SUPPLY DISTRIBUTION LABORATORY (NYSDOH ELAP #10770; USEPA #NY01351)

Fluoride (mg/L) for Distribution Entry Points

May 2019

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Catskill/Delaware 1S03 (Tunnel 1)	0.66	0.65	0.69	0.69	0.70	0.70	0.72	0.73	0.71	0.73	0.72	0.71	0.72	0.71	0.71	0.72	0.71	0.75	0.71	0.71	0.73	0.72	0.72	0.74	0.73	0.73	0.74	0.73	0.72	0.71	0.71
Catskill/Delaware 1S03A (Tunnel 2)	0.71	0.69	0.71	0.71	0.72	0.71	0.73	0.74	0.70	0.73	0.72	0.71	0.73	0.71	0.71	0.73	0.72	0.75	0.70	0.71	0.73	0.72	0.72	0.73	0.72	0.73	0.74	0.72	0.72	0.70	0.71
Catskill/Delaware 1S03B (Tunnel 3)	0.65	0.66	0.69	0.69	0.71	0.70	0.72	0.74	0.71	0.74	0.72	0.74	0.72	0.71	0.71	0.72	0.72	0.75	0.71	0.72	0.73	0.72	0.72	0.73	0.72	0.73	0.74	0.73	0.72	0.71	0.71
Croton System 1SCL1 [a]	0.61	0.68	0.68	0.75	0.63	0.70	0.61	0.69	0.68	0.74	0.76	0.80	0.77	0.66	0.78	0.75	0.78	0.78	0.75	0.68	0.76	0.73	0.69	0.79	0.79	0.80	0.79	0.73	0.78	0.73	0.75
Croton System 1SCH3 [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Analytical Method SM 4500 F'C (97)

The average of two consecutive samples from the same distribution entry point site is not to exceed the MCL of 2.2 ppm.

[a] Croton System online as of 4/29/19 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	31	0.65	0.75	0.71
Catskill/Delaware 1S03A (Tunnel 2)	31	0.69	0.75	0.72
Catskill/Delaware 1S03B (Tunnel 3)	31	0.65	0.75	0.72
Croton System 1SCL1 [a]	31	0.61	0.80	0.73
Croton System 1SCH3 [a]	-	-	-	-

Supervisor _____ **Date** 06/04/19

Director _____ **Date** 6/4/19