NYC Environmental Protection

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November 10, 2021

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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 October 2021

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

Enclosed, please find the New York City Water Quality report for the month of **October 2021**. There was no well pumpage to distribution in the Groundwater System this month. Croton water was feeding into distribution for the month of October. In addition to the following list of compliance reports, electronic files containing compliance and non-compliance data for this month are being emailed to you.

- 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 May 1, 2021 to October 31, 2021. In October there were two fecal coliform samples with >20 colonies per 100 mL collected on October 17, and October 28, 2021 and the sample from October 26, 2021 showed positive confluent coliform growth. The six month running percentage of samples collected with fecal coliform concentrations >20 CFU/100 mL was 3.26% 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 0.95 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 values for Catskill/Delaware System entry points from site 1S03 (Tunnel 1) was 0.55 mg/L, 1S03A (Tunnel 2) was 0.76 mg/L, and 1S03B (Tunnel 3) was 0.52 mg/L.

The Croton Filtration Plant was online throughout the month of October. The minimum daily free chlorine residual value for Croton entry points from site 1SCL1 (Low Service) was 0.60 mg/L and from 1SCH3 (High Service) was 0.46 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 0.01 mg/L, except for one sample that equaled 0.00 mg/L.

A total of 1363 distribution samples were tested for free chlorine residual during the month. For all monthly distribution sites free chlorine residual ranged from 0.00 to 1.30 mg/L and averaged 0.57 mg/L.

5. *Trihalomethane Monitoring / HAA5 Monitoring* (Section 141.71(b)(6)):
Requirements met. The results for the third quarter of 2021 were included in the report dated September 9, 2021 (For the August 2021 reporting period).

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 836 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, two (2) samples tested positive for total coliform and all samples were negative for *E. coli*.

- A sample collected on 10/2/2021 from Site 32850 (sample station in front of 138 E 37th Street, Manhattan) was positive for total coliform. Resampling on 10/4/2021 was coliform negative at all locations.
- A sample collected on 10/14/2021 from Site 14850 (sample station on the west side of Jackson Avenue, first south of St Mary's Street, Bronx) was positive for total coliform. Resampling on 10/16/2021 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 these samples were negative for total coliform and *E. coli*.

The analyses of 527 distribution Operational samples resulted in six (6) samples testing positive for total coliform. One (1) sample tested positive for *E. coli* at 2 MPN/100mL collected on 10/26/2021 from site 1S03B (sample station at Shaft 3B of City Tunnel No.3, Mosholu Avenue west of Jerome Avenue, Bronx.) The resample collected on 10/27/2020 was negative. A follow up investigation found no QC failures or issues in the laboratory or field.

The analyses of 248 Pre-Finished samples resulted in nine (9) samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 496 Autosampler Pre-finished samples resulted in nine (9) samples testing positive for total coliform. No *E. coli* were detected.

8. *Distribution Turbidity Monitoring:*
For distribution sites, turbidity ranged from <0.10 to 4.06 NTU and averaged 0.53 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 for the month. Daily analyses of entry point samples (155 samples in total), produced monthly average color values of 7 units for sites 1S03 (Tunnel

1), 1S03A (Tunnel 2), and 1S03B (Tunnel 3), and 4 units for sites 1SCL1 (Croton Low Service) and 1SCH3 (Croton High Service).

10. ***Volatile Organic/TTHM/HAA5 Monitoring:***
Monthly Results: Twenty (20) distribution and five (5) entry point samples were collected for volatile organic contaminant (VOC) analysis. All VOC samples from distribution sites and entry points were below detection. Twenty (20) TTHM distribution samples were collected ranging from 36 µg/L to 93 µg/L. Five (5) TTHM entry point samples were collected ranging from 23 µg/L to 75 µg/L. Twenty (20) HAA5 distribution samples were collected ranging from 22 µg/L to 90 µg/L. Five (5) HAA5 entry point samples were collected ranging from 16 µg/L to 63 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 October 18, 2021 at the three (3) Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), the Croton Low and High Service entry points (1SCL1 and 1SCH3), and six (6) distribution points. All semi-volatile organic contaminant samples were below detection limits.

Monitoring for Method 505 organohalide pesticides was conducted on October 25, 2021 at three (3) Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), and the Croton Low Service and High Service entry points (1SCL1 and 1SCH3). All sample results were below detection.

Quarterly monitoring for the two compounds 1,2-Dibromo-3-chloropropane and 1,2-Dibromoethane by EPA Method 524.3 SIM, determination of micro extractables, was conducted at the three (3) Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), the Croton Low Service and High Service entry points (1SCL1 and 1SCH3), and one (1) distribution sampling site (50250) on October 20, 2021. All sample results were below detection.

12. ***Fluoride Monitoring:***
Daily analyses of entry point samples (155 samples in total), produced monthly average fluoride levels of 0.70 mg/L for sites 1S03 (Tunnel 1), 1S03A (Tunnel 2), and 1S03B (Tunnel 3), and 0.75 mg/L for sites 1SCL1 (Croton Low Service) and 1SCH3 (Croton High Service). The fluoride levels at the entry points did not exceed the MCL of 2.2 mg/L at any time during the month.

Please feel free to contact me at (718) 595-5367 or sfreud@dep.nyc.gov if you would like to discuss any of this information in greater detail.

Sincerely,

Salomé Freud

Salome Freud
First Deputy Director of Water Quality & Innovation

Enclosure

cc:
by email

Mr. Andrew Brunsden, Inspector General for NYCDEP
Mr. Kenneth Kosinski, NYSDEC
Mr. David Kvinge, Westchester County Water Agency
Mr. Huan Li, NYCDOHMH
Ms. Millie Magraw, Westchester County Water Agency
Mr. Trevor McProud, NYCDOHMH
Mr. Andy Tse, NYSDOH
Mr. Patrick Foster, 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: 11/19 To: 10/21**

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
11-19	30	0	0.00	0.00
12-19	31	0	0.00	0.00
1-20	31	0	0.00	0.00
2-20	29	0	0.00	0.00
3-20	31	0	0.00	0.00
4-20	30	0	0.00	0.00
5-20	31	0	0.00	0.00
6-20	30	0	0.00	0.00
7-20	31	0	0.00	0.00
8-20	31	1	3.23	0.54
9-20	30	1	3.33	1.09
10-20	31	0	0.00	1.09
11-20	30	0	0.00	1.09
12-20	31	0	0.00	1.09
1-21	31	0	0.00	1.09
2-21	28	0	0.00	0.55
3-21	31	0	0.00	0.00
4-21	30	0	0.00	0.00
5-21	31	0	0.00	0.00
6-21	30	0	0.00	0.00
7-21	31	0	0.00	0.00
8-21	31	0	0.00	0.00
9-21	30	4	13.33	2.19
10-21	31	2	6.45	3.26

D.W Robinson 11/10/21

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 11/10/2021

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 11/10/202110:04 am

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: October, 2021**

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)
10/1/21	0.60	0.55	0.65	0.60	0.55	0.60	E20	E2
10/2/21	0.55	0.55	0.65	0.55	0.55	0.50	E40	E2
10/3/21	0.55	0.55	0.55	0.60	0.60	0.60	E100	<1
10/4/21	0.50	0.55	0.50	0.60	0.60	0.60	E180	E3
10/5/21	0.65	0.60	0.65	0.70	0.65	0.65	E80	E3
10/6/21	0.65	0.60	0.60	0.50	0.50	0.45	E40	E1
10/7/21	0.50	0.55	0.50	0.60	0.60	0.50	<20	E3
10/8/21	0.50	0.55	0.55	0.55	0.50	0.50	E60	<1
10/9/21	0.50	0.55	0.55	0.55	0.55	0.55	E20	E1
10/10/21	0.55	0.55	0.55	0.85	0.60	0.55	E20	E2
10/11/21	0.55	0.55	0.55	0.55	0.55	0.55	E20	E2
10/12/21	0.55	0.55	0.60	0.55	0.55	0.55	E40	<1
10/13/21	0.55	0.55	0.55	0.65	0.60	0.60	E80	E2
10/14/21	0.60	0.60	0.60	0.50	0.65	0.55	<20	<1
10/15/21	0.55	0.65	0.65	0.55	0.65	0.80	E40	E1
10/16/21	0.85	0.90	0.85	0.75	0.75	0.75	<20	E1
10/17/21	0.85	0.90	0.80	0.75	0.80	0.75	820	24
10/18/21	0.80	0.75	0.75	0.90	0.65	0.55	>=<20	E5
10/19/21	0.55	0.50	0.60	0.55	0.60	0.60	E50	E2
10/20/21	0.60	0.55	0.55	0.55	0.45	0.55	<20	E1
10/21/21	0.50	0.50	0.50	0.50	0.55	0.55	<20	E2
10/22/21	0.55	0.55	0.60	0.50	0.50	0.55	E40	E2
10/23/21	0.55	0.50	0.55	0.50	0.50	0.50	E20	E4
10/24/21	0.50	0.50	0.50	0.65	0.60	0.55	E50	E5
10/25/21	0.55	0.60	0.55	0.55	0.70	0.80	E40	E1
10/26/21	0.55	0.60	0.60	0.65	0.70	0.75	E80	CONF+
10/27/21	0.85	0.80	0.70	0.65	0.70	0.65	E150	E7
10/28/21	0.70	0.75	0.70	0.80	0.80	0.80	E200	33
10/29/21	0.80	0.85	0.85	0.80	0.75	0.75	E180	E10
10/30/21	0.85	0.80	0.90	0.85	0.85	0.90	E200	E11
10/31/21	0.90	0.85	0.80	0.90	0.95	0.85	E160	E17

.: 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 11/10/21

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 11/10/2021

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 11/10/2021 10:03 am

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

Period: October 2021

Date/Time	Site	Analytes Affected	Qualifier
9/30/21 23:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/1/21 03:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/1/21 07:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/1/21 11:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/1/21 15:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/1/21 19:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/1/21 23:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/2/21 03:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/2/21 07:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/2/21 11:56	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/2/21 15:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/2/21 19:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/2/21 23:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/3/21 03:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/3/21 07:55	DEL18DT	Turbidity	This sample has been bracketted with a QC standard that expired on 9/30/21.
10/10/21 11:55	DEL18DT	Turbidity	The duplicate analysis was not within the control limits.
10/20/21 10:01	DEL18DT	Total Coliform	QC blank contamination. Due to waste water sample being run.
10/26/21 09:45	DEL18DT	Fecal Coliform	Follow up testing with Nutrient Agar/Mug resulted in an estimated count of 4.

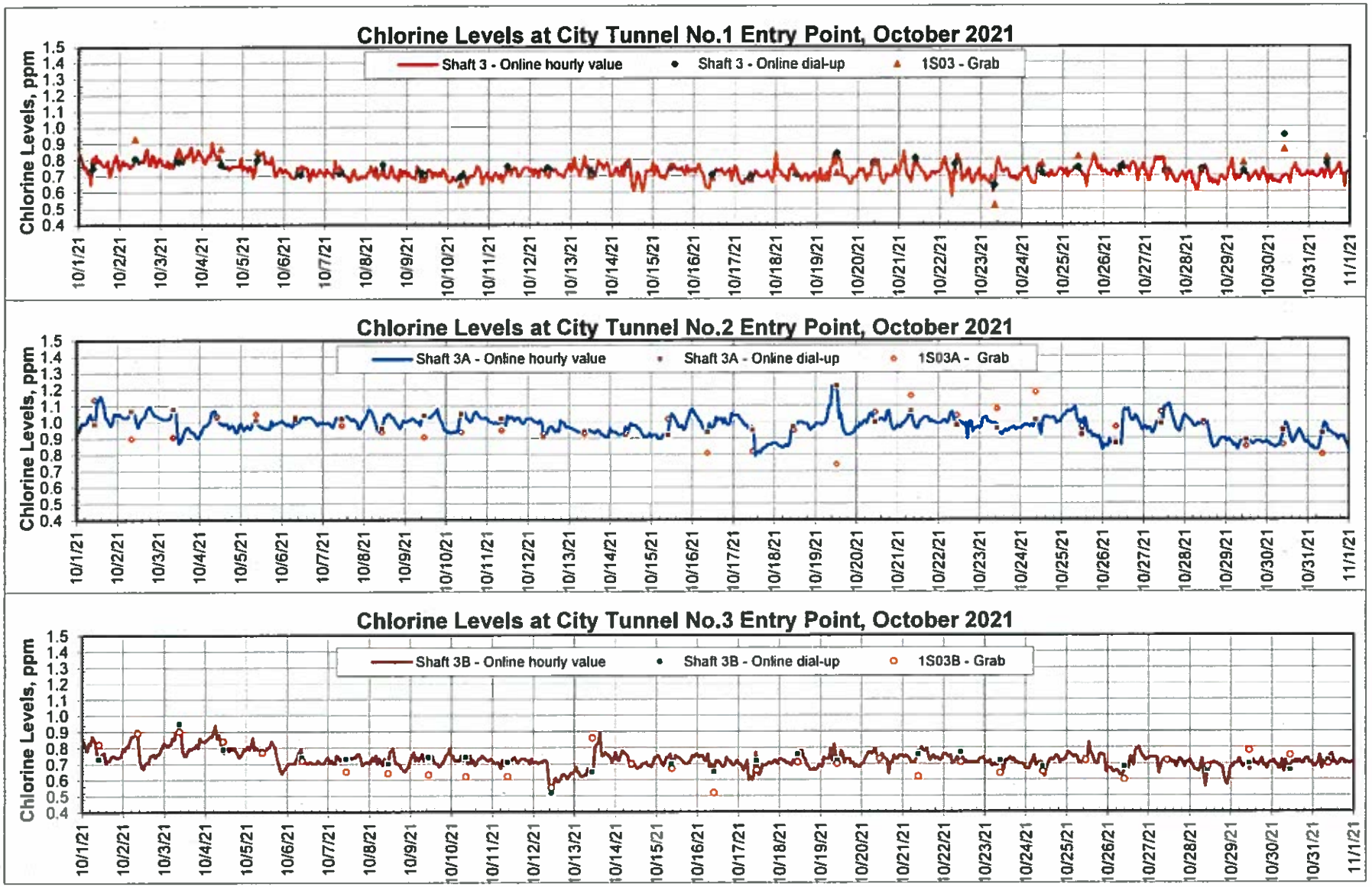
Analytical Methods

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
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 above 0.2 ppm at all times.
Since 3/14/2021 grab and online dial-up readings were recorded in Eastern Daylight Time.

New York City Department of Environmental Protection
Bureau of Water Supply

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

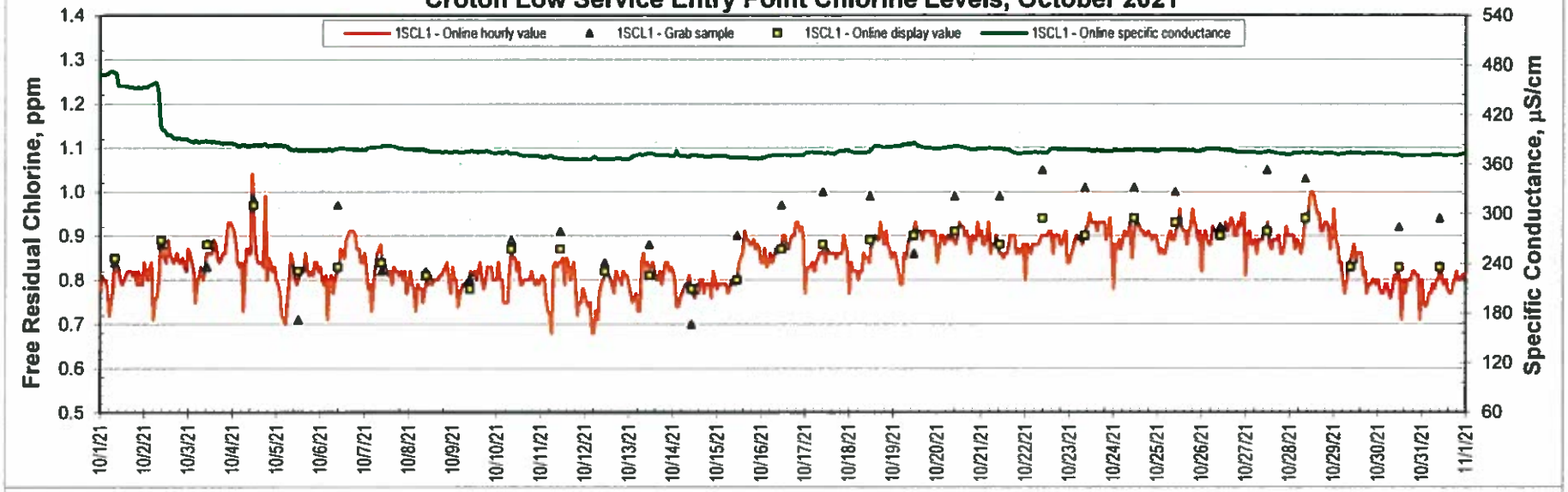
Tunnel No.1 (Catskill) at Shaft 3			Tunnel No.2 (Delaware) at Shaft 3A			Tunnel No.3 (Cat/Del) at Shaft 3B		
Date	MinCl_1DL	Remark 1	Date	MinCl_2DL	Remark 2	Date	MinCl_3DL	Remark 3
10/01/21	0.63		10/01/21	0.94		10/01/21	0.70	
10/02/21	0.72		10/02/21	0.97		10/02/21	0.64	
10/03/21	0.72		10/03/21	0.87		10/03/21	0.73	
10/04/21	0.73		10/04/21	0.91		10/04/21	0.73	
10/05/21	0.68		10/05/21	0.95		10/05/21	0.63	
10/06/21	0.63		10/06/21	0.97		10/06/21	0.69	
10/07/21	0.66		10/07/21	0.95		10/07/21	0.69	
10/08/21	0.67		10/08/21	0.95		10/08/21	0.63	
10/09/21	0.65		10/09/21	0.94		10/09/21	0.67	
10/10/21	0.62		10/10/21	0.93		10/10/21	0.68	
10/11/21	0.63		10/11/21	0.93		10/11/21	0.67	
10/12/21	0.67		10/12/21	0.89		10/12/21	0.52	
10/13/21	0.67		10/13/21	0.90		10/13/21	0.61	
10/14/21	0.59		10/14/21	0.90		10/14/21	0.65	
10/15/21	0.65		10/15/21	0.89		10/15/21	0.68	
10/16/21	0.58		10/16/21	0.93		10/16/21	0.61	
10/17/21	0.59		10/17/21	0.76		10/17/21	0.56	
10/18/21	0.64		10/18/21	0.82		10/18/21	0.62	
10/19/21	0.61		10/19/21	0.90		10/19/21	0.67	
10/20/21	0.62		10/20/21	0.94		10/20/21	0.64	
10/21/21	0.63		10/21/21	0.95		10/21/21	0.70	
10/22/21	0.56		10/22/21	0.94		10/22/21	0.68	
10/23/21	0.59		10/23/21	0.92		10/23/21	0.66	
10/24/21	0.63		10/24/21	0.92		10/24/21	0.60	
10/25/21	0.55		10/25/21	0.83		10/25/21	0.58	
10/26/21	0.66		10/26/21	0.83		10/26/21	0.62	
10/27/21	0.63		10/27/21	0.93		10/27/21	0.62	
10/28/21	0.58		10/28/21	0.82		10/28/21	0.56	
10/29/21	0.64		10/29/21	0.83		10/29/21	0.66	
10/30/21	0.62		10/30/21	0.84		10/30/21	0.64	
10/31/21	0.63		10/31/21	0.82		10/31/21	0.66	

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.

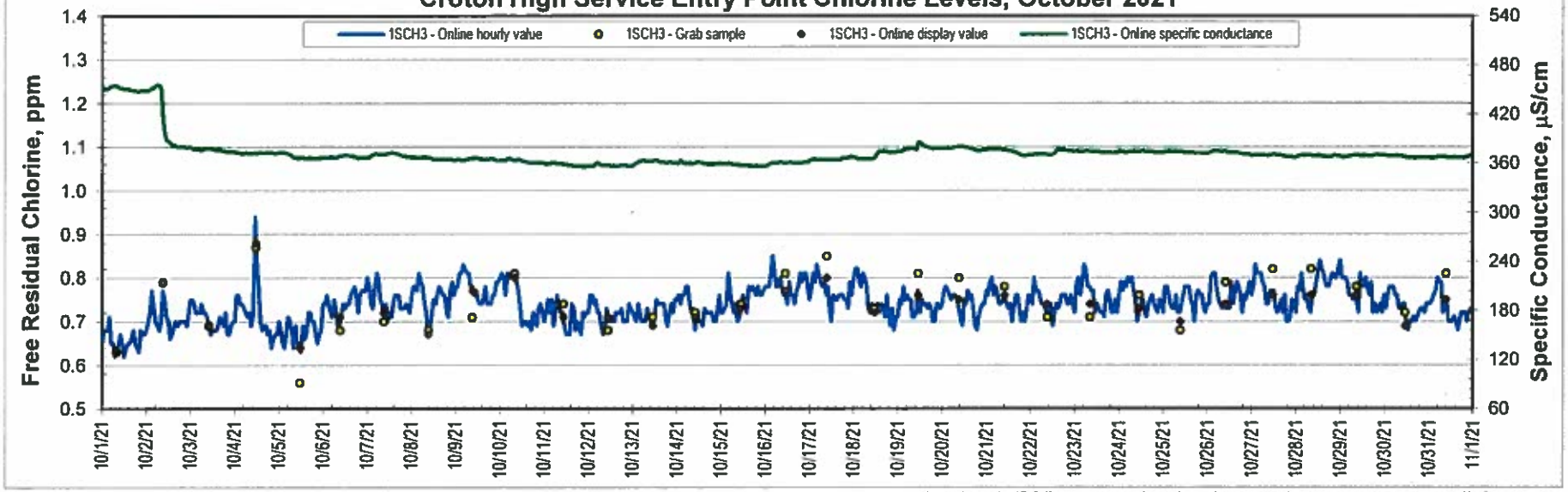
New York City Department of Environmental Protection
Bureau of Water Supply

Croton Distribution Entry Point Residual Chlorine Continuous Monitoring Results

Croton Low Service Entry Point Chlorine Levels, October 2021



Croton High Service Entry Point Chlorine Levels, October 2021



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 3/14/21, all grab and online display 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
10/01/21	0.71		10/01/21	0.61	
10/02/21	0.70		10/02/21	0.65	
10/03/21	0.71		10/03/21	0.65	
10/04/21	0.70		10/04/21	0.61	
10/05/21	0.60		10/05/21	0.62	
10/06/21	0.68		10/06/21	0.65	
10/07/21	0.71		10/07/21	0.70	
10/08/21	0.73		10/08/21	0.67	
10/09/21	0.70		10/09/21	0.72	
10/10/21	0.71		10/10/21	0.66	
10/11/21	0.64		10/11/21	0.65	
10/12/21	0.64		10/12/21	0.65	
10/13/21	0.68		10/13/21	0.67	
10/14/21	0.73		10/14/21	0.65	
10/15/21	0.69		10/15/21	0.69	
10/16/21	0.76		10/16/21	0.71	
10/17/21	0.75		10/17/21	0.69	
10/18/21	0.79		10/18/21	0.68	
10/19/21	0.78		10/19/21	0.68	
10/20/21	0.85		10/20/21	0.68	
10/21/21	0.79		10/21/21	0.69	
10/22/21	0.76		10/22/21	0.67	
10/23/21	0.75		10/23/21	0.69	
10/24/21	0.79		10/24/21	0.65	
10/25/21	0.80		10/25/21	0.68	
10/26/21	0.79		10/26/21	0.70	
10/27/21	0.78		10/27/21	0.69	
10/28/21	0.78		10/28/21	0.59	
10/29/21	0.64		10/29/21	0.46	
10/30/21	0.70		10/30/21	0.66	
10/31/21	0.71		10/31/21	0.65	

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 was determined by specific conductance greater than 150 µS/cm.

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

October 2021

All Distribution Sites			
Samples	Min	Max	Average
1363	0.00	1.30	0.57

Analytical Method SM 4500-Cl^- G (analyte is not ELAP certified)

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	RESIDUAL CHLORINE	COMMENT
33107	10/19/2021	40200	Reg Stop	1.30	Max
31654	10/6/2021	23900	Reg Stop	0.00	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

10/1/2021 to 10/31/2021

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	139	139	1	0	0.7%
Brooklyn	70	206	206	0	0	0.0%
Manhattan	57	174	174	1	0	0.6%
Queens ***	79	233	233	0	0	0.0%
Staten Island	29	84	84	0	0	0.0%
Ground Water Supply ***	-	-	-	-	-	-
Total	281	836	836	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: 11/04/21

Director: Date: 11/04/2021

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

10/1/2021 to 10/31/2021

Date	Time	Site Number	Boro	Location	Coliform (MPN/100 mL) *	E. coli (MPN/100 mL) *	Chlorine Residual (mg/L) **	Remarks
10/2/2021	7:11	32850	Manhattan	SS - IFO 138 S/S E 37th St, 2nd SS E/O Lexington Ave, 12 "	>200.5	<1	0.34	To Be Resampled
10/14/2021	11:58	14850	Bronx	SS - W/S Jackson Ave, 1st SS S/O St Mary's St, 20 "	5.3	<1	0.72	To Be Resampled

* As determined by Colilert Quanti-Tray-18 Method (SM 9223 B).
** As determined by Method SM 4500-Cl^- G (analyte is not ELAP certified).

Supervisor: Rupa Aggarwal Date: 11/04/21

Director: [signature] Date: 11/04/2021

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

10/1/2021 to 10/31/2021

Date	Time	Site Number	Boro	Location	Coliform (MPN/100 mL) *	E. coli (MPN/100 mL) *	Chlorine Residual (mg/L) **	Remarks
10/4/2021	9:17	32850	Manhattan	SS - S/S E 37th St, 1st SS W/O 3rd Ave, IFO 150 E. 37th St	<1	<1	0.53	Upstream
10/4/2021	9:32	32850	Manhattan	SS - IFO 138 S/S E 37th St, 2nd SS E/O Lexington Ave, 12 "	<1	<1	0.42	Original Location
10/4/2021	9:50	32850	Manhattan	SS - S/S E 37th St, 1st SS E/O Lexington Ave	<1	<1	0.48	Downstream
10/16/2021	7:06	14850	Bronx	SS - W/S Jackson Ave, BTW St Mary's & E 144th Sts, OPP 390 Jackson Ave. (IFO Park)	<1	<1	0.78	Upstream
10/16/2021	7:22	14850	Bronx	SS - W/S Jackson Ave, 1st SS S/O St Mary's St, 20 "	<1	<1	0.80	Original Location
10/16/2021	7:35	14850	Bronx	SS - W/S Jackson Ave, 1st SS N/O E 142nd St, OPP 364 Jackson Ave.	<1	<1	0.84	Downstream

* As determined by Colilert Quanti-Tray-18 Method (SM 9223 B).
** As determined by Method SM 4500-Cl^- G (analyte is not ELAP certified).

Supervisor: Rupa Aggarwal Date: 11/04/21

Director: [signature] Date: 11/04/2021

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

10/1/2021 to 10/31/2021

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 CFU/mL	Percent of Samples with Free Chlorine Residual of 0.00 mg/L and HPC > 500 CFU/mL ***
					< 0.20 mg/L	0.00 mg/L			
Bronx	46	139	139	89	6	0	--	0	0.0%
Brooklyn	70	206	206	135	14	0	--	0	0.0%
Manhattan	57	174	174	128	34	0	--	0	0.0%
Queens †	79	233	233	172	45	0	--	0	0.0%
Staten Island	29	84	84	56	8	0	--	0	0.0%
Ground Water Supply †	-	-	-	-	-	-	--	-	-
Total	281	836	836	580	107	0	--	0	0.0%

* Free chlorine residual is determined by Method SM 4500-Cl^- G (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 Aggarwal Date: 11/04/21

Director: [signature] Date: 11/04/2021

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

October 2021

Source water		Distribution site near first service connection			
Date Turb>1.49 NTU	System	Sample Date	Sample Site	Coliform) (MPN /100mL) *	E.coli (MPN /100mL) *

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).**

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

October 2021

All Distribution Sites			
Samples	Min	Max	Average
1363	<0.10	4.06	0.53

Analytical Method SM 2130 B

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	TURBIDITY	COMMENT
34442	10/31/2021	43750	Reg Stop	4.06	Max
31446	10/4/2021	1SCH3	Reg Stop	<0.10	Min
31672	10/6/2021	1SCH3	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

October 2021

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)	7	6	7	7	6	6	5	7	6	6	7	6	7	6	7	7	7	6	6	7	7	7	6	6	6	7	7	7	7	7	7
Catskill/Delaware 1S03A (Tunnel 2)	7	6	6	7	7	6	6	6	6	6	7	7	6	8	7	6	10	6	7	6	6	7	7	6	8	7	8	7	7	7	7
Catskill/Delaware 1S03B (Tunnel 3)	7	6	6	6	7	6	6	6	6	6	7	7	6	8	7	7	10	6	7	7	6	6	6	6	8	7	7	7	7	7	7
Croton System 1SCL1 [a]	3	4	3	3	4	4	4	3	4	4	3	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	4	4	3	4
Croton System 1SCH3 [b]	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	4	4	3	4

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 10/27/2020 at 1SCL1.

[b] Croton System online as of 15:52 EDT on 9/10/2021 at 1SCH3.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	31	5	7	7
Catskill/Delaware 1S03A (Tunnel 2)	31	6	10	7
Catskill/Delaware 1S03B (Tunnel 3)	31	6	10	7
Croton System 1SCL1 [a]	31	3	4	4
Croton System 1SCH3 [b]	31	3	4	4

Supervisor _____ Date 11/03/2021

Director _____ Date 11/3/2021

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

October 2021

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)	0.71	0.73	0.72	0.71	0.69	0.70	0.71	0.71	0.69	0.69	0.70	0.70	0.67	0.69	0.69	0.70	0.71	0.69	0.69	0.71	0.70	0.71	0.73	0.70	0.66	0.70	0.72	0.70	0.72	0.71	0.70
Catskill/Delaware 1S03A (Tunnel 2)	0.70	0.73	0.71	0.72	0.70	0.70	0.70	0.70	0.70	0.69	0.70	0.70	0.67	0.69	0.69	0.70	0.72	0.68	0.69	0.71	0.70	0.70	0.73	0.70	0.67	0.73	0.74	0.72	0.68	0.70	0.71
Catskill/Delaware 1S03B (Tunnel 3)	0.70	0.74	0.72	0.72	0.70	0.70	0.71	0.70	0.70	0.69	0.70	0.70	0.67	0.70	0.69	0.70	0.72	0.68	0.69	0.71	0.70	0.71	0.72	0.70	0.66	0.72	0.73	0.70	0.71	0.71	0.71
Croton System 1SCL1 [a]	0.74	0.79	0.76	0.76	0.71	0.72	0.75	0.76	0.75	0.75	0.75	0.74	0.71	0.72	0.71	0.73	0.75	0.72	0.72	0.76	0.76	0.77	0.77	0.74	0.71	0.75	0.79	0.77	0.74	0.77	0.77
Croton System 1SCH3 [b]	0.74	0.80	0.76	0.75	0.73	0.72	0.76	0.76	0.75	0.75	0.75	0.74	0.72	0.73	0.72	0.73	0.75	0.72	0.73	0.76	0.75	0.75	0.77	0.72	0.72	0.75	0.79	0.75	0.75	0.76	0.77

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 10/27/2020 at 1SCL1.

[b] Croton System online as of 15:52 EDT on 9/10/2021 at 1SCH3.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	31	0.66	0.73	0.70
Catskill/Delaware 1S03A (Tunnel 2)	31	0.67	0.74	0.70
Catskill/Delaware 1S03B (Tunnel 3)	31	0.66	0.74	0.70
Croton System 1SCL1 [a]	31	0.71	0.79	0.75
Croton System 1SCH3 [b]	31	0.72	0.80	0.75

Supervisor _____ **Date** 11/03/2021

Director _____ **Date** 11/3/2021