NYC Environmental Protection

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December 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 November 2021

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

Enclosed, please find the New York City Water Quality report for the month of **November 2021**. There was no well pumpage to distribution in the Groundwater System this month. Croton water was feeding into distribution for the month of November. 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 June 1, 2021 to November 30, 2021. The six month running percentage of samples collected with fecal coliform concentrations >20 CFU/100 mL was 3.28% 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 1.0 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 0.54 mg/L.

The Croton Filtration Plant was online throughout the month of November. The minimum daily free chlorine residual value for Croton entry points from site 1SCL1 (Low Service) was 0.42 mg/L and from 1SCH3 (High Service) was 0.39 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 1306 distribution samples were tested for free chlorine residual during the month. For all monthly distribution sites free chlorine residual ranged from 0.00 to 1.02 mg/L and averaged 0.52 mg/L.

5. *Trihalomethane Monitoring / HAA5 Monitoring* (Section 141.71(b)(6)):
Requirements met. The System's TTHM System-Wide Running Average (RAA) for the fourth quarter of 2021 was 45 µg/L, and the Locational Running Annual Averages (LRAA) ranged from 26 µg/L to 56 µg/L. These values meet the MCL of 80 µg/L for RAA and LRAA. TTHM

quarterly results averaged 65 µg/L.

The System's HAA5 RAA for the fourth quarter of 2021 was 48 µg/L, and the LRAA ranged from 18 µg/L to 65 µg/L. The calculated LRAA for the fourth quarter of 2021 exceeded the MCL for HAA5 of 60 µg/L at three (3) of the 20 sites sampled 11/3/2021 and the OEL was exceeded at seven (7) sites, detailed below. DEP became aware of the exceedance on 11/29/2021, and reported it to the New York State Department of Health and the New York City Department of Health and Mental Hygiene. HAA5 quarterly results averaged 62 µg/L.

Sample Site	Neighborhood	Borough	Zip Code	Result (µg/L)	LRAA (µg/L)	OEL (µg/L)
24350	Brighton Beach	Brooklyn	11235	81	62	71
50250	Silver Lake	Staten Island	10301	86	65	75
52050	Port Richmond	Staten Island	10302	93	64	76
23450	Stuyvesant Heights	Brooklyn	11221	73	54	61
45250	Somerville	Queens	11392	70	58	63
50850	Bulls Head	Staten Island	10314	72	56	62
77650	Bellaire	Queens	11329	77	54	63

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 804 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 11/07/2021 from Site 25350 (sample station west side Remsen Ave, first north of Ave M, Brooklyn) was positive for total coliform. Resampling on 11/09/2021 was coliform negative at all locations.
- A sample collected on 11/08/2021 from Site 41050 (sample station in front of 86-31 57th Ave, Queens) was positive for total coliform. Resampling on 11/10/2021 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 502 distribution Operational samples resulted in no samples testing positive for

total coliform and no *E. coli* were detected.

The analyses of 240 Pre-Finished samples resulted in one (1) sample testing positive for total coliform. No *E. coli* were detected.

The analyses of 415 Autosampler Pre-finished samples resulted in seven (7) samples testing positive for total coliform. No *E. coli* were detected.

8. *Distribution Turbidity Monitoring:*
For distribution sites, turbidity ranged from <0.10 to 1.37 NTU and averaged 0.60 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 (150 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-one (21) 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-one (21) TTHM distribution samples were collected ranging from 35 µg/L to 88 µg/L. Five (5) TTHM entry point samples were collected ranging from 23 µg/L to 59 µg/L. Twenty-one (21) HAA5 distribution samples were collected ranging from 25 µg/L to 93 µg/L. Five (5) HAA5 entry point samples were collected ranging from 16 µg/L to 73 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 November 15, 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 November 08, 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 except for hexachlorocyclopentadiene which was detected slightly above the MRL in samples from 1S07 (0.18 µg/L), 1S03A (0.20 µg/L) and 1S03B (0.19 µg/L).

12. *Fluoride Monitoring:*
Daily analyses of entry point samples (150 samples in total), produced monthly average fluoride levels of 0.70 mg/L for site 1S03 (Tunnel 1), 0.69 mg/L for sites 1S03A (Tunnel 2) and 1S03B (Tunnel 3), and 0.71 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,

Salome 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: 12/19 To: 11/21
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
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
11-21	30	0	0.00	3.28

D W Robinson 12/6/21

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 12/3/2021

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 12/03/202111:51 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: November, 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)
11/1/21	0.90	0.90	0.85	0.90	0.85	0.80	E60	E10
11/2/21	0.85	0.90	0.85	0.95	0.90	1.0	E100	E8 *
11/3/21	0.95	0.90	0.85	0.80	0.90	0.80	E120	E6
11/4/21	0.80	0.80	0.80	0.80	0.90	0.80	E20	E6
11/5/21	1.0	0.85	0.85	0.85	0.85	0.80	E80	E3
11/6/21	0.80	0.80	0.85	0.65	0.70	0.80	E60	E2
11/7/21	0.75	0.75	0.75	0.80	0.75	0.70	E80	E1
11/8/21	0.75	0.75	0.75	0.80	0.70	0.75	E60	E1
11/9/21	0.80	0.75	0.75	0.80	0.75	0.70	E50	E3
11/10/21	0.75	0.70	0.75	0.75	0.80	0.75	E60	<1
11/11/21	0.80	0.80	0.75	0.70	0.80	0.70	E40	E1
11/12/21	0.75	0.70	0.70	0.70	0.70	0.60	<20	E3
11/13/21	0.60	0.65	0.60	0.60	0.65	0.55	E40	E2
11/14/21	0.60	0.60	0.60	0.60	0.60	0.60	E60	E2
11/15/21	0.70	0.65	0.65	0.50	0.50	0.55	E100	E4
11/16/21	0.50	0.50	0.50	0.60	0.55	0.60	E60	<1
11/17/21	0.60	0.55	0.60	0.55	0.50	0.55	E20	E2
11/18/21	0.50	0.50	0.50	0.55	0.60	0.55	E20	E2
11/19/21	0.60	0.75	0.65	0.55	0.55	0.50	E15	<1
11/20/21	0.50	0.55	0.50	0.50	0.50	0.50	E60	E2
11/21/21	0.50	0.50	0.55	0.50	0.45	0.50	E40	<1
11/22/21	0.50	0.50	0.55	0.65	0.60	0.60	E15	<1
11/23/21	0.60	0.60	0.60	0.55	0.50	0.50	E5	E2
11/24/21	0.50	0.50	0.50	0.55	0.55	0.50	E20	E1
11/25/21	0.50	0.50	0.50	0.55	0.60	0.60	E10	<1
11/26/21	0.60	0.55	0.60	0.60	0.65	0.60	E5	E3
11/27/21	0.60	0.60	0.55	0.55	0.50	0.55	E5	<1
11/28/21	0.50	0.50	0.55	0.55	0.55	0.60	E5	E2
11/29/21	0.60	0.60	0.60	0.60.	0.60	0.60	E5	E2
11/30/21	0.60	0.65	0.60	0.65	0.60	0.60	E10	E1

.: 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: * - Duplicate sample result used in place of parent sample.

D.W. Robinson 12/6/21

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 12/3/2021

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 12/03/202111:50 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: November 2021

Date/Time	Site	Analytes Affected	Qualifier
11/2/21 09:12	DEL18DT	Fecal Coliform	Analytical procedure error. No filter on the plate. Duplicate sample result used in place of parent sample for compliance reporting.

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

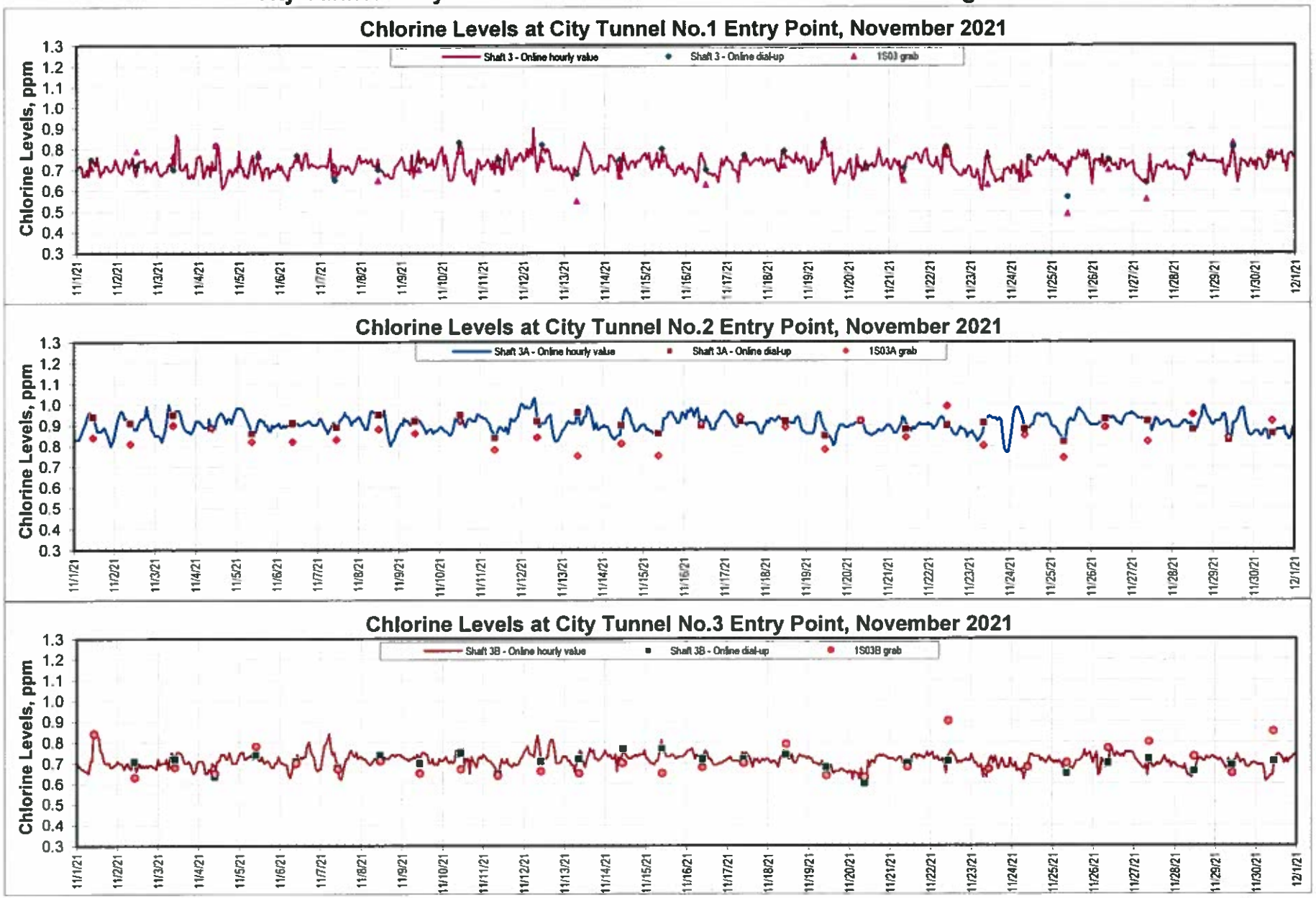
Daily Minimum Chlorine Readings Recorded at Tunnel Entry Shafts for Catskill/Delaware System

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
11/01/21	0.65		11/01/21	0.80		11/01/21	0.64	
11/02/21	0.66		11/02/21	0.84		11/02/21	0.66	
11/03/21	0.64		11/03/21	0.84		11/03/21	0.65	
11/04/21	0.61		11/04/21	0.85		11/04/21	0.62	
11/05/21	0.63		11/05/21	0.84		11/05/21	0.67	
11/06/21	0.64		11/06/21	0.88		11/06/21	0.62	
11/07/21	0.64		11/07/21	0.86		11/07/21	0.54	
11/08/21	0.60		11/08/21	0.79		11/08/21	0.69	
11/09/21	0.63		11/09/21	0.85		11/09/21	0.68	
11/10/21	0.61		11/10/21	0.85		11/10/21	0.65	
11/11/21	0.64		11/11/21	0.82		11/11/21	0.63	
11/12/21	0.66		11/12/21	0.81		11/12/21	0.69	
11/13/21	0.63		11/13/21	0.86		11/13/21	0.66	
11/14/21	0.63		11/14/21	0.83		11/14/21	0.66	
11/15/21	0.66		11/15/21	0.84		11/15/21	0.67	
11/16/21	0.63		11/16/21	0.86		11/16/21	0.67	
11/17/21	0.64		11/17/21	0.85		11/17/21	0.67	
11/18/21	0.69		11/18/21	0.86		11/18/21	0.68	
11/19/21	0.63		11/19/21	0.80		11/19/21	0.63	
11/20/21	0.64		11/20/21	0.82		11/20/21	0.60	
11/21/21	0.65		11/21/21	0.85		11/21/21	0.65	
11/22/21	0.65		11/22/21	0.84		11/22/21	0.65	
11/23/21	0.59		11/23/21	0.76		11/23/21	0.62	
11/24/21	0.55		11/24/21	0.82		11/24/21	0.62	
11/25/21	0.57		11/25/21	0.82		11/25/21	0.63	
11/26/21	0.66		11/26/21	0.90		11/26/21	0.62	
11/27/21	0.60		11/27/21	0.85		11/27/21	0.63	
11/28/21	0.64		11/28/21	0.86		11/28/21	0.63	
11/29/21	0.62		11/29/21	0.82		11/29/21	0.66	
11/30/21	0.67		11/30/21	0.82		11/30/21	0.57	

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 11/7/21, all online readings, grab and online dial-up readings were recorded in Eastern Standard Time.

New York City Department of Environmental Protection
Bureau of Water Supply

Daily Minimum Chlorine Readings Recorded at Croton Distribution Entry Points

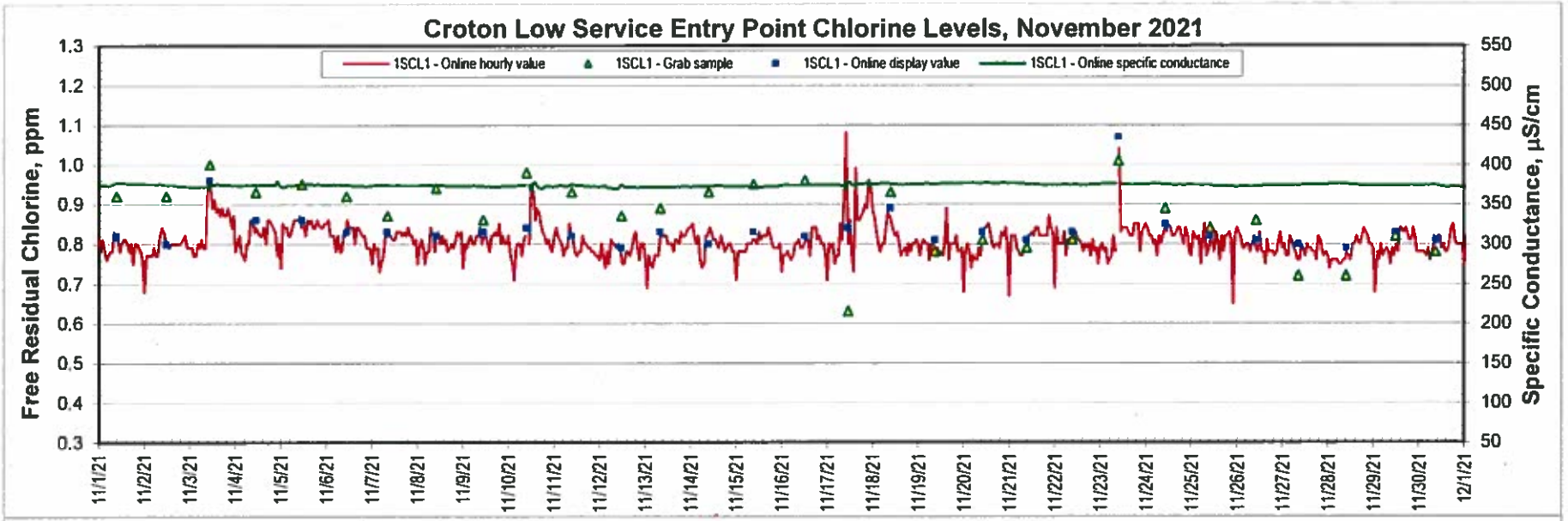
Low Service			High Service		
Date	MinCl_1SCL1	Remark 1	Date	MinCl_1SCH3	Remark 2
11/01/21	0.69		11/01/21	0.67	
11/02/21	0.67		11/02/21	0.67	
11/03/21	0.67		11/03/21	0.65	
11/04/21	0.75		11/04/21	0.62	
11/05/21	0.71		11/05/21	0.65	
11/06/21	0.72		11/06/21	0.63	
11/07/21	0.73		11/07/21	0.62	
11/08/21	0.42		11/08/21	0.63	
11/09/21	0.71		11/09/21	0.63	
11/10/21	0.72		11/10/21	0.54	
11/11/21	0.68		11/11/21	0.68	
11/12/21	0.70		11/12/21	0.67	
11/13/21	0.70		11/13/21	0.67	
11/14/21	0.62		11/14/21	0.67	
11/15/21	0.50		11/15/21	0.67	
11/16/21	0.72		11/16/21	0.45	
11/17/21	0.65		11/17/21	0.39	
11/18/21	0.66		11/18/21	0.63	
11/19/21	0.64		11/19/21	0.61	
11/20/21	0.65		11/20/21	0.63	
11/21/21	0.65		11/21/21	0.64	
11/22/21	0.73		11/22/21	0.64	
11/23/21	0.64		11/23/21	0.65	
11/24/21	0.72		11/24/21	0.64	
11/25/21	0.67		11/25/21	0.63	
11/26/21	0.68		11/26/21	0.63	
11/27/21	0.61		11/27/21	0.62	
11/28/21	0.61		11/28/21	0.61	
11/29/21	0.63		11/29/21	0.62	
11/30/21	0.62		11/30/21	0.62	
12/01/21	0.63		12/01/21	0.50	

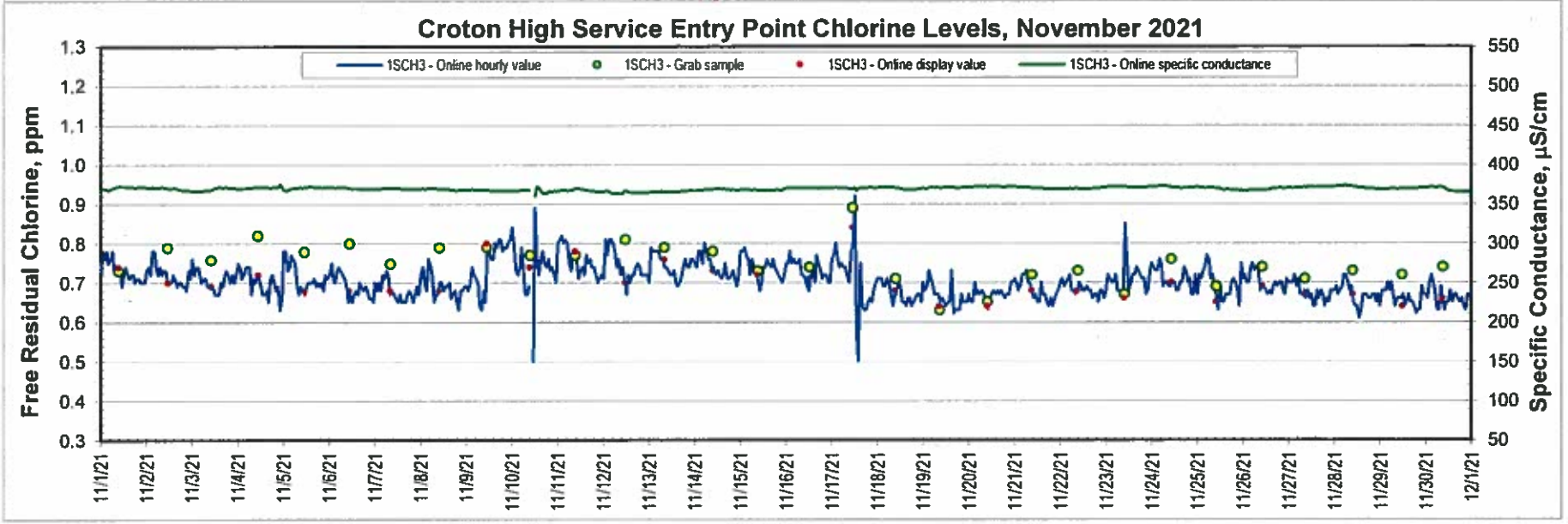
Legend: MinCl_1SCL1: 1SCL1's minimum chlorine level measured and recorded at the location via data logger, in ppm.
MinCl_1SCH3: 1SCH3's minimum chlorine level measured and recorded at the location via data logger, in ppm.

Note: Croton water fed to High Service time period was determined by specific conductance greater than 150 µS/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 at or above 0.2 ppm at all times. Since 11/7/21, all online readings, grab and online dial-up readings were recorded in Eastern Standard 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

November 2021

All Distribution Sites			
Samples	Min	Max	Average
1306	0.00	1.02	0.52

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

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	RESIDUAL CHLORINE	COMMENT
35003	11/5/2021	50300	Reg Stop	1.02	Max
35543	11/9/2021	25350	Down Stream	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.

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)

FOURTH QUARTER, 2021

Site	Location	Sample Date	TTHM (µg/L) [a]				HAA5 (µg/L) [b]			
			Analysis Date	Result	LRAA	OEL	Analysis Date	Result	LRAA	OEL
15150	SS - E/S Grand Concourse, 1st SS S/O E 171st St, IFO 1420 Grand Concourse, 12"	11/3/21	11/3/21	57	42	52	11/5/21	57	39	46
18650	SS - N/S Dewey Ave, BTW Quincy & Swinton Aves, 12"	11/3/21	11/3/21	60	41	50	11/6/21	73	50	58
23450	SS - N/S Jefferson Ave, 2nd SS W/O Lewis Ave, OPP 518 Jefferson Ave, 20"	11/3/21	11/4/21	62	42	51	11/5/21	73	54	61
24350	SS - W/S Brighton 11th St, 2nd SS S/O Cass Pl, IFO 82 Brighton 11th St, 12"	11/3/21	11/4/21	66	49	59	11/5/21	81	62	71
31750	SS - N/S W 26th St, 2nd SS W/O 9th Ave, IFO 427 W. 26th St, 12"	11/3/21	11/3/21	64	41	52	11/5/21	72	39	52
31850	SS - S/S Warren St, 2nd SS E/O Greenwich St, IFO 82 Warren St, 12"	11/3/21	11/3/21	67	51	61	11/5/21	51	49	49
32350	SS - E/S Ave C, 2nd SS N/O E 7th St, IFO 116 Ave C, 12"	11/3/21	11/3/21	55	35	45	11/4/21	34	24	28
33450	SS - N/S W 112th St, 2nd SS W/O St Nicholas Ave, - IFO 135 W. 112th St, 12"	11/3/21	11/3/21	42	26	33	11/4/21	29	18	22
33950	SS - N/S E 104th St, 2nd SS E/O 3rd Ave, 12"	11/3/21	11/3/21	47	30	38	11/5/21	28	18	21
37950	SS - N/S E 12th St, 2nd SS E/O 2nd Ave, IFO 325 E. 12th St, 12"	11/3/21	11/3/21	74	55	66	11/5/21	60	52	54
38250	SS - N/S E 87th St, 2nd SS W/O 1st Ave, IFO 309 E. 87th St, 12"	11/3/21	11/3/21	71	50	61	11/5/21	69	52	59
39650	SS - N/S E 49th St, 2nd SS W/O 2nd Ave, IFO 229 E. 49th St, 12"	11/3/21	11/3/21	75	53	65	11/5/21	62	50	54
44350	SS - N/S 34th Ave, 1st SS W/O 24th St, IFO 21-55 34th Ave, 12"	11/3/21	11/3/21	75	54	66	11/5/21	63	54	58
45250	SS - E/S Beach 58th St, 2nd SS N/O Beach Channel Dr, 12"	11/3/21	11/3/21	63	47	55	11/5/21	70	58	63
50250	SS - N/S Victory Blvd, 2nd SS E/O Highland Ave, IFO 937 Victory Blvd, 20"	11/3/21	11/4/21	58	42	50	11/5/21	86	65	75
50750	SS - E/S Woodhull Ave, 1st SS S/O Albourne Ave, 8"	11/3/21	11/4/21	88	56	69	11/4/21	32	47	42
50850	SS - W/S Arlene St, 1st SS N/O Dawson Ct, IFO 512 Arlene St, 12"	11/3/21	11/4/21	70	50	60	11/4/21	72	56	62
52050	SS - W/S Nicholas Ave, 1st SS S/O Charles Ave, IFO 218 Nicholas Ave, 12"	11/3/21	11/4/21	64	46	55	11/5/21	93	64	76
58650	SS - W/S Main St, 2nd SS S/O Hylan Blvd, IFO 510 Main St, 12"	11/3/21	11/4/21	72	53	63	11/5/21	66	54	58
77650	SS - E/S 207th St, 1st N/O 111th Ave, OPP 110-52 207th St	11/3/21	11/4/21	64	42	53	11/4/21	77	54	63

TTHM			HAA5
	42	QUARTERLY MINIMUM	28	
	88	QUARTERLY MAXIMUM	93	
	65	QUARTERLY AVERAGE	62	
	45	SYSTEM-WIDE RAA	48	

[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.

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

11/1/2021 to 11/30/2021

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	132	132	0	0	0.0%
Brooklyn	70	196	196	1	0	0.5%
Manhattan	57	166	166	0	0	0.0%
Queens ***	79	225	225	1	0	0.4%
Staten Island	29	85	85	0	0	0.0%
Ground Water Supply ***	-	-	-	-	-	-
Total	281	804	804	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: Rupe Aggarwal Date: 12/06/21

Director: Date: 12/7/2021

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

11/1/2021 to 11/30/2021

Date	Time	Site Number	Boro	Location	Coliform (MPN/100 mL) *	E. coli (MPN/100 mL) *	Chlorine Residual (mg/L) **	Remarks
11/7/2021	9:16	25350	Brooklyn	SS - W/S Remsen Ave, 1st SS N/O Ave M, 20"	1.0	<1	0.32	To Be Resampled
11/8/2021	11:40	41050	Queens	SS - W/S 57th Ave, 2nd SS S/O Seabury Ave, IFO 86-31 57th Ave, 12"	1.0	<1	0.77	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: 12/06/21

Director: [signature] Date: 12/7/2021

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

11/1/2021 to 11/30/2021

Date	Time	Site Number	Boro	Location	Coliform (MPN/100 mL) *	E. coli (MPN/100 mL) *	Chlorine Residual (mg/L) **	Remarks
11/9/2021	9:13	25350	Brooklyn	SS - W/S Remsen Ave, BTW Ave L & Ave M, IFO 1506 Remsen Ave	<1	<1	0.30	Upstream
11/9/2021	9:26	25350	Brooklyn	SS - W/S Remsen Ave, 1st SS N/O Ave M, 20"	<1	<1	0.29	Original Location
11/9/2021	9:42	25350	Brooklyn	SS - W/S Remsen Ave, 1st SS S/O Ave M, IFO 1548 Remsen Ave	<1	<1	0.00	Downstream
11/10/2021	8:33	41050	Queens	SS - W/S 57th Ave, 1st SS S/O Seabury Ave	<1	<1	0.53	Upstream
11/10/2021	8:48	41050	Queens	SS - W/S 57th Ave, 2nd SS S/O Seabury Ave, IFO 86-31 57th Ave, 12"	<1	<1	0.52	Original Location
11/10/2021	9:04	41050	Queens	SS - W/S 57th Ave, 1st SS N/O Van Horn St	<1	<1	0.53	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: _____ Date: 12/06/21

Director: _____ Date: 12/07/2021

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

11/1/2021 to 11/30/2021

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	132	132	86	6	0	--	0	0.0%
Brooklyn	70	196	196	127	8	1	<1	0	0.0%
Manhattan	57	166	166	121	43	0	--	0	0.0%
Queens †	79	225	225	158	40	0	--	0	0.0%
Staten Island	29	85	85	59	9	0	--	0	0.0%
Ground Water Supply †	-	-	-	-	-	-	--	-	-
Total	281	804	804	551	106	1	<1	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 Agarwal Date: 12/6/21

Director: [signature] Date: 12/07/2021

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

November 2021

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

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

November 2021

All Distribution Sites			
Samples	Min	Max	Average
1306	<0.10	1.37	0.60

Analytical Method SM 2130 B

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	TURBIDITY	COMMENT
36461	11/18/2021	58850	Reg Stop	1.37	Max
35849	11/12/2021	33700	Reg Stop	<0.10	Min
35878	11/12/2021	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

November 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
Catskill/Delaware 1S03 (Tunnel 1)	7	7	7	7	7	7	7	7	7	7	7	7	7	6	7	7	6	6	6	7	6	6	7	6	7	7	7	6	6	7
Catskill/Delaware 1S03A (Tunnel 2)	10	7	7	10	8	8	7	7	6	7	8	7	7	7	8	6	6	7	6	7	6	7	7	7	7	7	7	7	7	10
Catskill/Delaware 1S03B (Tunnel 3)	10	7	7	8	7	6	6	7	6	7	8	8	7	7	8	8	6	6	6	7	7	6	6	7	8	7	7	8	7	7
Croton System 1SCL1 [a]	3	4	4	4	4	4	3	4	4	3	4	4	4	3	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3
Croton System 1SCH3 [b]	3	4	4	4	4	4	3	4	4	3	4	4	3	3	4	4	4	4	4	3	4	4	4	4	4	4	3	4	4	3

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 9/10/2021 at 1SCH3.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	30	6	7	7
Catskill/Delaware 1S03A (Tunnel 2)	30	6	10	7
Catskill/Delaware 1S03B (Tunnel 3)	30	6	10	7
Croton System 1SCL1 [a]	30	3	4	4
Croton System 1SCH3 [b]	30	3	4	4

Supervisor _____ Date 12/06/21

Director _____ Date 12/6/2021

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

November 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
Catskill/Delaware 1S03 (Tunnel 1)	0.71	0.74	0.72	0.73	0.72	0.72	0.70	0.70	0.71	0.70	0.71	0.71	0.73	0.74	0.72	0.73	0.54	0.61	0.65	0.69	0.70	0.70	0.70	0.69	0.69	0.68	0.68	0.70	0.67	0.69
Catskill/Delaware 1S03A (Tunnel 2)	0.72	0.74	0.73	0.71	0.70	0.71	0.70	0.73	0.71	0.70	0.69	0.72	0.73	0.75	0.72	0.72	<0.30	0.68	0.70	0.72	0.71	0.72	0.70	0.67	0.69	0.68	0.68	0.69	0.66	0.67
Catskill/Delaware 1S03B (Tunnel 3)	0.71	0.73	0.73	0.73	0.72	0.71	0.71	0.71	0.71	0.69	0.70	0.72	0.73	0.74	0.72	0.73	0.50	0.60	0.65	0.71	0.71	0.70	0.70	0.67	0.68	0.68	0.67	0.69	0.67	0.69
Croton System 1SCL1 [a]	0.75	0.76	0.74	0.79	0.79	0.81	0.81	0.78	0.77	0.76	0.81	0.78	0.77	0.77	0.77	0.74	0.73	0.63	0.62	0.63	0.64	0.63	0.63	0.63	0.64	0.64	0.63	0.65	0.62	0.67
Croton System 1SCH3 [b]	0.76	0.76	0.73	0.79	0.79	0.81	0.79	0.77	0.77	0.77	0.82	0.77	0.77	0.76	0.77	0.74	0.77	0.64	0.63	0.62	0.64	0.63	0.63	0.63	0.63	0.63	0.64	0.66	0.62	0.67

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 9/10/2021 at 1SCH3.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	30	0.54	0.74	0.70
Catskill/Delaware 1S03A (Tunnel 2)	30	<0.30	0.75	0.69
Catskill/Delaware 1S03B (Tunnel 3)	30	0.50	0.74	0.69
Croton System 1SCL1 [a]	30	0.62	0.81	0.71
Croton System 1SCH3 [b]	30	0.62	0.82	0.71

Supervisor _____ Date 12/06/21

Director _____ Date 12/6/2021