



**Environmental
Protection**

*Vincent Sapienza, P.E.
Commissioner*

Paul V. Rush, P.E.
Deputy Commissioner
Bureau of Water Supply
prush@dep.nyc.gov

59-17 Junction Blvd.
Flushing, NY 11373
T: (845) 340-7800
F: (845) 334-7175

October 10, 2018

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 September 2018

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

Enclosed, please find the New York City Water Quality report for the month of **September 2018**. There was no well pumpage to distribution in the Groundwater System this month. Croton water fed into distribution from September 26 through September 30, 2018. 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 April 1, 2018 to September 30, 2018. The six month running percentage of samples collected with fecal coliform concentrations >20 CFU/100 mL was 1.09% 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. Turbidity values did not exceed 0.85 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 0.51 mg/L, 1S03A (Tunnel 2) was 0.83 mg/L, and 1S03B (Tunnel 3) was 0.58 mg/L for the Catskill/Delaware System.

The Croton Filtration Plant was online and continuously feeding the Croton Low Service entry point from from September 26 at 2:01 PM to September 30, 2018. The Croton High Service entry point was offline in September 2018. When High Service Pumps are off, distribution Tunnel 3 water intermittently back feeds through the High Service tunnel to the Low Service entry point to meet the distribution demands. The minimum daily free chlorine residual value for Croton entry point readings from site 1SCL1 (Low Service) was 0.52 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 except for one sample that equaled 0.0 mg/L.

A total of 1303 distribution samples were tested for free chlorine residual this month. For all distribution sites free chlorine residual ranged from 0.00 mg/L to 1.16 mg/L and averaged 0.57

mg/L for the month.

5. Trihalomethane Monitoring / HAA5 Monitoring (Section 141.71(b)(6)):

Requirements met. The results for the third quarter of 2018 were included in the report dated September 10, 2018 (For the August 2018 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 801 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, and all samples were negative for *E. coli* during the month.

- A sample collected from Site 25450 (sample station in front of 1030 South Side of Park Place, and second sampling station east of W Brooklyn Ave, 12 inch main) on 9/18/2018 was positive for total coliform. Repeat sampling on 9/20/2018 was coliform negative at all locations.
- A sample collected from Site 13550 (sample station in front of 2015 west side of University Avenue, and first sampling station south of W 180th Street, 12 inch main) on 9/27/2018 was positive for total coliform. Repeat sampling on 9/29/2018 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 samples were negative for total coliform.

The analyses of 502 distribution Operational samples resulted in four (4) samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 241 Pre-Finished samples resulted in five (5) samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 600 Autosampler Pre-finished samples resulted in ten (10) samples testing positive for total coliform. No *E. coli* were detected.

8. Distribution Turbidity Monitoring:

For distribution sites turbidity ranged from < 0.10 to 1.20 NTU and averaged 0.64 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 (94 samples in total), produced monthly average color values of six (6) units for sites 1S03 (Tunnel 1), 1S03A (Tunnel 2), and 1S03B (Tunnel 3), and four (4) units for site 1SCL1 (Croton Low Service).

10. Volatile Organic/TTHM/HAA5 Monitoring:

Monthly Results: Twenty-two (22) distribution site samples were collected for volatile organic contaminant (VOC) analysis and three (3) entry point samples. All VOC samples from distribution sites and entry points were below detection. Twenty-two (22) TTHM distribution samples were collected ranging from 27 µg/L to 54 µg/L. Three (3) TTHM entry point samples were collected ranging from 21 µg/L to 55 µg/L. Twenty-two (22) HAA5 distribution samples were collected ranging from 19 µg/L to 47 µg/L. Three (3) HAA5 entry point samples were collected ranging from 29 µg/L to 34 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 September 10, 2018 at the three Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), at the Croton Low Service and High Service entry points (1SCL1 and 1SCH3) which represented distribution Catskill/Delaware water at the time of sampling, and six (6) distribution points. All semi-volatile organic contaminant samples from distribution sites and entry points were below detection limits.

Per request from DWQO, an investigation was conducted by the contract laboratory Eurofins Eaton Analytical (EEA) into the previously submitted unusual results that were obtained by EEA for samples collected on May 21, 2018 as part of our Annual monitoring for EPA Method 525.2 (Semivolatiles). Detections were reported for hexachlorocyclopentadiene at 0.064 µg/L at site 1S03A and diethylphthalate at 7.5 µg/L at site 1S03B. The detection for hexachlorocyclopentadiene at 0.064 µg/L is below the NYS required reporting limit of 0.1 µg/L. The detection for diethylphthalate at 7.5 µg/L was unusual due to the fact that analytical results obtained by the Distribution Laboratory by EPA 525.3 and EPA 525.2 have historically always been non-detect. As such, resampling was conducted along with split sampling by DWQO for entry point sites 1S03A and 1S03B on August 20, 2018 and results from the resampling and split sampling event were non-detect by both EEA and DWQO for diethylphthalate. Due to EEA's inability to provide reproducible results, they have acknowledged the possibility of contamination being the cause of the detection of diethylphthalate in entry point site 1S03B that was sampled on May 21, 2018 and also acknowledged that the validity of the analytical result of 7.5 µg/L is questionable.

12. Fluoride Monitoring:

Daily analyses of entry point samples (171 samples in total), produced monthly average fluoride levels of 0.72 mg/L for sites 1S03 (Tunnel 1), 1S03A (Tunnel 2), and 1S03B (Tunnel 3); and 0.69 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. Unregulated Contaminant Monitoring Rule:

Resampling for second quarter monitoring of the fourth Unregulated Contaminant Monitoring Rule (UCMR4), originally sampled on August 7, 2018 and results submitted last month, was conducted on two occasions: 1) on August 21, 2018 at one (1) source water and one (1) entry point site because the original samples were invalidated due to delays in transit; and 2) on August 23, 2018 at two (2) entry points because of QC failures for EPA Method 525.3. Samples from August 21, 2018 were tested for bromide (result of 7.9 µg/L), TOC (result of 2.1 mg/L), germanium (ND), manganese (result of 20 µg/L), Method 530 (ND), Method 541 (ND) and Method 525.3 (ND). Method 525.3 samples results from August 23, 2018 were all below detection. Sampling results for bi-monthly cyanotoxins monitoring at the four (4) entry points conducted on August 29, 2018 corresponding to sampling event six under UCMR4, 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,

A handwritten signature in cursive script that reads "Steven C. Schindler" followed by "for SS".

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

bcc:

Electronic file:

V. Sapienza, P.E., Commissioner

K. Alderisio

A. Bader

D. Borchert

K. Cipriano

K. Czarnogorski/file

S. Freud

C. Glaser

L. Janus, Ph.D.

K. Kane

L. Lu, Ph.D.

R. Levine

W. Melendez, P.E.

L. Occhiuto

A. Reaves

S. Riviere

D. Robinson

P. Rush, P.E.

S. Schindler (hard copy)

D. Warne/S. McCormack

M. Warne

V. Xu

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(NYC_Micro_Compliance_Positives_201809.xls)
(NYC_Micro_Compliance_Resamples_201809.xls)
(NYC_Micro_Operational_201809.pdf)

Coliform Positive Operational Samples

(NYC_Micro_Summary_Operational_201809.xls)

Coliform Resample for Positive Distribution Operational Samples

(NYC_Micro_Operational_201809.pdf)

Distribution Coliform Monitoring when Source Water Turbidity exceeds 1.49 NTU
All Microbiological Results

(NYC_Micro_Operational_Resamples_201809.xls)
(NYC_EP_Coliform_For_Source_Turb_GT_149_201809.snp)
(NYC_Monthly_Alldata_201809.xls|Micro)

Free Chlorine Residual (FCR) Reports:

Entry Point FCR On-Line Monitoring Results

(Entry_Shift_Ci2_Onln_201809_Fig.pdf)

Daily Minimum FCR at Entry Points

(Croton_Entry_Point_Ci2_Onln_201809_Fig.pdf)
(Entry_Shift_Ci2_201809_Tbl.pdf)

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(Croton_Entry_Point_Ci2_Onln_201809_Tbl.pdf)
(NYC_Micro_Summary_FCR_&_HPC_Compliance_201809.xls)
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Summary of FCR of Distribution Samples (Quarterly)

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(NYC_FCR_Quarterly_Summary_2018Q3.xls)

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(NYC_FCR_Monthly_Alldata_201809.xls)

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(NYC_Turbidity_Monthly_Summary_201809.xls)

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(Entry_Point_Color_Monthly_201809.xls)

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(NYC_Fluoride_Monthly_Summary_201809.xls)

(Entry_Point_Fluoride_Monthly_201809.xls)

(NYC_Fluoride_Monthly_Alldata_201809.xls)

Volatile Organic Contaminant (VOC) and Disinfection By-products (DBP)

Reports:

Total Trihalomethanes (TTHM) & VOC Monthly Report

Summary of EPA Method 525 Report

Haloacetic Acids (HAA5) Monthly Report

(NYC_TTHM_&_VOC_Rpt_201809.xls)

(NYC_SOC_Rpt_201809.xls)

(NYC_HAA5_Monthly_Rpt_201809.xls)

Unregulated Contaminant Monitoring Rule 4 (UCMR4) Report

(757675_UCMR4_EP_20180821_rs.pdf, 759206_UCMR4_EP_20180829.pdf,

757277_Annual_EP_20180820_rs.pdf, 758078_UCMR4_Q2_20180823_rs_525.pdf)

Summary of EPA Organic Method Reports

(NYC_VOC_SOC_HAA5_Rpt_201809.pdf)

Inorganic (IOC), Specified Organic (SOC), Metals Monitoring:

All parameters for September 2018

(NYC_Monthly_Alldata_201809.xls)

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

Section Chief: David Robinson
 914-345-4973

G Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water **Period: 07/16 To: 09/18**

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
7-16	31	0	0.00	0.00
8-16	30	0	0.00	0.00
9-16	30	0	0.00	0.00
10-16	31	0	0.00	0.00
11-16	30	0	0.00	0.00
12-16	31	0	0.00	0.00
1-17	31	0	0.00	0.00
2-17	28	0	0.00	0.00
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

D. W. Robinson

10/3/18

Reported by: David Robinson, Section Chief, Hawthorne Water Quality Operations 10/2/2018

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

Section Chief: David Robinson
914-345-4973

Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water Period: September, 2018

Date	Turbidity (NTU)						Total Coliform (Colonies per 100 mL)	Fecal Coliform
	12 AM	4 AM	8 AM	12 PM	4 PM	8 PM		
9/1/18	0.65	0.75	0.75	0.75	0.85	0.85	E20	E1
9/2/18	0.75	0.70	0.75	0.80	0.70	0.75	E250	E1
9/3/18	0.70	0.70	0.70	0.75	0.75	0.80	E40	<1
9/4/18	0.75	0.75	0.75	0.75	0.75	0.75	E150	<1
9/5/18	0.70	0.70	0.60	0.70	0.65	0.75	E80	E5
9/6/18	0.70	0.70	0.65	0.80	0.80	0.85	E40	<1
9/7/18	0.70	0.75	0.65	0.70	0.60	0.65	E40	<1
9/8/18	0.65	0.70	0.65	0.60	0.65	0.60	<20	E1
9/9/18	0.70	0.60	0.55	0.55	0.80	0.60	E20	E3
9/10/18	0.65	0.60	0.65	0.60	0.65	0.65	E120	E14
9/11/18	0.60	0.60	0.60	0.75	0.75	0.55	E20	E8
9/12/18	0.60	0.70	0.60	0.65	0.65	0.65	E100	E4
9/13/18	0.85	0.75	0.70	0.60	0.60	0.65	E60	E2
9/14/18	0.65	0.65	0.60	0.60	0.60	0.65	E40	E3
9/15/18	0.65	0.65	0.65	0.75	0.60	0.65	<20	E3
9/16/18	0.65	0.75	0.70	0.60	0.65	0.65	E20	E3
9/17/18	0.70	0.70	0.65	0.55	0.65	0.60	E60	<1
9/18/18	0.60	0.65	0.65	0.65	0.65	0.65	E20	E1
9/19/18	0.65	0.70	0.60	0.60	0.60	0.60	E20	<1
9/20/18	0.70	0.60	0.65	0.65	0.75	0.70	E50	E3
9/21/18	0.80	0.70	0.65	0.60	0.60	0.65	E40	E1
9/22/18	0.65	0.65	0.65	0.65	0.60	0.60	E20	E2
9/23/18	0.60	0.60	0.60	0.60	0.60	0.55	E80	E3
9/24/18	0.60	0.60	0.60	0.65	0.60	0.65	E60	E5
9/25/18	0.65	0.65	0.70	0.60	0.55	0.60	E150	E3
9/26/18	0.80	0.60	0.60	0.80	0.75	0.75	E360	58
9/27/18	0.70	0.75	0.85	0.75	0.55	0.60	E160	38
9/28/18	0.55	0.50	0.55	0.60	0.55	0.55	E40	E8
9/29/18	0.60	0.55	0.55	0.70	0.55	0.65	E80	E7
9/30/18	0.55	0.60	0.60	0.60	0.60	0.60	E20	E8

∴ 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 No
2. Does the turbidity reading exceed 5 NTU at any time? Yes 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

10/3/18

Reported by: David Robinson, Section Chief, Hawthorne Water Quality Operations

10/2/2018

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 10/02/2018 1:30 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

Section Chief: David Robinson
914-345-4973

Data Qualifiers and Additional Notes Period: September, 2018

Date/Time	Site	Analytes Affected	Qualifier
9/25/18 08:53	DEL18DT	Total Coliform	QC blank contamination
9/6/18 09:05	DEL18DT	Total Coliform	QC blank contamination

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

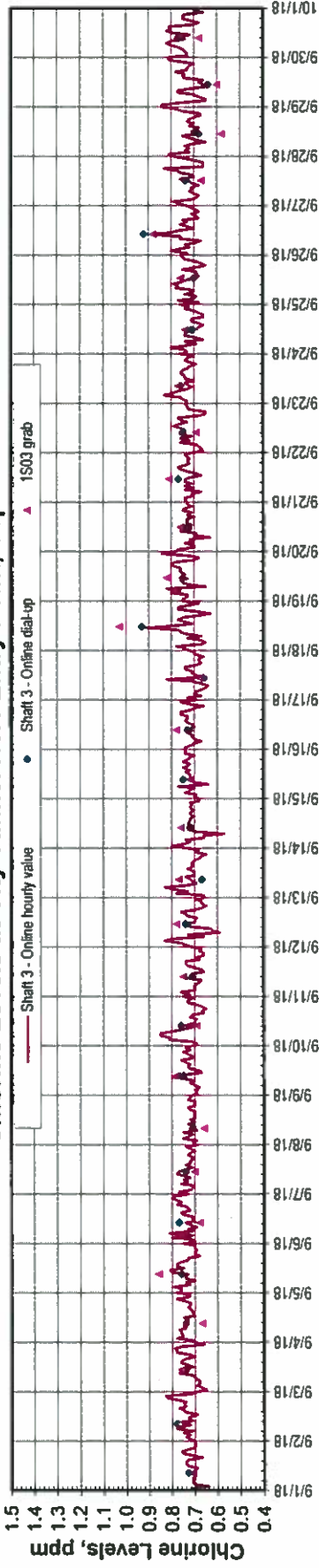
Daily Minimum Chlorine Readings Recorded at Tunnel Entry Shafts for Catskill/Delaware System

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
09/01/18	0.63	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	09/01/18	0.93	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	09/01/18	0.66	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.
09/02/18	0.65		09/02/18	0.95		09/02/18	0.67	
09/03/18	0.65		09/03/18	0.90		09/03/18	0.65	
09/04/18	0.69		09/04/18	0.91		09/04/18	0.66	
09/05/18	0.67		09/05/18	0.95		09/05/18	0.65	
09/06/18	0.64		09/06/18	0.95		09/06/18	0.65	
09/07/18	0.68		09/07/18	0.93		09/07/18	0.66	
09/08/18	0.68		09/08/18	0.94		09/08/18	0.66	
09/09/18	0.64		09/09/18	0.95		09/09/18	0.67	
09/10/18	0.61		09/10/18	0.88		09/10/18	0.65	
09/11/18	0.64		09/11/18	0.92		09/11/18	0.62	
09/12/18	0.51		09/12/18	0.83		09/12/18	0.66	
09/13/18	0.64		09/13/18	0.93		09/13/18	0.68	
09/14/18	0.55		09/14/18	0.97		09/14/18	0.66	
09/15/18	0.60		09/15/18	0.94		09/15/18	0.70	
09/16/18	0.65		09/16/18	0.95		09/16/18	0.68	
09/17/18	0.61	09/17/18	0.96	09/17/18	0.71			
09/18/18	0.61	09/18/18	0.95	09/18/18	0.69			
09/19/18	0.58	09/19/18	0.96	09/19/18	0.63			
09/20/18	0.60	09/20/18	0.92	09/20/18	0.58			
09/21/18	0.63	09/21/18	0.95	09/21/18	0.62			
09/22/18	0.62	09/22/18	0.94	09/22/18	0.65			
09/23/18	0.68	09/23/18	0.92	09/23/18	0.64			
09/24/18	0.59	09/24/18	0.88	09/24/18	0.60			
09/25/18	0.60	09/25/18	0.95	09/25/18	0.60			
09/26/18	0.66	09/26/18	0.92	09/26/18	0.66			
09/27/18	0.56	09/27/18	0.93	09/27/18	0.62			
09/28/18	0.61	09/28/18	0.95	09/28/18	0.65			
09/29/18	0.54	09/29/18	0.95	09/29/18	0.67			
09/30/18	0.65	09/30/18	0.97	09/30/18	0.68			

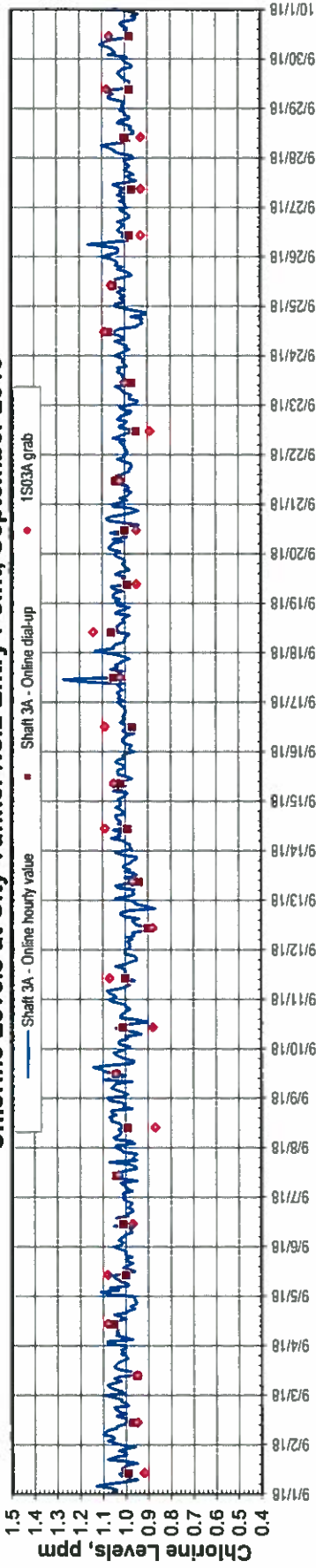
Legend: MinCl_1DL: Shaft 3's minimum chlorine level measured at the shaft and recorded at the location via data logger, in ppm.
MinCl_2DL: Shaft 3A's minimum chlorine level measured at the shaft and recorded at the location via data logger, in ppm.
MinCl_3DL: Shaft 3B's minimum chlorine level measured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

City Tunnel Entry Point Residual Chlorine Continuous Monitoring Results

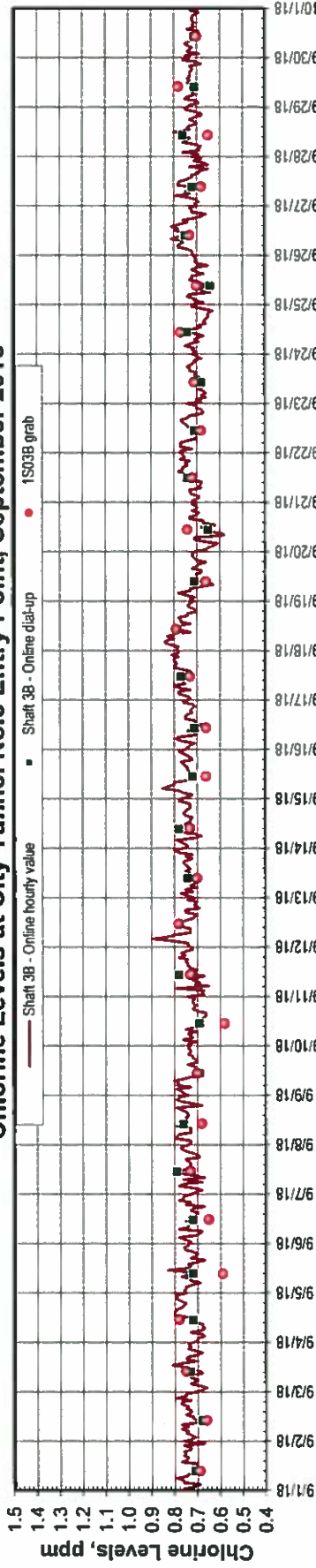
Chlorine Levels at City Tunnel No.1 Entry Point, September 2018



Chlorine Levels at City Tunnel No.2 Entry Point, September 2018



Chlorine Levels at City Tunnel No.3 Entry Point, September 2018



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 3/1/18, 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

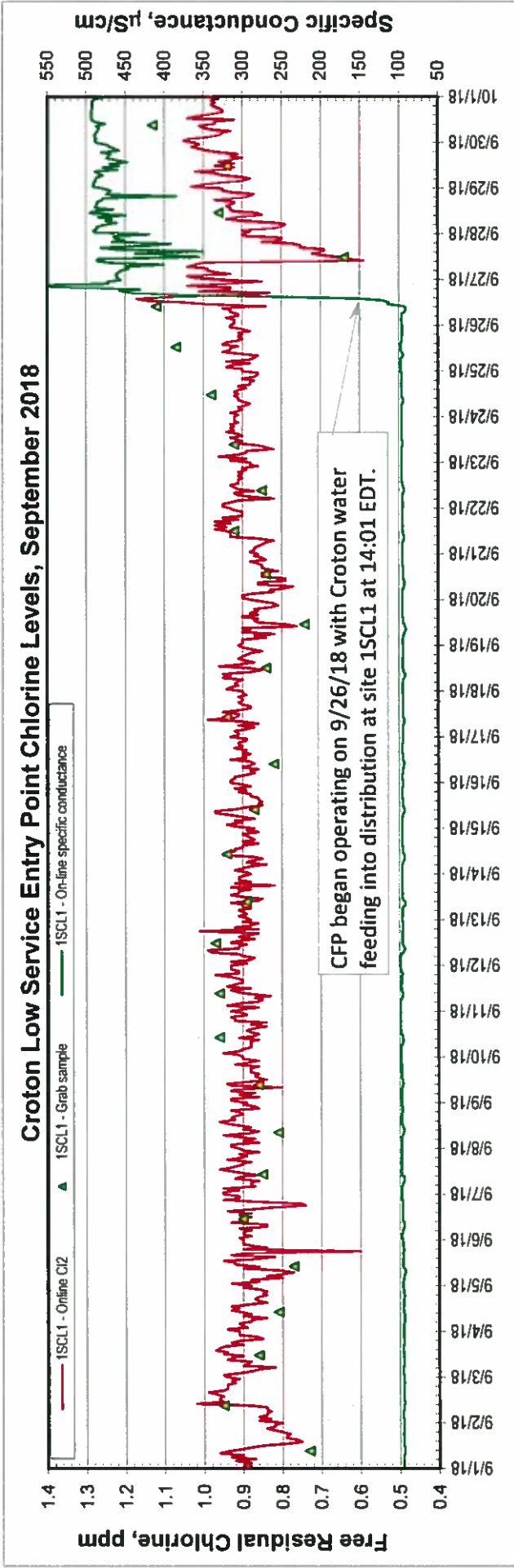
Low Service		High Service	
Date	MinCl_1SCL1	Remark 1	Remark 2
09/01/18			
09/02/18			
09/03/18			
09/04/18			
09/05/18			
09/06/18			
09/07/18			
09/08/18			
09/09/18			
09/10/18			
09/11/18			
09/12/18			
09/13/18			
09/14/18			
09/15/18			
09/16/18			
09/17/18			
09/18/18			
09/19/18			
09/20/18			
09/21/18			
09/22/18			
09/23/18			
09/24/18			
09/25/18			
09/26/18	0.78	CFP began operating on 9/26/18 with Croton water feeding into distribution at site 1SCL1 at 14:01 EDT.	
09/27/18	0.52		
09/28/18	0.74	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	
09/29/18	0.85		
09/30/18	0.91		
		No Croton water to LS	No Croton water to HS

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.

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 3/1/18, 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

September 2018

All Distribution Sites			
Samples	Min	Max	Average
1303	0.00	1.16	0.57

Hach DPD Method (analyte is not ELAP certified)

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	RESIDUAL CHLORINE	COMMENT
29443	9/29/18	40200	Reg Stop	1.16	Max
27200	9/8/18	77150	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 #NY013551)

Summary of Results for Microbiological Quality
 Compliance Samples

9/1/2018 to 9/30/2018

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	134	134	1	0	0.7%
Brooklyn	70	198	198	1	0	0.5%
Manhattan	57	164	164	0	0	0.0%
Queens ***	79	227	227	0	0	0.0%
Staten Island	28	78	78	0	0	0.0%
Ground Water Supply ****	-	-	-	-	-	-
Total	280	801	801	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 Aggueda Date: 10/04/18

Director: Kevin Beck Date: 10/5/18

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
 9/1/2018 to 9/30/2018

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
9/18/2018	11:49	25450	Brooklyn	SS - IFO 1030 S/S Park Pl, 2nd SS E/O Brooklyn Ave, 12 inch	16.4	<1	0.59	To Be Resampled
9/27/2018	10:48	13550	Bronx	SS - IFO 2015 W/S University Ave, 1st SS S/O W 180th St, 12 inch	1.0	<1	0.67	To Be Resampled

* As determined by Colifert 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 Agard Date: 10/04/18
 Director: Ken Bern Date: 10/5/18

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

9/1/2018 to 9/30/2018

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
9/20/2018	08:37	25450	Brooklyn	SS - S/S Park Pl, 1st SS E/O Brooklyn Ave	<1	<1	0.55	Upstream
9/20/2018	08:51	25450	Brooklyn	SS - IFO 1030 S/S Park Pl, 2nd SS E/O Brooklyn Ave, 12 inch	<1	<1	0.53	Original Location
9/20/2018	09:03	25450	Brooklyn	SS - S/S Park Pl, 1st SS W/O Kingston Ave	<1	<1	0.51	Downstream
9/29/2018	10:01	13550	Bronx	SS - W/S University Ave, 1st SS N/O W 180th St	<1	<1	0.64	Upstream
9/29/2018	10:17	13550	Bronx	SS - IFO 2015 W/S University Ave, 1st SS S/O W 180th St, 12 inch	<1	<1	0.67	Original Location
9/29/2018	10:36	13550	Bronx	SS - W/S University Ave, 1st SS N/O W 179th St	<1	<1	0.66	Downstream

* As determined by ColiPort 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 Aguiar Date: 10/04/18
 Director: Kimberly Date: 10/5/18

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**

9/1/2018 to 9/30/2018

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	134	134	82	1	0	-	0	0.0%
Brooklyn	70	198	198	126	2	0	-	0	0.0%
Manhattan	57	164	164	110	9	0	-	0	0.0%
Queens †	79	227	227	158	38	1	<1	0	0.0%
Staten Island	28	78	78	54	11	0	-	0	0.0%
Ground Water Supply †	-	-	-	-	-	-	-	-	-
Total	280	801	801	530	61	1	<1	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 Aggarwal Date: 10/04/18

Director: Ken Beer Date: 10/5/18

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

September 2018

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."

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

September 2018

All Distribution Sites			
Samples	Min	Max	Average
1303	<0.10	1.20	0.64

Analytical Method SM 2130 B

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	TURBIDITY	COMMENT
29545	9/30/18	44550	Reg Stop	1.20	Max
29204	9/27/18	3SC26	Reg Stop	<0.10	Min
29435	9/29/18	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

September 2018

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)	6	6	7	6	7	6	6	6	6	6	7	6	7	7	6	7	7	6	6	7	6	6	6	6	7	6	6	6	7	7
Catskill/Delaware 1S03A (Tunnel 2)	6	7	7	6	6	7	6	6	6	6	7	6	6	6	6	6	6	6	6	7	6	6	6	6	7	7	7	7	7	
Catskill/Delaware 1S03B (Tunnel 3)	6	7	7	6	7	7	6	6	6	7	7	6	6	7	6	6	6	6	6	7	6	5	7	5	7	6	7	7	7	
Croton System 1SCL1 (a)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	4	4	3
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 9/27/2018 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	30	6	7	6
Catskill/Delaware 1S03A (Tunnel 2)	30	6	7	6
Catskill/Delaware 1S03B (Tunnel 3)	30	5	7	6
Croton System 1SCL1 (a)	4	3	4	4
Croton System 1SCH3 (a)	-	-	-	-

Supervisor 

Date 10/04/18

Director 

Date 10/4/18

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
 September 2018

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)	0.72	0.73	0.71	0.74	0.71	0.71	0.72	0.71	0.73	0.72	0.72	0.73	0.71	0.71	0.72	0.71	0.72	0.73	0.71	0.73	0.73	0.72	0.72	0.71	0.73	0.72	0.72	0.71	0.72	0.71	
Catskill/Delaware 1S03A (Tunnel 2)	0.73	0.73	0.71	0.73	0.71	0.71	0.72	0.73	0.72	0.72	0.72	0.71	0.71	0.73	0.70	0.72	0.71	0.73	0.72	0.73	0.72	0.73	0.72	0.71	0.73	0.72	0.72	0.71	0.73	0.73	
Catskill/Delaware 1S03B (Tunnel 3)	0.73	0.73	0.72	0.74	0.72	0.71	0.71	0.73	0.72	0.72	0.72	0.71	0.71	0.73	0.70	0.72	0.71	0.73	0.71	0.73	0.73	0.72	0.71	0.72	0.72	0.73	0.72	0.70	0.72	0.72	
Croton System 1SCL1 (a)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Croton System 1SCH3 (e)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Analytical Method SM 4500 FC (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 9/27/2018 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	30	0.71	0.74	0.72
Catskill/Delaware 1S03A (Tunnel 2)	30	0.70	0.73	0.72
Catskill/Delaware 1S03B (Tunnel 3)	30	0.70	0.74	0.72
Croton System 1SCL1 (a)	4	0.65	0.74	0.69
Croton System 1SCH3 (e)	-	-	-	-

Supervisor 

Director 

Date 10/04/18

Date 10/4/18