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

July 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 June 2018

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

Enclosed, please find the New York City Water Quality report for the month of **June 2018**. There was no well pumpage to distribution in the Groundwater System this month. Croton water feed into distribution the entire month. 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 January 1, 2018 to June 30, 2018. The six month running percentage of samples collected with fecal coliform concentrations >20 CFU/100 mL was 0.55% 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 1.1 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 0.58 mg/L, 1S03A (Tunnel 2) was 0.57 mg/L, and 1S03B (Tunnel 3) was 0.59 mg/L for the Catskill/Delaware System.

The Croton Filtration Plant was online and continuously feeding the Croton Low Service entry pointfor the month of June 2018. The Croton High Service entry point was offline in June 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 0.60 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 0.0 mg/L.

A total of 1325 distribution samples were tested for free chlorine residual this month. For all distribution sites free chlorine residual ranged from 0.00 mg/L to 1.08 mg/L and averaged 0.57 mg/L for the month.

The second quarter of 2018 chlorine residual Running Average was 0.57 mg/L. This meets the MRDL of 4 mg/L for the quarterly running annual averge of all systems samples.

5. *Trihalomethane Monitoring / HAA5 Monitoring* (Section 141.71(b)(6)):
Requirements met. The results fro the second quarter of 2018 were included in the report dated June 11, 2018 (For the May 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 800 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. 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 43150 (sample station west side of 88th St and second sampling station south of 149th Ave, on a 12 inch main) on 6/15/2018 was positive for total coliform. Repeat sampling on 6/17/2018 was coliform negative at all locations.
- A sample collected from Site 31550 (sample station south side of W 18th St and second sampling station east of 9th Ave (opposite 329), on a 12 inch main) on 6/21/2018 was positive for total coliform. Repeat sampling on 6/23/2018 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 525 distribution Operational samples resulted in no samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 243 Pre-Finished samples resulted in four (4) samples testing positive for total coliform and one (1) *E. coli* was detected.

The analyses of 518 Autosampler Pre-finished samples resulted in three (3) samples testing positive for total coliform. No *E. coli* were detected.

8. *Distribution Turbidity Monitoring:*
For distribution sites turbidity ranged from <0.10 to 1.83 NTU and averaged 0.66 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 (120 samples in total), produced monthly average color values of six (6) units for sites 1S03 (Tunnel 1), 1S03A (Tunnel 2), 1S03B (Tunnel 3), and four (4) units for site 1SCL1 (Croton Low Service).

10. ***Volatile Organic/TTHM/HAA5 Monitoring:***
Monthly Results: Twenty-one (21) distribution site samples were collected for volatile organic contaminant (VOC) analysis and four (4) entry point samples. All VOC samples from distribution sites and entry points were below detection. Twenty-one (21) TTHM distribution samples were collected ranging from 34 µg/L to 57 µg/L. Four (4) TTHM entry point samples were collected ranging from 24 µg/L to 44 µg/L. Twenty-one (21) HAA5 distribution samples were collected ranging from 32 µg/L to 66 µg/L. Four (4) HAA5 entry point samples were collected ranging from 31 µg/L to 55 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 June 25, 2018 at the three Catskill/Delaware entry points (1S07, 1S03A, and 1S03B), at the Croton Low Service entry point (1SCL1) and Croton High Service entry point(1SCH3) which represented distribution Catskill/Delaware water, and six (6) distribution points. All semi-volatile organic contaminant samples from distribution sites and entry points were below detection limits.

12. ***Fluoride Monitoring:***
Daily analyses of entry point samples (120 samples in total), produced monthly average fluoride levels of 0.73 mg/L for sites 1S03 (Tunnel 1), 1S03A (Tunnel 2), 1S03B (Tunnel 3), and 0.81 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.

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

Sincerely,

Salemi Fried for SS

Steven C. Schindler
Director, Water Quality

Enclosure
cc: Mr. Phil Bein, NYSOAG
Ms. Tracey Corbitt, Westchester County Water Agency (by email only)
Ms. Diana Fryda, New York Public Interest Research Group Fund, Inc.
Mr. Eric Goldstein, NRDC
Mr. Frank J. Carine, Inspector General for NYCDEP

Mr. Kenneth Kosinski, NYSDEC
Mr. Huan Li, NYCDOHMH
Mr. Trevor McProud, NYCDOHMH
Mr. Alan Rosa, Catskill Watershed Corp (by email only)
Mr. Andy Tse, NYSDOH (by email only)
Mr. Steven Zahn, NYSDEC – Region 2

bcc:
Electronic file:

V. Sapienza, P.E., Commissioner
K. Alderisio
L. Arnold (hard copy)
A. Bader
D. Borchert
K. Cipriano
K. Czarnogorski/file
T. Daly (hard copy)
S. Freud
C. Glaser
L. Janus, Ph.D.
L. Lu, Ph.D.
R. Levine
A. Reaves
D. Robinson
P. Rush, P.E.
R. Marchitelli
W. Melendez, P.E.
S. Schindler (hard copy)
D. Warne/S. McCormack
M. Warne
V. Xu

TABLE OF CONTENTS FOR CD FILES

June 2018 Monthly Water Quality Report

Microbiological Reports:	
Summary of Coliform Compliance Samples	*(NYC_Micro_Summary_Compliance_201806.xls)*
Coliform Positive Compliance Samples	*(NYC_Micro_Compliance_Positives_201806.xls)*
Coliform Resample for Positive Compliance Samples	*(NYC_Micro_Compliance_Resamples_201806.xls)*
Summary of Coliform Operational Samples	*(NYC_Micro_Operational_201806.pdf)* *(NYC_Micro_Summary_Operational_201806.xls)*
Coliform Positive Operational Samples	*(NYC_Micro_Operational_201806.pdf)* *(NYC_Micro_Operational_Positives_201806.xls)*
Coliform Resample for Positive Distribution Operational Samples	*(NYC_Micro_Operational_201806.pdf)* *(NYC_Micro_Operational_Resamples_201806.xls)*
Distribution Coliform Monitoring when Source Water Turbidity exceeds 1.49 NTU	*(NYC_EP_Coliform_For_Source_Turb_GT_149_201806.snp)*
All Microbiological Results	*(NYC_Monthly_Alldata_201806.xls\Micro)*
Free Chlorine Residual (FCR) Reports:	
Entry Point FCR On-Line Monitoring Results	*(Entry_Shaft_Cl2_Onln_201806_Fig.pdf)* *(Croton_Entry_Point_Cl2_Onln_201806_Fig.pdf)*
Daily Minimum FCR at Entry Points	*(Entry_Shaft_Cl2_201806_Tbl.pdf)* *(Croton_Entry_Point_Cl2_201806_Tbl.pdf)*
FCR and Heterotrophic Plate Count (HPC) Compliance Samples	*(NYC_Micro_Summary_FCR_&_HPC_Compliance_201806.xls)*
FCR and HPC of Operational Samples	*(NYC_Micro_Summary_FCR_&_HPC_Operational_201806.xls)* *(NYC_Micro_Operational_201806.pdf)*
Summary of FCR of Distribution Samples (Quarterly)	*(NYC_FCR_Quarterly_Summary_2018Q2.xls)*
Summary of FCR of Distribution Samples (Monthly)	*(NYC_FCR_Monthly_Summary_201806.xls)*
FCR of all Distribution Sites	*(NYC_FCR_Monthly_Alldata_201806.xls)*
Turbidity Reports:	
Summary of Turbidity of Distribution Samples	*(NYC_Turbidity_Monthly_Summary_201806.xls)*
Turbidity of all Distribution Sites	*(NYC_Turbidity_Monthly_Alldata_201806.xls)*
Color Reports:	
Color for Entry Point Samples	*(Entry_Point_Color_Monthly_201806.xls)*
Fluoridation Reports:	
Summary of Fluoride Levels of Distribution Samples	*(NYC_Fluoride_Monthly_Summary_201806.xls)*
Fluoride Daily Entry Point Report for Surface Water Systems	*(Entry_Point_Fluoride_Monthly_201806.xls)*
Fluoride of all Distribution Sites	*(NYC_Fluoride_ Monthly_Alldata_201806.xls)*
Volatile Organic Contaminant (VOC) and Disinfection By-products (DBP) Reports:	
Total Trihalomethanes (TTHM) & VOC Monthly Report	*(NYC_TTHM_&_VOC_Rpt_201806.xls)*
Summary of EPA Method 525 Report	*(NYC_SOC_Rpt_201806.xls)*
Haloacetic Acids (HAA5) Monthly Report	*(NYC_HAA5_Monthly_Rpt_201806.xls)*
Summary of EPA Organic Method Reports	*(NYC_VOC_HAA5_Rpt_201806.pdf)*
Inorganic (IOC), Specified Organic (SOC), Metals Monitoring:	
All parameters for June 2018	*(NYC_Monthly_Alldata_201806.xls)*

RAW WATER FECAL COLIFORM CONCENTRATIONS
(FAD Requirement)

NYCDEP Division of Watershed Water Quality Operation

Catskill/Delaware System Raw Water Fecal Coliform Compliance Report

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

Acting Section Chief: David Robinson
914-345-4973

Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water				Period: 04/16 To: 06/18
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
4-16	30	0	0.00	0.00
5-16	31	0	0.00	0.00
6-16	30	0	0.00	0.00
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

7/5/18

Reported by: Dale Borchert, Deputy Chief, Hawthorne Water Quality Operations

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.

RAW WATER TURBIDITY
(FAD Requirement)

NYCDEP Division of Watershed Water Quality Operation

Water Systems Operation Report - Catskill/Delaware System

Environmental Protection

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

Acting Section Chief: David Robinson
914-345-4973

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

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)
6/1/18	0.75	0.75	0.70	0.80	0.75	0.75	E4	<1
6/2/18	0.75	0.75	0.75	0.75	0.75	0.75	E8	E1
6/3/18	0.80	0.75	0.85	0.65	0.75	0.80	E22	E2
6/4/18	0.75	0.80	0.70	0.80	0.75*	0.95	E12	<1
6/5/18	0.90	0.75	0.75	0.75	0.75	0.75	E10	<1
6/6/18	0.75	0.75	0.65	1.0	0.90	0.95	E8	<1
6/7/18	0.65	0.70	0.75	0.70	0.70	0.75	E8	<1
6/8/18	0.70	0.70	0.70	0.75	0.70	0.75	E10	E1
6/9/18	0.75	0.75	0.70	0.70	0.70	0.75	E4	E2
6/10/18	0.70	0.70	0.70	0.70	0.70	0.70	E8	E1
6/11/18	0.65	0.75	0.70	0.70	0.70	0.75	E8	<1
6/12/18	0.80	0.80	0.75	0.70	1.1	0.70	E14	<1
6/13/18	0.75	0.75	0.75	0.85	0.75	0.75	E12	<1
6/14/18	0.80	0.70	0.75	0.65	0.75	0.65	E12	E1
6/15/18	0.65	0.65	0.70	0.70	0.60	0.80	E10	E3
6/16/18	0.70	0.70	0.75	0.80	0.75	0.70	E12	E1
6/17/18	0.80	0.70	0.75	0.65	0.75	0.70	E4	<1
6/18/18	0.75	0.75	0.80	0.80	0.90	0.80	E2	E2
6/19/18	0.75	0.80	0.85	0.75	0.70	0.80	E6	E1
6/20/18	0.80	0.80	0.75	0.80	0.85	0.80	E8	<1
6/21/18	0.80	0.80	0.75	0.75	0.85	0.70	E12	E1
6/22/18	0.75	0.85	0.80	0.75	0.75	0.75	E8	E1
6/23/18	0.70	0.70	0.75	0.80	0.70	0.80	E70	E9
6/24/18	0.80	0.75	0.80	0.85	0.85	0.80	E30	<1
6/25/18	0.80	0.85	0.85	0.85	0.80	0.70	E35	E2
6/26/18	0.80	0.85	0.80	0.85	0.90	0.85	E14	<1
6/27/18	0.85	0.85	0.70	0.85	0.90	0.85	100	<1
6/28/18	0.90	0.80	0.70	0.80	0.80	0.75	E15	<1
6/29/18	0.85	0.85	0.75	0.80	0.85	0.85	>=E4	E1
6/30/18	0.95	0.80	0.95	0.80	0.90	1.0	<5	E2

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

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

Additional Comments: * For the 4 pm sample on 6/4/18, the bottle received at the laboratory was cracked and leaking. The sample was discarded. The continuous monitoring data were used for this sample. Continuous monitoring data for the sample immediately before and after were within tolerance.

7/5/18

Reported by: Dale Borchert, Deputy Chief, Hawthorne Water Quality Operations

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 07/02/2018 8:46 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

Acting Section Chief: David Robinson
914-345-4973

Data Qualifiers and Additional Notes

Date/Time	Site	Analytes Affected	Qualifier

Analytical Methods

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

ENTRY POINT CHLORINE RESIDUAL
(FAD Requirement)

New York City Department of Environmental Protection
Bureau of Water Supply

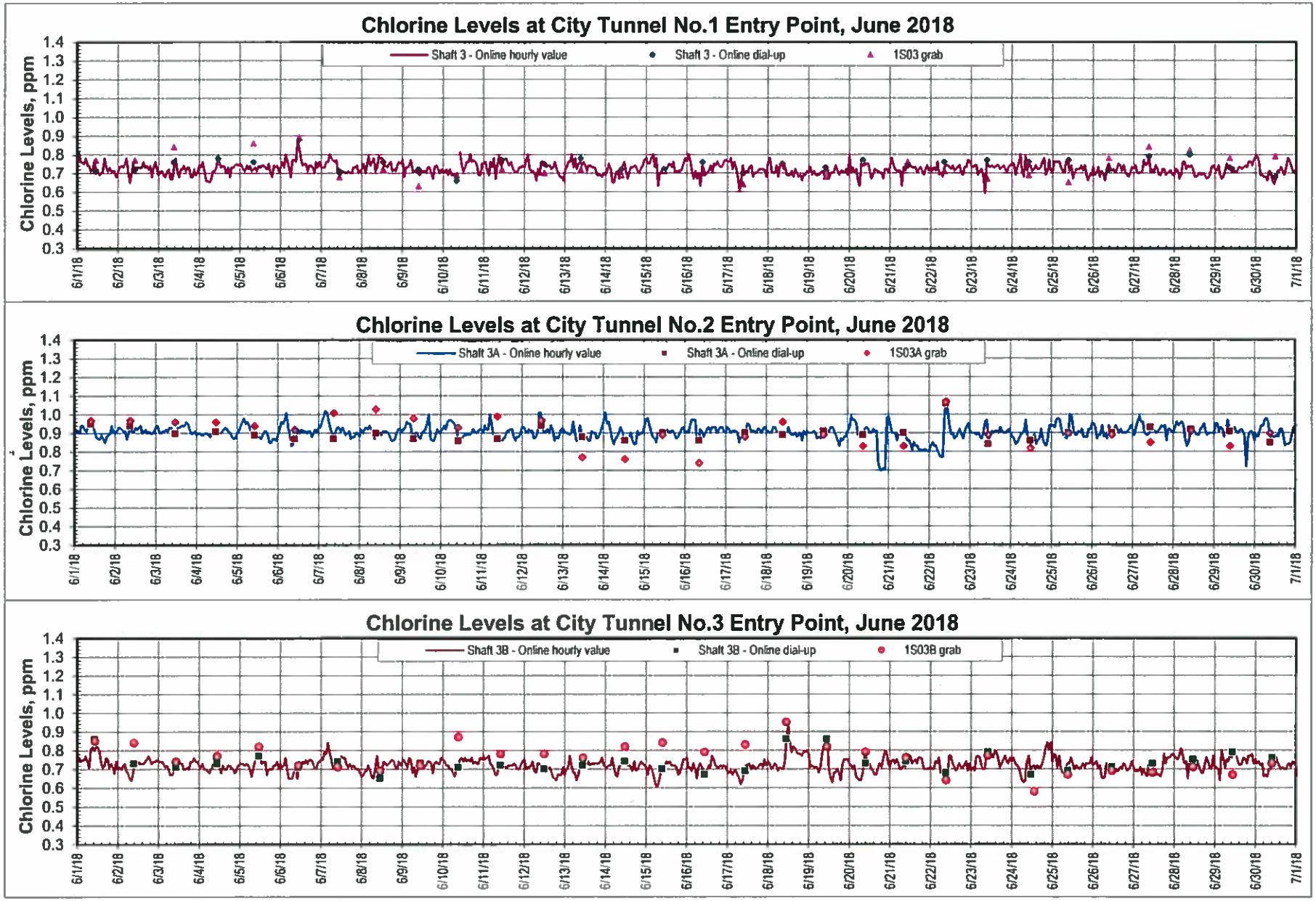
Daily Minimum Chlorine Readings Recorded at Tunnel Entry Shafts for Catskill/Delaware System

Tunnel No.1 (Catskill) at Shaft 3			Tunnel No.2 (Delaware) at Shaft 3A			Tunnel No.3 (Cat/Del) at Shaft 3B		
Date	MinCl_1DL	Remark 1	Date	MinCl_2DL	Remark 2	Date	MinCl_3DL	Remark 3
06/01/18	0.67	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	06/01/18	0.85	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	06/01/18	0.67	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.
06/02/18	0.65		06/02/18	0.87		06/02/18	0.64	
06/03/18	0.63		06/03/18	0.88		06/03/18	0.66	
06/04/18	0.61		06/04/18	0.84		06/04/18	0.67	
06/05/18	0.65		06/05/18	0.85		06/05/18	0.65	
06/06/18	0.62		06/06/18	0.80		06/06/18	0.61	
06/07/18	0.68		06/07/18	0.87		06/07/18	0.65	
06/08/18	0.67		06/08/18	0.85		06/08/18	0.63	
06/09/18	0.65		06/09/18	0.85		06/09/18	0.63	
06/10/18	0.64		06/10/18	0.86		06/10/18	0.63	
06/11/18	0.67		06/11/18	0.85		06/11/18	0.66	
06/12/18	0.65		06/12/18	0.85		06/12/18	0.63	
06/13/18	0.67		06/13/18	0.85		06/13/18	0.62	
06/14/18	0.64		06/14/18	0.82		06/14/18	0.65	
06/15/18	0.61		06/15/18	0.83		06/15/18	0.60	
06/16/18	0.61		06/16/18	0.82		06/16/18	0.64	
06/17/18	0.58		06/17/18	0.84		06/17/18	0.60	
06/18/18	0.63		06/18/18	0.86		06/18/18	0.64	
06/19/18	0.62		06/19/18	0.83		06/19/18	0.63	
06/20/18	0.62		06/20/18	0.57		06/20/18	0.59	
06/21/18	0.63		06/21/18	0.78		06/21/18	0.68	
06/22/18	0.62		06/22/18	0.76		06/22/18	0.65	
06/23/18	0.59		06/23/18	0.84		06/23/18	0.67	
06/24/18	0.66		06/24/18	0.81		06/24/18	0.61	
06/25/18	0.64		06/25/18	0.86		06/25/18	0.66	
06/26/18	0.64		06/26/18	0.85		06/26/18	0.62	
06/27/18	0.66		06/27/18	0.80		06/27/18	0.64	
06/28/18	0.64		06/28/18	0.83		06/28/18	0.65	
06/29/18	0.66		06/29/18	0.86		06/29/18	0.64	
06/30/18	0.62		06/30/18	0.78		06/30/18	0.65	

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

New York City Department of Environmental Protection
Bureau of Water Supply

City Tunnel Entry Point Residual Chlorine Continuous Monitoring Results



Note: Continuous monitoring of free chlorine residual (FCR) at distribution entry points was maintained. FCR was maintained above 0.2 ppm at all times. Since 3/11/18, 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

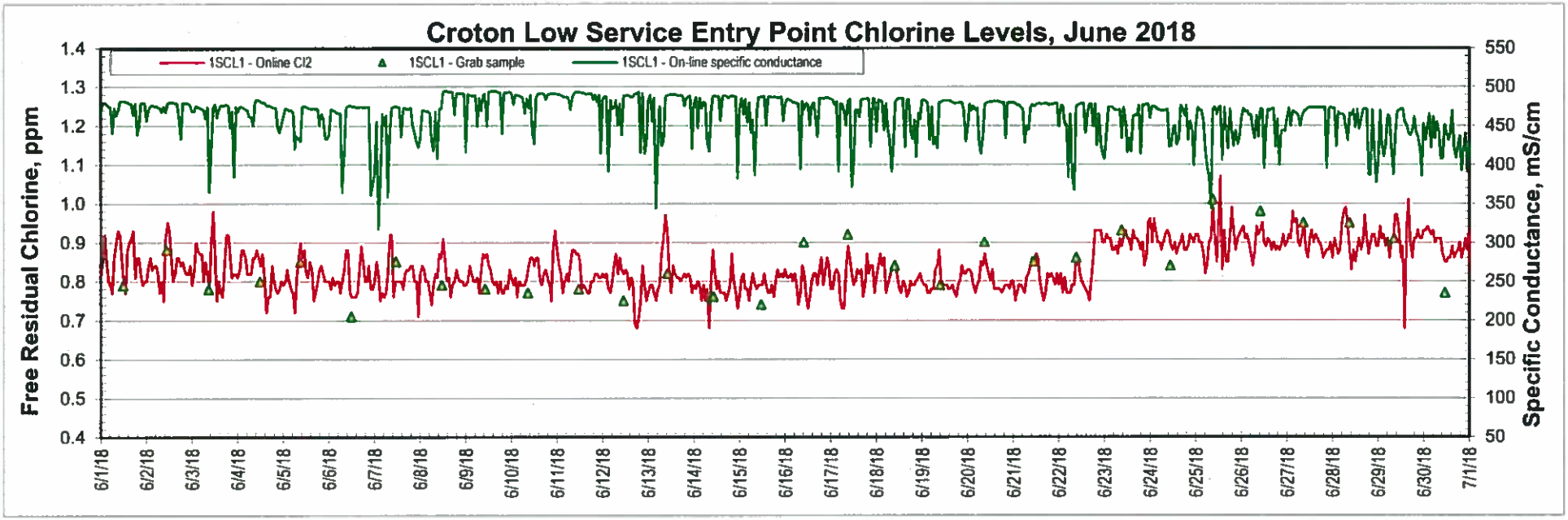
Low Service			High Service		
Date	MinCl_1SCL1	Remark 1	Date	MinCl_1SCH3	Remark 2
06/01/18	0.74	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	06/01/18		No Croton water to HS
06/02/18	0.70		06/02/18		
06/03/18	0.64		06/03/18		
06/04/18	0.64		06/04/18		
06/05/18	0.69		06/05/18		
06/06/18	0.64		06/06/18		
06/07/18	0.70		06/07/18		
06/08/18	0.68		06/08/18		
06/09/18	0.71		06/09/18		
06/10/18	0.60		06/10/18		
06/11/18	0.71		06/11/18		
06/12/18	0.68		06/12/18		
06/13/18	0.75		06/13/18		
06/14/18	0.66		06/14/18		
06/15/18	0.72		06/15/18		
06/16/18	0.70		06/16/18		
06/17/18	0.71		06/17/18		
06/18/18	0.68		06/18/18		
06/19/18	0.62		06/19/18		
06/20/18	0.73		06/20/18		
06/21/18	0.70		06/21/18		
06/22/18	0.70		06/22/18		
06/23/18	0.75		06/23/18		
06/24/18	0.78		06/24/18		
06/25/18	0.71		06/25/18		
06/26/18	0.82		06/26/18		
06/27/18	0.80		06/27/18		
06/28/18	0.81		06/28/18		
06/29/18	0.66		06/29/18		
06/30/18	0.83		06/30/18		

Legend: MinCl_1SCL1: 1SCL1's minimum chlorine level measured and recorded at the location via data logger, in ppm.
MinCl_1SCH3: 1SCH3's minimum chlorine level measured and recorded at the location via data logger, in ppm.
Note: Croton water fed to High Service time period was determined by specific conductance greater than 150 uS/cm.

New York City Department of Environmental Protection

Bureau of Water Supply

Croton Distribution Entry Point Residual Chlorine Continuous Monitoring Results



Note: Continuous monitoring of free chlorine residual (FCR) at distribution entry points was maintained. FCR was maintained above 0.2 ppm at all times. Since 3/11/18, 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

June 2018

All Distribution Sites			
Samples	Min	Max	Average
1325	0.00	1.08	0.57

Hach DPD Method (analyte is not ELAP certified)

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	RESIDUAL CHLORINE	COMMENT
16873	6/8/18	40200	Reg Stop	1.08	Max
16132	6/1/18	51550	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.

REPORT

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

Residual Chlorine (mg/L) Averages of Distribution Samples

Second Quarter 2018

Monthly Average			Quarterly Average				Running Annual Average †
Apr-18	May-18	Jun-18	3rd Quarter of 2017	4th Quarter of 2017	1st Quarter of 2018	2nd Quarter of 2018	
0.55	0.58	0.57	0.52	0.62	0.58	0.57	0.57

Hach DPD Method (analyte is not ELAP certified)

† The Running Annual Average of all distribution sites is calculated four times a year (at the end of every quarter) by taking the average of the quarterly average of this quarter and the three previous quarters, and is not to exceed the MRDL of 4.0 mg/L.

TOTAL COLIFORM MONITORING
(FAD Requirement)

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
6/1/2018 to 6/30/2018

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
6/15/2018	09:11	43150	Queens	SS - W/S 88th St, 2nd SS S/O 149th Ave, 12"	1.0	<1	0.51	To Be Resampled
6/21/2018	11:12	31550	Manhattan	SS - S/S W 18th St, 2nd SS E/O 9th Ave (opposite 329), 12"	2.0	<1	0.03	To Be Resampled

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

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

Supervisor: Rupa Aggarwal Date: 07/10/18

Director: Date: 7/10/18

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

6/1/2018 to 6/30/2018

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
6/17/2018	08:07	43150	Queens	SS - W/S 88th St, 1st SS N/O 151st Ave	<1	<1	0.58	Upstream
6/17/2018	08:20	43150	Queens	SS - W/S 88th St, 2nd SS S/O 149th Ave, 12"	<1	<1	0.59	Original Location
6/17/2018	08:35	43150	Queens	SS - W/S 88th St, 1st SS S/O 149th Ave	<1	<1	0.54	Downstream
6/23/2018	07:54	31550	Manhattan	SS - S/S W 18th St, 1st SS E/O 9th Ave	<1	<1	0.05	Upstream
6/23/2018	08:07	31550	Manhattan	SS - S/S W 18th St, 2nd SS E/O 9th Ave (opposite 329), 12"	<1	<1	0.05	Original Location
6/23/2018	08:43	31550	Manhattan	Hydt - S/S W 18th St, 2nd HT W/O 8th Ave.	<1	<1	0.01	Hydrant Downstream - No water

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

Supervisor: Rupa Aggarwal Date: 07/10/18

Director: [signature] Date: 7/10/18

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

6/1/2018 to 6/30/2018

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	131	131	0	0	0.0%
Brooklyn	70	194	194	0	0	0.0%
Manhattan	57	165	165	1	0	0.6%
Queens ***	79	229	229	1	0	0.4%
Staten Island	29	81	81	0	0	0.0%
Ground Water Supply ***	-	-	-	-	-	-
Total	281	800	800	2	0	0.3%

* 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: 07/09/18

Director: [signature] Date: 7/10/18

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

6/1/2018 to 6/30/2018

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	131	131	91	0	0	--	0	0.0%
Brooklyn	70	194	194	136	1	0	--	0	0.0%
Manhattan	57	165	165	119	8	0	--	0	0.0%
Queens †	79	229	229	163	14	0	--	0	0.0%
Staten Island	29	81	81	61	9	1	<1	0	0.0%
Ground Water Supply †	-	-	-	-	-	-	--	-	-
Total	281	800	800	570	32	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: 07/10/18

Director: Ken Bisson Date: 7/10/18

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

June 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

June 2018

All Distribution Sites			
Samples	Min	Max	Average
1325	<0.10	1.83	0.66

Analytical Method SM 2130 B

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	TURBIDITY	COMMENT
18857	6/24/18	77550	Reg Stop	1.83	Max
16993	6/9/18	35350	Reg Stop	<0.10	Min
16994	6/9/18	3SC26	Reg Stop	<0.10	Min
17171	6/11/18	30450	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

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

Analytical Method SM 2120 B. Apparent color.

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

[a] Croton System online as of 5/17/2018 at 1SCL1.

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

Supervisor _____ **Date** 07/06/18

Director _____ **Date** 7/6/18

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

June 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)	0.71	0.72	0.72	0.73	0.73	0.73	0.74	0.73	0.74	0.73	0.73	0.73	0.74	0.72	0.74	0.72	0.72	0.73	0.73	0.73	0.71	0.72	0.73	0.74	0.70	0.73	0.74	0.74	0.72	0.73
Catskill/Delaware 1S03A (Tunnel 2)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.73	0.74	0.72	0.74	0.72	0.74	0.72	0.74	0.72	0.72	0.72	0.73	0.73	0.71	0.72	0.73	0.74	0.70	0.73	0.74	0.74	0.72	0.72
Catskill/Delaware 1S03B (Tunnel 3)	0.71	0.73	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.73	0.73	0.72	0.74	0.72	0.75	0.73	0.72	0.72	0.73	0.74	0.72	0.72	0.73	0.72	0.71	0.73	0.74	0.74	0.72	0.73
Croton System 1SCL1 [a]	0.79	0.80	0.77	0.85	0.82	0.79	0.80	0.80	0.80	0.77	0.80	0.78	0.86	0.81	0.82	0.80	0.84	0.79	0.83	0.83	0.80	0.86	0.83	0.79	0.77	0.84	0.83	0.87	0.82	0.80
Croton System 1SCH3 [a]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Analytical Method SM 4500 F C (97)

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

[a] Croton System online as of 5/17/2018 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	30	0.70	0.74	0.73
Catskill/Delaware 1S03A (Tunnel 2)	30	0.70	0.74	0.73
Catskill/Delaware 1S03B (Tunnel 3)	30	0.71	0.75	0.73
Croton System 1SCL1 [a]	30	0.77	0.87	0.81
Croton System 1SCH3 [a]	-	-	-	-

Supervisor _____ **Date** 07/06/18

Director _____ **Date** 7/6/18