NYC 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

September 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 August 2018

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

Enclosed, please find the New York City Water Quality report for the month of **August 2018**. There was no well pumpage to distribution in the Groundwater System this month. Croton water fed into distribution from August 1 to August 15, 2018 at 9:45 AM. 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 March 1, 2018 to August 31, 2018. The six month running percentage of samples collected with fecal coliform concentrations >20 CFU/100 mL was 0.00% for the Catskill/Delaware System for this time period.

2. *Raw Water Turbidity* (Section 141.71(a)(2)):
Requirements met. The raw water leaving Kensico Reservoir via the Delaware Aqueduct in compliance samples collected at DEL18DT, just prior to disinfection, exhibited turbidity levels less than or equal to 5 NTU on an ongoing basis during the month. Turbidity values did not exceed 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 value for entry point readings for the Catskill/Delaware System from sites 1S03 (Tunnel 1) was 0.56 mg/L, 1S03A (Tunnel 2) was 0.88 mg/L, and 1S03B (Tunnel 3) was 0.60 mg/L for the Catskill/Delaware System.

The Croton Filtration Plant was online and continuously feeding the Croton Low Service entry point from August 1 until August 15, 2018 at 9:45 AM. The Croton High Service entry point was offline in August 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 0.64 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 1393 distribution samples were tested for free chlorine residual this month. For all distribution sites free chlorine residual ranged from 0.00 mg/L to 1.12 mg/L and averaged 0.58 mg/L for the month.

Please note: the Monthly Water Quality Report for July 2018 cover letter incorrectly stated that four (4) free chlorine residual samples at distribution sites equaled 0.0 mg/L. In fact only one (1) distribution site sample equaled 0.0 mg/L (Site 79450 on 7/6/18).

5. *Trihalomethane Monitoring / HAA5 Monitoring* (Section 141.71(b)(6)):
Requirements met. The System's TTHM System-Wide Running Average (RAA) for the third quarter of 2018 was 37 µg/L, and the Locational Running Annual Averages (LRAA) ranged from 28 µg/L to 47 µg/L. These values meet the MCL of 80 µg/L for LRAA and RAA. TTHM quarterly results averaged 46 µg/L.

The System's HAA5 RAA for the third quarter of 2018 was 40 µg/L, and the LRAA ranged from 35 µg/L to 46 µg/L. These values meet the MCL of 60 µg/L for LRAA and RAA. HAA5 quarterly results averaged 39 µg/L.

6. *Total Coliform Monitoring* (Section 141.71(b)(5)):
Requirements met. The results of monthly coliform monitoring performed in the distribution system are enclosed. A total of 842 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 six (6) samples that tested positive for total coliform, one (1) of which tested positive for *E. coli*.

- A sample collected from Site 39950 (sample station in front of 601 west side of West End Ave and first sampling station north of W 89th St, 12 inch main) on 8/4/2018 was positive for total coliform. Repeat sampling on 8/6/2018 was coliform negative at all locations.
- A sample collected from Site 46150 (sample station in front of 20-23 south side of Seagirt Blvd, and second sampling station west of Beach 20th St, 12 inch main) on 8/11/2018 was positive with 1.0 MPN/100 mL for total coliform and *E. coli*. Repeat sampling on 8/13/2018 was coliform and *E. coli* negative at all locations. In response to the positive *E. coli* on 8/11/2018, the following actions were taken:
    - Notificaiton of a positive result from a compliance site was made to the Positive Coliform Notification distribution list;
    - Resampling was scheduled and conducted on 8/13/2018;
    - Water quality data in the vicinity was reviewed to determine which trunk main was feeding the distribution main on which sampling station 46150 taps into, in order to help define the boundaries of the affected area;
    - The affected area was delineated and a map developed;
    - The Boil Water Notice was drafted and distributed to all involved parties for review;
    - A plan was developed on how to proceed if *E. coli* resampling results from 8/13/2018 test positive.
- A sample collected from Site 31550 (sample station south side of W 18th St, and second sampling station east of 9th Ave (opposite 329), 12 inch main) on 8/15/2018 was positive for total coliform. Repeat sampling on 8/17/2018 was coliform negative at all locations.

- A sample collected from Site 18750 (sample station in front of 4977 west side of Henry Hudson Pkwy, and second sampling station south side of W 252nd St, 20 inch main) on 8/18/2018 was positive for total coliform. Repeat sampling on 8/20/2018 was coliform negative at all locations.
- A sample collected from Site 39750 (sample station in front of 321 north side of E 71st St, and second sampling station west of 1st Ave, 12 inch main) on 8/24/2018 was positive for total coliform. Repeat sampling on 8/26/2018 was coliform negative at all locations.
- A sample collected from Site 14950 (sample station north side of E 135th St, and second sampling station west of Willis Ave, 12 inch main) on 8/29/2018 was positive for total coliform. Repeat sampling on 8/31/2018 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 551 distribution Operational samples resulted in no samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 252 Pre-Finished samples resulted in five (5) samples testing positive for total coliform and one (1) *E. coli* was detected.

The analyses of 619 Autosampler Pre-finished samples resulted in four (4) samples testing positive for total coliform. No *E. coli* were detected.

8. *Distribution Turbidity Monitoring:*
For distribution sites turbidity ranged from <0.10 to 4.16 NTU and averaged 0.61 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 (107 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-two (22) 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-two (22) TTHM distribution samples were collected ranging from 28 µg/L to 60 µg/L. Four (4) TTHM entry point samples were collected ranging from 24 µg/L to 56 µg/L. Twenty-two (22) HAA5 distribution samples were collected ranging from 29 µg/L to 48 µg/L. Four (4) HAA5 entry point samples were collected ranging from 26 µg/L to 32 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 August 20, 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, and six (6) distribution points. All semi-volatile organic contaminant samples from distribution sites and entry points were below detection limits.

Monitoring for Method 505 organohalide pesticides was conducted on July 23, 2018 at the three Catskill/Delaware entry points (1S07, 1S03A, and 1S03B) and at the Croton Low Service and High Service entry points (1SCL1 and 1SCH3) which represented distribution Catskill/Delaware water. All results were below detection.

12. ***Fluoride Monitoring:***
Daily analyses of entry point samples (107 samples in total), produced monthly average fluoride levels of 0.72 mg/L for site 1S03 (Tunnel 1), 0.71 mg/L for site 1S03A (Tunnel 2), 0.72 mg/L for site 1S03B (Tunnel 3), and 0.76 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.

14. Unregulated Contaminant Monitoring Rule:
Pending resampling results for EPA Method 525.3 from the first quarter monitoring of for the fourth Unregulated Contaminant Monitoring Rule (UCMR4) that was conducted on July 19, 2018 were received on August 16, 2018. Both samples failed QC, however, another round of resampling was not conducted since the second quarter monitoring period had already commenced.

Second quarter monitoring for Additional Chemicals was conducted at two (2) source water, four (4) entry points and 20 distribution Disinfection By-Products (DBP) monitoring sites, on August 7, 2018. Samples from one (1) source water and one (1) entry point site were delayed in transport and deemed invalid once received by the contract laboratory, so resampling at these two locations was conducted on August 21, 2018. Samples which were received as valid on August 7, 2018 were tested for bromide (31 µg/L), TOC (3.6 mg/L), germanium (ND), managanese (ranged 0.8 to 18 µg/L), Method 552.3 for HAA9 (ranged from 31 to 56 µg/L), Method 530 (ND), Method 541 (ND) and Method 525.3 (ND for the one (1) site that passed QC; other two (2) sites failed QC and required resampling). Two (2) entry points were resampled on August 23, 2018 for Method 525.3 and results are pending, as are results from resampling conducted on August 21, 2018. Bi-monthly cyanotoxins monitoring at the four (4) entry points was conducted on July 11, July 25, and August 15, 2018, corresponding to sampling events three, four and five respectively. All sampling results were below detection. Contract laboratory reports of available data are included as pdf files on the disc of electronic files enclosed with this report.

13. ***Other Monitoring***
Please note revised Excel files "NYC_Monthly_Alldata_201805_rev" and "NYC_Monthly_Alldata_201806_rev" (Sheet, IOC_Monthly_rev) for May and June 2018 are included with this month's report submitted disc of electronic files to reflect a correction in the header that mistated the TOX data unit as "mg/L" when it should have been reported as "µg/L".

In addition, revised Excel file "NYC_Monthly_Alldata_201806_rev" and "NYC_Monthly_Alldata_201807_rev" (Sheet, Metals_EPA200.8_rev) for June and July 2018 are included with this month's report submitted disc of electronic files to reflect a correction of the MRL for nickel which changed from 0.5 to 1.0 µg/L.

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

Sincerely,

Steven C. Schindler
Director, Water Quality

Enclosure
cc:

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

TABLE OF CONTENTS FOR CD FILES

August 2018 Monthly Water Quality Report

Microbiological Reports:	
Summary of Coliform Compliance Samples	*(NYC_Micro_Summary_Compliance_201808.xls)*
Coliform Positive Compliance Samples	*(NYC_Micro_Compliance_Positives_201808.xls)*
Coliform Resample for Positive Compliance Samples	*(NYC_Micro_Compliance_Resamples_201808.xls)*
Summary of Coliform Operational Samples	*(NYC_Micro_Operational_201808.pdf)* *(NYC_Micro_Summary_Operational_201808.xls)*
Coliform Positive Operational Samples	*(NYC_Micro_Operational_201808.pdf)* *(NYC_Micro_Operational_Positives_201808.xls)*
Coliform Resample for Positive Distribution Operational Samples	*(NYC_Micro_Operational_201808.pdf)* *(NYC_Micro_Operational_Resamples_201808.xls)*
Distribution Coliform Monitoring when Source Water Turbidity exceeds 1.49 NTU	*(NYC_EP_Coliform_For_Source_Turb_GT_149_201808.snp)*
All Microbiological Results	*(NYC_Monthly_Alldata_201808.xls\Micro)*
Free Chlorine Residual (FCR) Reports:	
Entry Point FCR On-Line Monitoring Results	*(Entry_Shaft_Cl2_Onln_201808_Fig.pdf)* *(Croton_Entry_Point_Cl2_Onln_201808_Fig.pdf)*
Daily Minimum FCR at Entry Points	*(Entry_Shaft_Cl2_201808_Tbl.pdf)* *(Croton_Entry_Point_Cl2_201808_Tbl.pdf)*
FCR and Heterotrophic Plate Count (HPC) Compliance Samples	*(NYC_Micro_Summary_FCR_&_HPC_Compliance_201808.xls)*
FCR and HPC of Operational Samples	*(NYC_Micro_Summary_FCR_&_HPC_Operational_201808.xls)* *(NYC_Micro_Operational_201808.pdf)*
Summary of FCR of Distribution Samples (Monthly)	*(NYC_FCR_Monthly_Summary_201808.xls)*
FCR of all Distribution Sites	*(NYC_FCR_Monthly_Alldata_201808.xls)*
Turbidity Reports:	
Summary of Turbidity of Distribution Samples	*(NYC_Turbidity_Monthly_Summary_201808.xls)*
Turbidity of all Distribution Sites	*(NYC_Turbidity_Monthly_Alldata_201808.xls)*
Color Reports:	
Color for Entry Point Samples	*(Entry_Point_Color_Monthly_201808.xls)*
Fluoridation Reports:	
Summary of Fluoride Levels of Distribution Samples	*(NYC_Fluoride_Monthly_Summary_201808.xls)*
Fluoride Daily Entry Point Report for Surface Water Systems	*(Entry_Point_Fluoride_Monthly_201808.xls)*
Fluoride of all Distribution Sites	*(NYC_Fluoride_ Monthly_Alldata_201808.xls)*
Volatile Organic Contaminant (VOC) and Disinfection By-products (DBP) Reports:	
Total Trihalomethanes (TTHM) & VOC Monthly Report	*(NYC_TTHM_&_VOC_Rpt_201808.xls)*
Summary of EPA Method 525 Report	*(NYC_SOC_Rpt_201808.xls)*
Summary of EPA Method 505 Quarterly Report	*(NYC_505_Qrtrly_Rpt_2018Q3.xls)*
Summary of EPA DBP Quarterly Report	*(NYC_DBP_Qrtrly_Rpt_2018Q3.xls)*
Haloacetic Acids (HAA5) Monthly Report	*(NYC_HAA5_Monthly_Rpt_201808.xls)*
Unregulated Contaminant Monitoring Rule 4 (UCMR4) Report	*(749315_UCMR4_EP_20180711.pdf, 752235_UCMR4_EP_20180725.pdf, 756355_UCMR4_EP_20180815.pdf, 754554_UCMR4_Q2_20180807.pdf)*
Summary of EPA Organic Method Reports	*(NYC_VOC_HAA5_Rpt_201808.pdf)*
Inorganic (IOC), Specified Organic (SOC), Metals Monitoring:	
All parameters for August 2018	*(NYC_Monthly_Alldata_201808.xls)*
Revised IOC Monthly for May 2018, June 2018 and July 2018	*(NYC_Monthly_Alldata_201805_rev.xls, NYC_Monthly_Alldata_201806_rev.xls, NYC_Monthly_Alldata_201807_rev.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

Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water — **Period: 06/16 To: 08/18**

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
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
7-18	31	0	0.00	0.55
8-18	31	0	0.00	0.00

D.W. Robinson 9/6/18

Reported by: David Robinson, Section Chief, Hawthorne Water Quality Operations 9/5/2018

RAW WATER TURBIDITY
(FAD Requirement)

NYCDEP Division of Watershed Water Quality Operations

Water Systems Operation Report - Catskill/Delaware System

Environmental Protection

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: August, 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)
8/1/18	0.55	0.55	0.50	0.50	0.60	0.55	E180	<1
8/2/18	0.55	0.55	0.55	0.65	0.85	0.60	E60	E4
8/3/18	0.70	0.60	0.55	0.50	0.60	0.55	E200	E1
8/4/18	0.60	0.55	0.55	0.55	0.55	0.55	E220	E2
8/5/18	0.55	0.60	0.60	0.55	0.65	0.60	E80	E2
8/6/18	0.70	0.65	0.65	0.60	0.55	0.60	480	E5
8/7/18	0.65	0.70	0.60	0.60	0.60	0.65	<20	E1
8/8/18	0.70	0.65	0.60	0.65	0.65	1.0	<20	<1
8/9/18	0.65	0.65	0.65	0.65	0.70	0.70	E60	E1
8/10/18	0.75	0.70	0.70	0.60	0.65	0.65	E100	E1
8/11/18	0.70	0.65	0.65	0.60	0.60	0.60	E80	E3
8/12/18	0.55	0.60	0.60	0.70	0.60	0.70	E20	E1
8/13/18	0.70	0.60	0.60	0.60	0.55	0.65	E120	E2
8/14/18	0.80	0.65	0.60	0.65	0.55	0.50	E140	E2
8/15/18	0.65	0.70	0.65	0.65	0.65	0.65	E120	E9
8/16/18	0.70	0.75	0.65	0.65	0.65	0.75	E350	E2
8/17/18	0.90	0.70	0.65	0.60	0.65	0.65	E100	E2
8/18/18	0.75	0.65	0.70	0.70	0.65	0.80	E120	E12
8/19/18	0.65	0.75	0.65	0.65	0.70	0.70	E240	E19*
8/20/18	0.75	0.75	0.65	0.90	0.65	0.70	E100	E9
8/21/18	0.80	0.90	0.80	0.75	1.0	0.70	E100	E5
8/22/18	0.75	0.75	0.70	0.70	0.85	0.80	E60	E3
8/23/18	0.80	0.75	0.75	0.75	0.75	0.95	E150	E4
8/24/18	0.70	0.80	0.80	0.70	0.80	0.75	E150	E3
8/25/18	0.70	0.75	0.75	0.75	0.85	0.85	E40	<1
8/26/18	0.80	0.75	0.90	0.70	0.70	0.85	<20	E1
8/27/18	0.70	0.80	0.70	0.75	0.75	0.75	E20	E1
8/28/18	0.75	0.75	0.70	0.85	0.80	0.90	E60	<1
8/29/18	0.80	0.75	0.75	0.65	0.75	0.80	<20	<1
8/30/18	0.80	0.80	0.70	0.70	0.75	0.85	<20	E3
8/31/18	0.75	0.75	0.70	0.65	0.75	0.70	E40	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: * The sample on 8/19, had an estimated count of 19 fecal coliform/100mL on the original sample. Following lab procedure, it was placed on Na with Mug to confirm the count. The confirmatory result was 22 fecal coliform/100 mL.

D.W. Robinson 9/6/18

Reported by: David Robinson, Section Chief, Hawthorne Water Quality Operations 9/5/2018

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 09/05/201812:49 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: August, 2018

Date/Time	Site	Analytes Affected	Qualifier
8/1/18 09:30	DEL18DT	Fecal Coliform	Bottle damaged. Bottle was leaking from the bottom.
8/1/18 09:30	DEL18DT	Total Coliform	QC blank contamination
8/19/18 08:29	DEL18DT	Fecal Coliform	The sample had an estimated count of 19 fecal coliform/100mL on the original sample. Following lab procedure, it was placed on Na with Mug to confirm the count. The confirmatory result was 22 fecal coliform/100 mL.
8/1/18 09:30	DEL18DT	Total Coliform	Bottle damaged

Analytical Methods

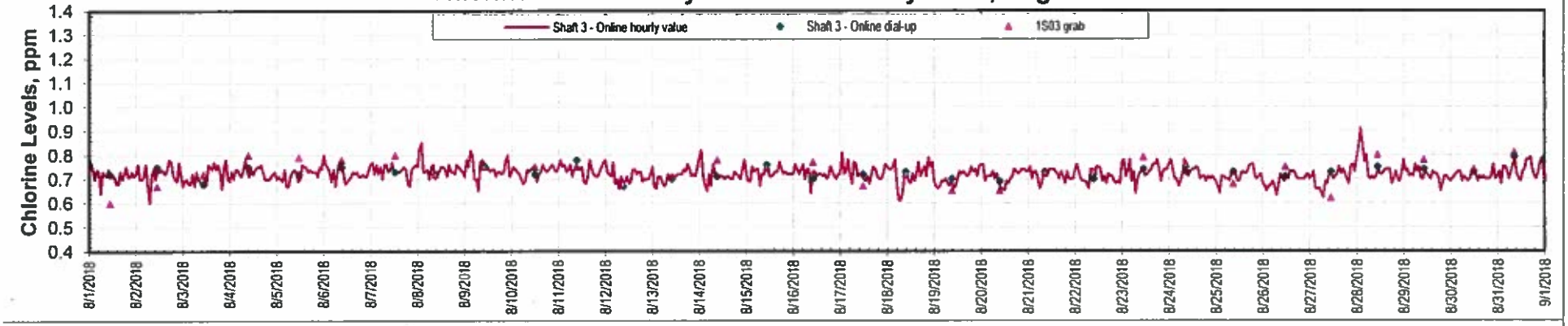
Coliform, Fecal	-	SM 9222D (2006)
Coliform, Total	-	SM 9222B (2006)
Turbidity	-	SM 2130B (01)

ENTRY POINT CHLORINE RESIDUAL
(FAD Requirement)

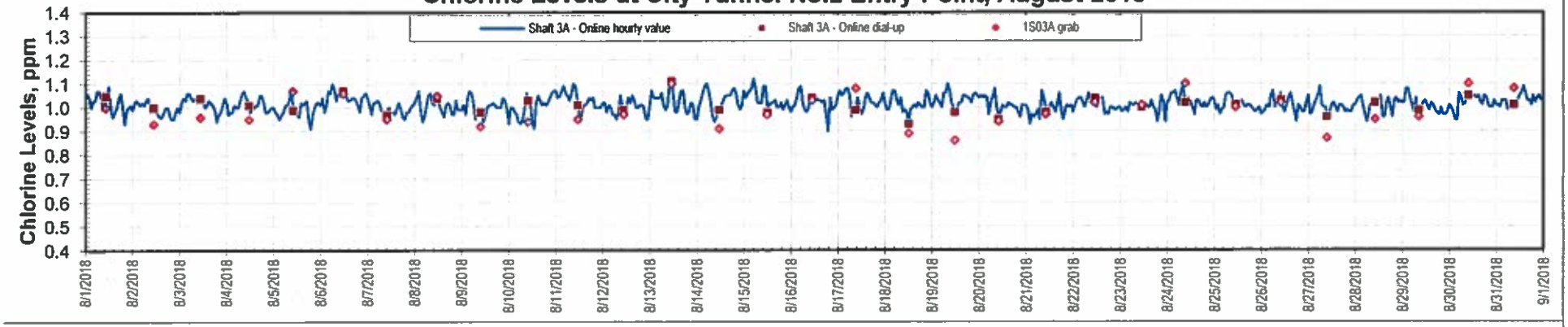
New York City Department of Environmental Protection
Bureau of Water Supply

City Tunnel Entry Point Residual Chlorine Continuous Monitoring Results

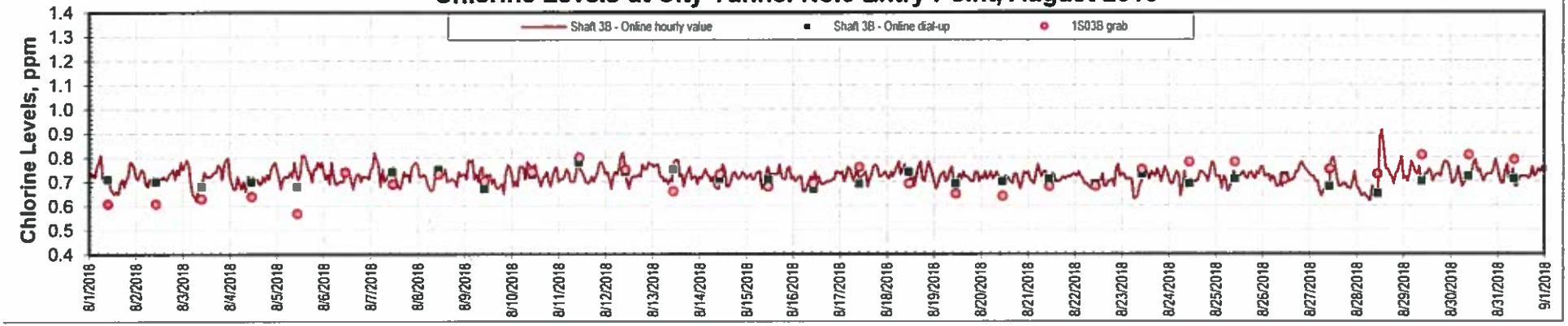
Chlorine Levels at City Tunnel No.1 Entry Point, August 2018



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



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

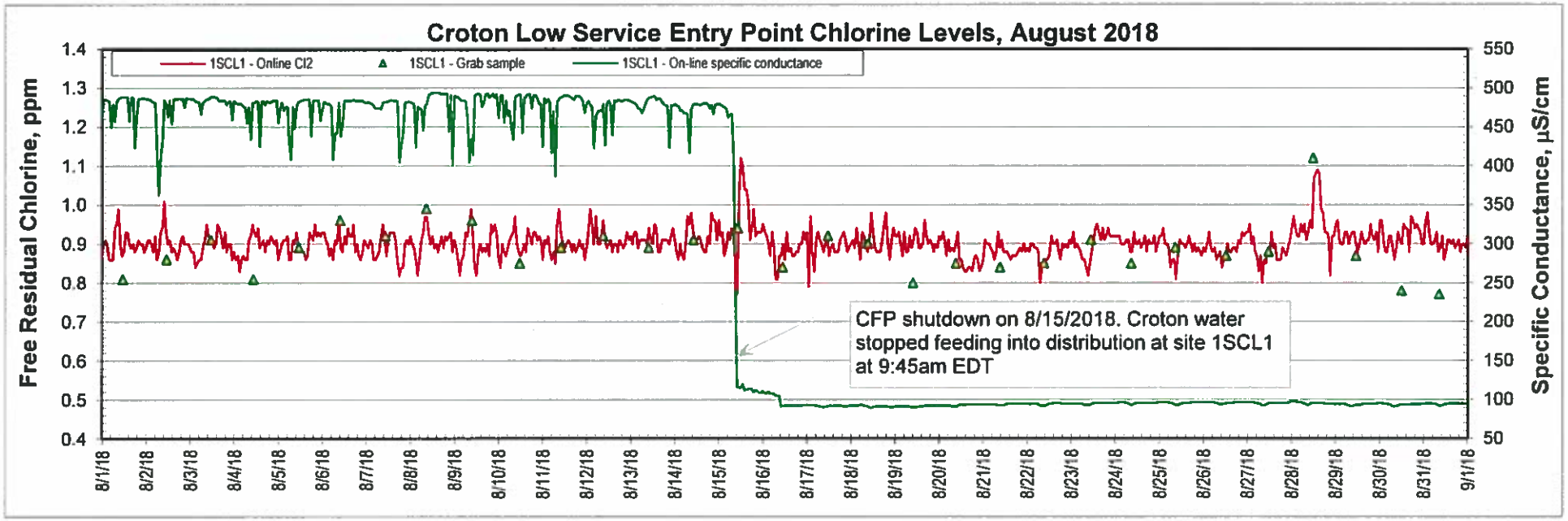


Note: Continuous monitoring of free chlorine residual (FCR) at distribution entry points was maintained. FCR was maintained above 0.2 ppm at all times.
Since 3/11/18, all online readings, grab and online dial-up readings were recorded in Eastern Daylight Saving Time.

New York City Department of Environmental Protection

Bureau of Water Supply

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.

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
08/01/18	0.60		08/01/18	0.92		08/01/18	0.64	
08/02/18	0.58		08/02/18	0.93		08/02/18	0.64	
08/03/18	0.61		08/03/18	0.92		08/03/18	0.63	
08/04/18	0.66		08/04/18	0.96		08/04/18	0.66	
08/05/18	0.65		08/05/18	0.90		08/05/18	0.67	
08/06/18	0.66		08/06/18	0.97		08/06/18	0.66	
08/07/18	0.65		08/07/18	0.95		08/07/18	0.66	
08/08/18	0.67		08/08/18	0.94		08/08/18	0.64	
08/09/18	0.63		08/09/18	0.93		08/09/18	0.64	
08/10/18	0.68		08/10/18	0.88		08/10/18	0.67	
08/11/18	0.67		08/11/18	0.94		08/11/18	0.68	
08/12/18	0.64		08/12/18	0.93		08/12/18	0.65	
08/13/18	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.	08/13/18	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.	08/13/18	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.
08/14/18	0.64		08/14/18	0.94		08/14/18	0.65	
08/15/18	0.59		08/15/18	0.97		08/15/18	0.63	
08/16/18	0.65		08/16/18	0.88		08/16/18	0.65	
08/17/18	0.66		08/17/18	0.94		08/17/18	0.68	
08/18/18	0.60		08/18/18	0.92		08/18/18	0.66	
08/19/18	0.66		08/19/18	0.97		08/19/18	0.65	
08/20/18	0.62		08/20/18	0.95		08/20/18	0.65	
08/21/18	0.63		08/21/18	0.93		08/21/18	0.68	
08/22/18	0.64		08/22/18	0.96		08/22/18	0.64	
08/23/18	0.56		08/23/18	0.94		08/23/18	0.62	
08/24/18	0.66		08/24/18	0.97		08/24/18	0.63	
08/25/18	0.64		08/25/18	0.96		08/25/18	0.65	
08/26/18	0.61		08/26/18	0.93		08/26/18	0.64	
08/27/18	0.57		08/27/18	0.94		08/27/18	0.61	
08/28/18	0.64		08/28/18	0.92		08/28/18	0.60	
08/29/18	0.65		08/29/18	0.94		08/29/18	0.66	
08/30/18	0.67		08/30/18	0.90		08/30/18	0.67	
08/31/18	0.61		08/31/18	0.98		08/31/18	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

Daily Minimum Chlorine Readings Recorded at Croton Distribution Entry Points

Low Service			High Service		
Date	MinCl_1SCL1	Remark 1	Date	MinCl_1SCH3	Remark 2
08/01/18	0.82	Data logger daily minimum value is obtained from the minimum value of all the valid every one minute values collected in one day.	08/01/18		No Croton water to HS
08/02/18	0.84		08/02/18		
08/03/18	0.81		08/03/18		
08/04/18	0.82		08/04/18		
08/05/18	0.84		08/05/18		
08/06/18	0.85		08/06/18		
08/07/18	0.64		08/07/18		
08/08/18	0.80		08/08/18		
08/09/18	0.82		08/09/18		
08/10/18	0.84		08/10/18		
08/11/18	0.82		08/11/18		
08/12/18	0.84		08/12/18		
08/13/18	0.86		08/13/18		
08/14/18	0.85		08/14/18		
08/15/18	0.73	CFP shutdown on 8/15/2018. Croton water stopped feeding into distribution at site 1SCL1 at 9:45am EDT	08/15/18		
08/16/18		No Croton water to LS	08/16/18		
08/17/18			08/17/18		
08/18/18			08/18/18		
08/19/18			08/19/18		
08/20/18			08/20/18		
08/21/18			08/21/18		
08/22/18			08/22/18		
08/23/18			08/23/18		
08/24/18			08/24/18		
08/25/18			08/25/18		
08/26/18			08/26/18		
08/27/18			08/27/18		
08/28/18			08/28/18		
08/29/18			08/29/18		
08/30/18			08/30/18		
08/31/18			08/31/18		

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 μS/cm.

DISTRIBUTION SYSTEM DISINFECTION RESIDUAL
(FAD Requirement)

REPORT

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

Residual Chlorine (mg/L) Distribution Samples

August 2018

All Distribution Sites			
Samples	Min	Max	Average
1393	0.00	1.12	0.58

Hach DPD Method (analyte is not ELAP certified)

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	RESIDUAL CHLORINE	COMMENT
24912	8/17/18	40200	Reg Stop	1.12	Max
25974	8/28/18	1SCL1	Reg Stop	1.12	Max
23547	8/5/18	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.

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)

THIRD QUARTER, 2018

Site	Location	Sample Date	TTHM (µg/L) [a]				HAA5 (µg/L) [b]			
			Analysis Date	Result	LRAA	OEL	Analysis Date	Result	LRAA	OEL
15150	SS - IFO 1420 E/S Grand Concourse, 1st SS S/O E 171st St, 20"	8/7/18	8/7/18	58	37	43	8/9/18	35	38	38
18650	SS - N/S Dewey Ave, btw Quincy & Swinton Aves, 12"	8/7/18	8/7/18	42	29	32	8/14/18	37	35	36
23450	SS - N/S Jefferson Avenue, 2nd SS W/O Lewis Avenue, 20"	8/7/18	8/7/18	54	38	42	8/14/18	34	40	40
24350	SS - W/S Brighton 11th Street, 2nd SS S/O Cass Place, 12"	8/7/18	8/7/18	60	40	46	8/14/18	41	45	44
31750	SS - IFO 427 N/S W 26th St, 2nd SS W/O 9th Ave, 12"	8/7/18	8/7/18	49	43	43	8/14/18	29	39	40
31850	SS - IFO 82 S/S Warren St, 2nd SS E/O Greenwich St, 12"	8/7/18	8/7/18	59	43	47	8/14/18	38	43	43
32350	SS - IFO 116 E/S Ave C, 2nd SS N/O E 7th St, 12"	8/7/18	8/7/18	49	41	42	8/14/18	35	41	42
33450	SS - IFO 135 N/S W 112th St, 2nd SS W/O St Nicholas Ave, 12"	8/7/18	8/7/18	41	38	38	8/14/18	40	43	44
33950	SS - N/S E 104th Street, 2nd SS E/O 3rd Avenue, 12"	8/7/18	8/7/18	39	39	37	8/14/18	39	44	44
37950	SS - IFO 325 N/S E 12th Street, 2nd SS E/O 2nd Ave, 12"	8/7/18	8/7/18	44	41	40	8/14/18	32	41	41
38250	SS - IFO 309 N/S E 87th St, 2nd SS W/O 1st Ave, 12"	8/7/18	8/8/18	43	36	38	8/14/18	41	43	44
39650	SS - IFO 229 N/S E 49th St, 2nd SS W/O 2nd Ave, 12"	8/7/18	8/8/18	35	28	29	8/16/18	41	36	38
44350	SS - IFO 21-55 N/S 34th Ave, 1st SS W/O 24th St, 12"	8/7/18	8/7/18	57	47	49	8/16/18	41	46	47
45250	SS - E/S Beach 58th St, 2nd SS N/O Beach Channel Drive, 12"	8/7/18	8/7/18	43	31	34	8/15/18	40	37	38
50250	SS - IFO 937 N/S Victory Blvd, 2nd SS E/O Highland Ave, 20"	8/7/18	8/8/18	39	30	32	8/15/18	46	41	43
50750	SS - E/S Woodhull Ave, 1st SS S/O Albourne Ave, 8"	8/7/18	8/8/18	51	43	43	8/16/18	36	35	36
50850	SS - IFO 512 W/S Arlene St, 1st SS N/O Dawson Ct, 12"	8/7/18	8/8/18	40	33	34	8/16/18	44	42	43
52050	SS - IFO 218 W/S Nicholas Ave, 1st SS S/O Charles Ave, 12"	8/7/18	8/8/18	38	33	33	8/15/18	48	44	45
58650	SS - IFO 510 W/S Main St, 2nd SS S/O Hylan Blvd, 12"	8/7/18	8/8/18	46	41	40	8/15/18	42	40	41
77650	SS - OPP 110-52 E/S 207th St	8/7/18	8/7/18	42	31	33	8/15/18	37	37	37

TTHM			HAA5
	35	QUARTERLY MINIMUM	29	
	60	QUARTERLY MAXIMUM	48	
	46	QUARTERLY AVERAGE	39	
	37	SYSTEM-WIDE RAA	40	

[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

8/1/2018 to 8/31/2018

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	141	141	2	0	1.4%
Brooklyn	70	199	199	0	0	0.0%
Manhattan	57	176	176	3	0	1.7%
Queens ***	79	239	239	1	1	0.4%
Staten Island	29	87	87	0	0	0.0%
Ground Water Supply ***	-	-	-	-	-	-
Total	281	842	842	6	1	0.7%

* 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: 09/05/18

Director: [signature] Date: 9/6/18

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
8/1/2018 to 8/31/2018

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
8/4/2018	10:59	39950	Manhattan	SS - IFO 601 W/S West End Ave, 1st SS N/O W 89th St, 12"	1.0	<1	0.35	To Be Resampled
8/11/2018	08:46	46150	Queens	SS - IFO 20-23 S/S Seagirt Blvd, 2nd SS W/O Beach 20th St, 12"	1.0	1.0	0.58	To Be Resampled
8/15/2018	09:39	31550	Manhattan	SS - S/S W 18th St, 2nd SS E/O 9th Ave (opposite 329), 12"	1.0	<1	0.04	To Be Resampled
8/18/2018	10:30	18750	Bronx	SS - IFO 4977 W/S Henry Hudson Pkwy, 2nd SS S/O W 252nd St, 20 inch	1.0	<1	0.62	To Be Resampled
8/24/2018	11:04	39750	Manhattan	SS - IFO 321 N/S E 71st St, 2nd SS W/O 1st Ave, 12"	1.0	<1	0.30	To Be Resampled
8/29/2018	08:32	14950	Bronx	SS - N/S E 135th St, 2nd SS W/O Willis Ave, 12 inch	1.0	<1	0.62	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: 09/05/18

Director: Ken Bisnauth Date: 9/6/18

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

8/1/2018 to 8/31/2018

Date	Time	Site Number	Boro	Location	Coliform *	E. coli *	Chlorine Residual (mg/L) **	Remarks
8/6/2018	09:58	39950	Manhattan	SS - W/S West End Ave, 1st SS S/O W 90th St	<1	<1	0.32	Upstream
8/6/2018	10:14	39950	Manhattan	SS - IFO 601 W/S West End Ave, 1st SS N/O W 89th St, 12"	<1	<1	0.33	Original Location
8/6/2018	10:36	39950	Manhattan	SS - W/S West End Ave, btw W 88th St & W 89th Sts	<1	<1	0.34	Downstream
8/13/2018	08:49	46150	Queens	SS - S/S Seagirt Blvd, 1st SS E/O Crest Rd	<1	<1	0.49	Upstream
8/13/2018	09:07	46150	Queens	SS - IFO 20-23 S/S Seagirt Blvd, 2nd SS W/O Beach 20th St, 12"	<1	<1	0.49	Original Location
8/13/2018	09:29	46150	Queens	SS - S/S Seagirt Blvd, 1st SS W/O Beach 20th St	<1	<1	0.50	Downstream
8/17/2018	08:48	31550	Manhattan	SS - S/S W 18th St, 1st SS E/O 9th Ave	<1	<1	0.09	Upstream
8/17/2018	09:03	31550	Manhattan	SS - S/S W 18th St, 2nd SS E/O 9th Ave (opposite 329), 12"	<1	<1	0.09	Original Location
8/17/2018	09:28	31550	Manhattan	S/S - W 18th St, 2nd HT W/O 8th Ave	<1	<1	0.18	Random Check Location due to DSS no water
8/20/2018	08:37	18750	Bronx	SS - W/S Henry Hudson Pkwy, 1st SS N/O W 249th St	<1	<1	0.54	Upstream
8/20/2018	08:51	18750	Bronx	SS - IFO 4977 W/S Henry Hudson Pkwy, 2nd SS S/O W 252nd St, 20 inch	<1	<1	0.49	Original Location
8/20/2018	09:04	18750	Bronx	SS - W/S Henry Hudson Pkwy, 1st SS S/O W 252nd St	<1	<1	0.48	Downstream
8/26/2018	09:07	39750	Manhattan	SS - N/S E 71st St, 1st SS E/O 2nd Ave	<1	<1	0.26	Upstream
8/26/2018	09:21	39750	Manhattan	SS - IFO 321 N/S E 71st St, 2nd SS W/O 1st Ave, 12"	<1	<1	0.34	Original Location
8/26/2018	09:35	39750	Manhattan	SS - N/S E 71st St, 1st SS W/O 1st Ave	<1	<1	0.29	Downstream
8/31/2018	10:32	14950	Bronx	SS - N/S E 135th St, 1st SS E/O Alexander Ave	<1	<1	0.68	Upstream
8/31/2018	10:43	14950	Bronx	SS - N/S E 135th St, 2nd SS W/O Willis Ave, 12 inch	<1	<1	0.68	Original Location
8/31/2018	10:57	14950	Bronx	SS - N/S E 135th St, 1st SS W/O Willis Ave	<1	<1	0.65	Downstream

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

Supervisor: Rupert Agarwal Date: 09/05/18

Director: [signature] Date: 9/6/18

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

8/1/2018 to 8/31/2018

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	141	141	106	1	0	–	0	0.0%
Brooklyn	70	199	199	148	3	0	–	0	0.0%
Manhattan	57	176	176	135	14	0	–	0	0.0%
Queens †	79	239	239	187	31	0	--	0	0.0%
Staten Island	29	87	87	71	15	1	<1	0	0.0%
Ground Water Supply †	-	-	-	-	-	-	–	-	-
Total	281	842	842	647	64	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 Agarwal Date: 09/07/18

Director: Ken Bosco Date: 9/7/18

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

August 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

August 2018

All Distribution Sites			
Samples	Min	Max	Average
1393	<0.10	4.16	0.61

Analytical Method SM 2130 B

SAMPLE NUMBER	SAMPLE DATE	SAMPLE SITE	LOCATION TYPE	TURBIDITY	COMMENT
24586	8/14/18	77050	Reg Stop	4.16	Max
23065	8/1/18	1SCL1	Reg Stop	<0.10	Min
23071	8/1/18	18200	Reg Stop	<0.10	Min
23204	8/2/18	35350	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

August 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	31
Catskill/Delaware 1S03 (Tunnel 1)	7	6	6	6	6	6	5	7	6	7	6	6	7	5	7	6	6	6	6	6	6	6	6	6	6	7	7	6	6	6	6
Catskill/Delaware 1S03A (Tunnel 2)	6	6	6	6	7	6	6	6	6	6	6	6	6	6	6	7	6	7	6	7	6	6	5	7	6	7	7	6	7	6	6
Catskill/Delaware 1S03B (Tunnel 3)	6	6	6	5	7	6	6	6	6	5	6	6	6	6	6	6	6	5	6	7	6	7	6	6	5	7	7	6	6	6	6
Croton System 1SCL1 [a]	4	4	3	4	4	3	4	4	4	4	4	4	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 offline as of 8/15/2018 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	31	5	7	6
Catskill/Delaware 1S03A (Tunnel 2)	31	5	7	6
Catskill/Delaware 1S03B (Tunnel 3)	31	5	7	6
Croton System 1SCL1 [a]	14	3	4	4
Croton System 1SCH3 [a]	-	-	-	-

Supervisor _____ **Date** 09/06/18

Director _____ **Date** 9/6/18

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

August 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	31
Catskill/Delaware 1S03 (Tunnel 1)	0.74	0.74	0.74	0.74	0.74	0.72	0.74	0.72	0.73	0.71	0.72	0.72	0.72	0.73	0.72	0.74	0.75	0.67	0.57	0.65	0.69	0.71	0.71	0.70	0.72	0.73	0.72	0.75	0.73	0.72	0.71
Catskill/Delaware 1S03A (Tunnel 2)	0.74	0.74	0.74	0.74	0.74	0.72	0.73	0.72	0.73	0.71	0.72	0.72	0.72	0.74	0.72	0.74	0.75	<0.30	0.71	0.72	0.72	0.72	0.72	0.71	0.73	0.73	0.72	0.74	0.72	0.70	0.71
Catskill/Delaware 1S03B (Tunnel 3)	0.74	0.74	0.74	0.74	0.73	0.72	0.74	0.72	0.73	0.72	0.72	0.72	0.72	0.74	0.73	0.74	0.75	0.58	0.60	0.67	0.70	0.71	0.71	0.70	0.73	0.74	0.73	0.73	0.72	0.70	0.72
Croton System 1SCL1 [(a)]	0.77	0.77	0.77	0.79	0.73	0.73	0.75	0.76	0.78	0.77	0.75	0.79	0.76	0.79	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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 offline as of 8/15/2018 at 1SCL1.

Entry Point	Samples	Minimum	Maximum	Average
Catskill/Delaware 1S03 (Tunnel 1)	31	0.57	0.75	0.72
Catskill/Delaware 1S03A (Tunnel 2)	31	<0.30	0.75	0.71
Catskill/Delaware 1S03B (Tunnel 3)	31	0.58	0.75	0.72
Croton System 1SCL1 [(a)]	14	0.73	0.79	0.76
Croton System 1SCH3 [(a)]	-	-	-	-

Supervisor _____ **Date** 09/06/18

Director _____ **Date** 9/6/18