Environmental Protection

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*Commissioner*

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May 10, 2019

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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 April 2019**

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

Enclosed, please find the New York City Water Quality report for the month of **April 2019**. There was no well pumpage to distribution in the Groundwater System this month. Croton water fed into distribution from April 29, 2019 through April 30, 2019. 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 November 1, 2018 to April 30, 2019. 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. The highest reported turbidity value was 0.8 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 0.46 mg/L, 1S03A (Tunnel 2) was 0.69 mg/L, and 1S03B (Tunnel 3) was 0.43 mg/L for the Catskill/Delaware System. The the online chlorine instrument at 1S03B recorded a minimum value of 0.23 ppm on 4/21/19 which was an artificial value resulting from increased pH caused by a five (5) minute phosphate feed shutdown during vacuum feeder testing which affects the chlorine analysis. When omitting this, the 4/21/19 minimum chlorine value at 1S03B was 0.56 ppm.

The Croton Filtration Plant was online and continuously feeding the Croton Low Service entry point from April 29, 2019 at 8:20 EDT through April 30, 2019. The Croton High Service entry point was online from April 30th, 2019 at 11:59 AM EDT to May 1st, 2019 at 12:10 AM EDT. The minimum daily free chlorine residual value for Croton entry point readings from sites 1SCL1 (Low Service) was 0.44 mg/L and 1SCH3 (High Service) was 0.65 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 0.04 mg/L except one sample that equaled 0.00 mg/L.

A total of 1321 distribution samples were tested for free chlorine residual this month. For all distribution sites free chlorine residual ranged from 0.00 mg/L to 1.01 mg/L and averaged 0.47 mg/L for the month.

**5. *Trihalomethane Monitoring / HAA5 Monitoring* (Section 141.71(b)(6)):**
**Requirements met.** The results for the first quarter of 2019 were included in the report dated March 11, 2019 (For the February 2019 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 795 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, all samples were negative for total coliform and *E. coli*.

## 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 526 distribution Operational samples resulted in no samples testing positive for total coliform. No *E. coli* were detected.

The analyses of 239 Pre-Finished samples resulted in two (2) samples testing positive for total coliform. No *E. coli* were detected

The analyses of 478 Autosampler Pre-finished samples resulted in seventeen (17) samples testing positive for total coliform. No *E. coli* were detected.

**8. *Distribution Turbidity Monitoring:***
For distribution sites turbidity ranged from 0.11 to 1.13 NTU and averaged 0.67 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 (92 samples in total), produced monthly average color values of six (6) units for site 1S03 (Tunnel 1), seven (7) units for sites 1S03A (Tunnel 2), six (6) units for site 1S03B (Tunnel 3), and four (4) units for site 1SCL1 (Croton Low Service).

**10.** ***Volatile Organic/TTHM/HAA5 Monitoring:***
**Monthly Results:** Twenty (22) distribution and three (3) entry point samples were collected for volatile organic contaminant (VOC) analysis. All VOC samples from distribution sites and entry points were below detection. Twenty (22) TTHM distribution samples were collected ranging from 13 µg/L to 33 µg/L. Three (3) TTHM entry point samples were collected ranging from 12 µg/L to 22 µg/L. Twenty (22) HAA5 distribution samples were collected ranging from 24 µg/L to 42 µg/L. Three (3) HAA5 entry point samples were collected ranging from 24 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 April 08, 2019 at the three (3) 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 (92 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 0.65 mg/L 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 results for EPA Method 530 at Tunnel 1 Shaft 7, from the fourth quarter monitoring for UCMR4 Additional Chemicals, were all below detection. This concludes DEP's monitoring for UCMR4. Contract laboratory reports of available data are included as pdfs on the disc of electronic files enclosed with this report.

**14.** ***Other Monitoring:***
Sampling for Taste and Odor (T&O) compounds Geosmin and 2-Methylisoborneol (MIB) was conducted in April on 68 Croton water samples at New Croton Reservoir and Jerome Park Reservoir. Results for Geosmin ranged from ND to 6.6 ng/L. All results for MIB 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,

Salome Freud 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.*
*D. Mulvihill*
*W. Melendez, P.E.*
*L. Occhiuto*
*A. Reaves*
*S. Riviere*
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*D. Warne*
*M. Warne*
*V. Xu*

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# *RAW WATER FECAL COLIFORM CONCENTRATIONS*

*(FAD Requirement)*

# NYCDEP Division of Watershed Water Quality Operations

## Catskill/Delaware System Raw Water Fecal Coliform Compliance Report

Environmental Protection

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

Deputy Chief: David Robinson
914-345-4973

**Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water** **Period: 02/17 To: 04/19**

| 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 |
|---|---|---|---|---|
| 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 |
| 10-18 | 31 | 2 | 6.45 | 2.17 |
| 11-18 | 30 | 0 | 0.00 | 2.19 |
| 12-18 | 31 | 0 | 0.00 | 2.17 |
| 1-19 | 31 | 0 | 0.00 | 2.17 |
| 2-19 | 28 | 0 | 0.00 | 2.21 |
| 3-19 | 31 | 0 | 0.00 | 1.10 |
| 4-19 | 30 | 0 | 0.00 | 0.00 |

J.W. Robinson 5/3/19

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 5/2/2019

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 Printed on 05/02/2019 2:37 pm

# *RAW WATER TURBIDITY*

*(FAD Requirement)*

# NYCDEP Division of Watershed Water Quality Operations

## Water Systems Operation Report - Catskill/Delaware System

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

Deputy Chief: David Robinson
914-345-4973

**Catskill/Delaware Public Water System at Shaft 18 (DEL18DT) - Raw Water** — **Period: April, 2019**

| 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) |
|---|---|---|---|---|---|---|---|---|
| 4/1/19 | 0.75 | 0.75 | 0.70 | 0.70 | 0.75 | 0.65 | E1 | <1 |
| 4/2/19 | 0.70 | 0.65 | 0.70 | 0.70 | 0.75 | 0.70 | <1 | <1 |
| 4/3/19 | 0.70 | 0.65 | 0.70 | 0.65 | 0.70 | 0.70 | E1 | <1 |
| 4/4/19 | 0.70 | 0.65 | 0.70 | 0.80 | 0.75 | 0.70 | <1 | <1 |
| 4/5/19 | 0.65 | 0.65 | 0.70 | 0.65 | 0.65 | 0.65 | E3 | <1 |
| 4/6/19 | 0.60 | 0.65 | 0.70 | 0.65 | 0.55 | 0.70 | E1 | E1 |
| 4/7/19 | 0.70 | 0.70 | 0.75 | 0.65 | 0.60 | 0.65 | E1 | <1 |
| 4/8/19 | 0.70 | 0.60 | 0.65 | 0.65 | 0.60 | 0.65 | <1 | <1 |
| 4/9/19 | 0.60 | 0.65 | 0.60 | 0.65 | 0.60 | 0.65 | E1 | <1 |
| 4/10/19 | 0.60 | 0.60 | 0.65 | 0.55 | 0.55 | 0.55 | E2 | <1 |
| 4/11/19 | 0.60 | 0.55 | 0.65 | 0.60 | 0.60 | 0.80 | E2 | E1 |
| 4/12/19 | 0.65 | 0.60 | 0.65 | 0.65 | 0.65 | 0.65 | E1 | E1 |
| 4/13/19 | 0.60 | 0.60 | 0.55 | 0.65 | 0.65 | 0.70 | E2 | <1 |
| 4/14/19 | 0.70 | 0.65 | 0.60 | 0.65 | 0.70 | 0.60 | E2 | <1 |
| 4/15/19 | 0.65 | 0.60 | 0.60 | 0.60 | 0.60 | 0.55 | <1 | <1 |
| 4/16/19 | 0.55 | 0.55 | 0.55 | 0.65 | 0.70 | 0.60 | E10 | <1 |
| 4/17/19 | 0.65 | 0.55 | 0.60 | 0.60 | 0.65 | 0.65 | E3 | <1 |
| 4/18/19 | 0.60 | 0.55 | 0.60 | 0.60 | 0.70 | 0.65 | E3 | <1 |
| 4/19/19 | 0.60 | 0.65 | 0.55 | 0.60 | 0.60 | 0.60 | E5 | <1 |
| 4/20/19 | 0.65 | 0.55 | 0.65 | 0.65 | 0.60 | 0.60 | E4 | E1 |
| 4/21/19 | 0.60 | 0.60 | 0.75 | 0.55 | 0.60 | 0.55 | E9 | E2 |
| 4/22/19 | 0.70 | 0.70 | 0.60 | 0.60 | 0.65 | 0.65 | E7 | <1 |
| 4/23/19 | 0.65 | 0.60 | 0.60 | 0.75 | 0.65 | 0.55 | E11 | <1 |
| 4/24/19 | 0.60 | 0.60 | 0.65 | 0.65 | 0.65 | 0.70 | E7 | <1 |
| 4/25/19 | 0.65 | 0.65 | 0.60 | 0.60 | 0.60 | 0.55 | E3 | <1 |
| 4/26/19 | 0.60 | 0.60 | 0.65 | 0.65 | 0.65 | 0.65 | E4 | <1 |
| 4/27/19 | 0.60 | 0.55 | 0.65 | 0.60 | 0.70 | 0.60 | E3 | <1 |
| 4/28/19 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | 0.70 | E5 | E2 |
| 4/29/19 | 0.70 | 0.65 | 0.75 | 0.65 | 0.80 | 0.75 | E6 | E1 |
| 4/30/19 | 0.80 | 0.80 | 0.75 | 0.75 | 0.75 | 0.75 | E8 | 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:

D W Robinson 5/3/19

Reported by: David Robinson, Deputy Chief, Hawthorne Water Quality Operations 5/2/2019

All results that fail 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.

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# NYCDEP Division of Watershed Water Quality Operations

## Water Systems Operation Report - Qualifiers and Methods Addendum

Environmental Protection

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

Deputy Chief: David Robinson
914-345-4973

### Data Qualifiers and Additional Notes

Period: April, 2019

| Date/Time | Site | Analytes Affected | Qualifier |
|---|---|---|---|
| 4/7/19 08:10 | DEL18DT | Total Coliform | Total coliforms over incubated by 26 minutes |

### Analytical Methods

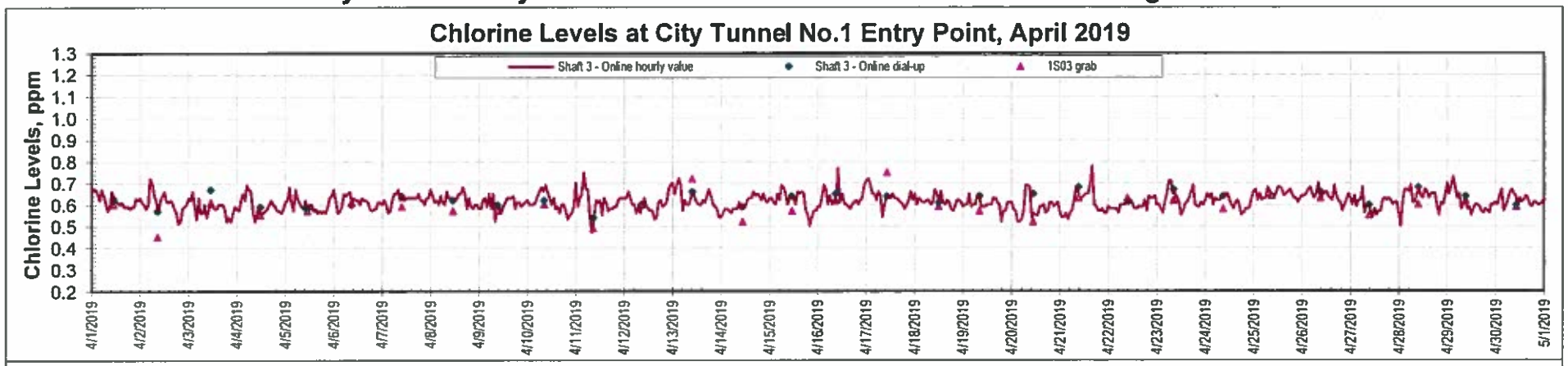
| | | |
|---|---|---|
| Coliform, Fecal | - | SM 9222D (2006) |
| Coliform, Total | - | SM 9222B (2006) |
| Turbidity | - | SM 2130B (01) |

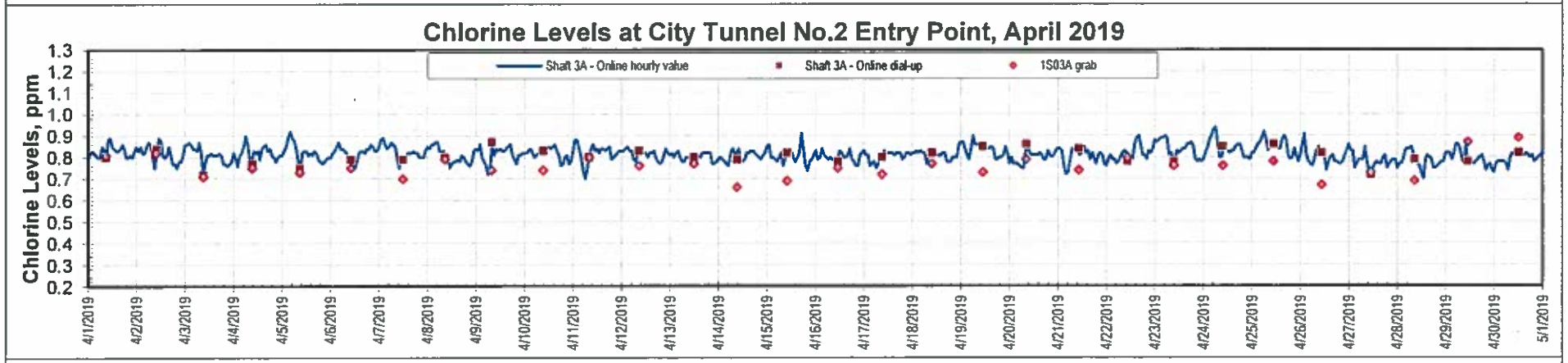
# *ENTRY POINT CHLORINE RESIDUAL*

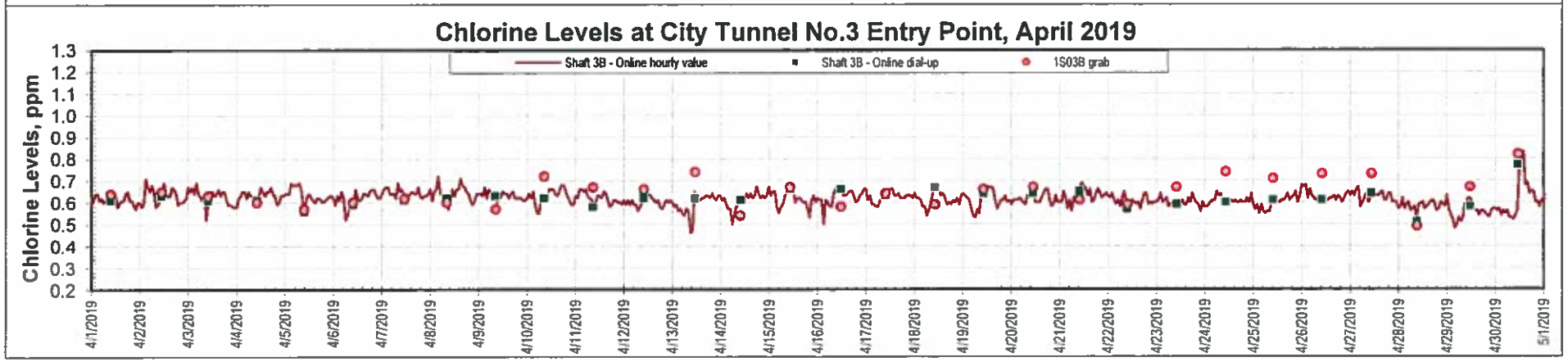
*(FAD Requirement)*

**New York City Department of Environmental Protection**
**Bureau of Water Supply**

# City Tunnel Entry Point Residual Chlorine Continuous Monitoring Results




Note: Continuous monitoring of free chlorine residual (FCR) at distribution entry points was maintained. FCR was maintained above 0.2 ppm at all times. Since 3/10/19, 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

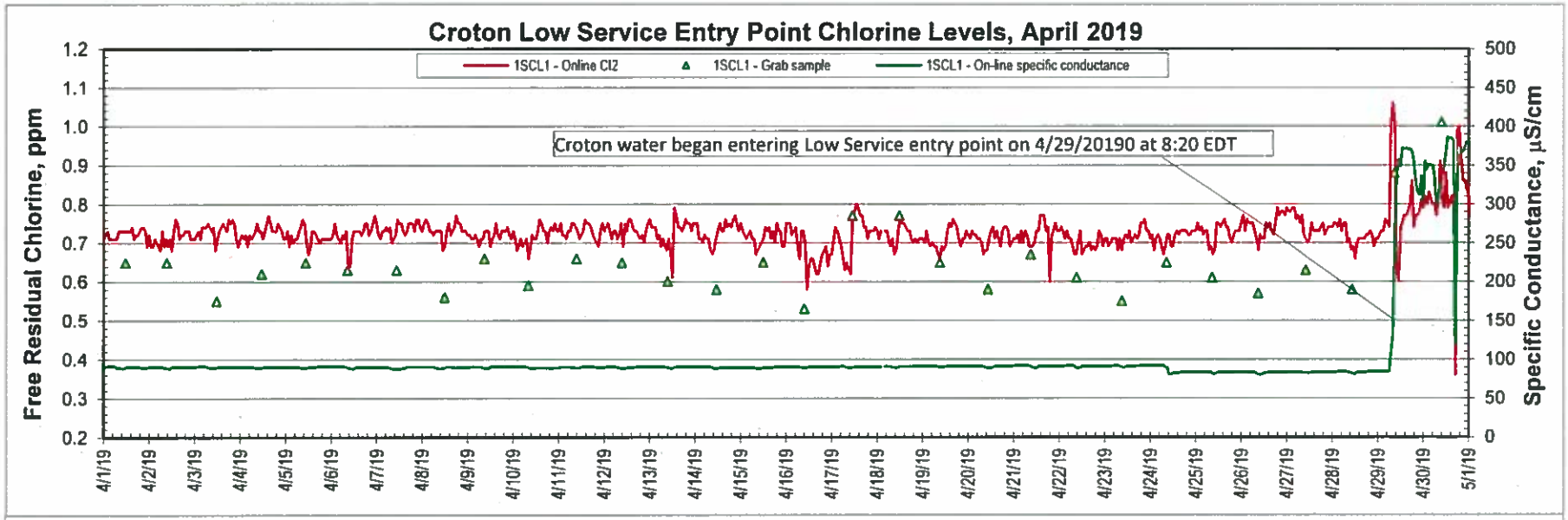
## Daily Minimum Chlorine Readings Recorded at Tunnel Entry Shafts for Catskill/Delaware System

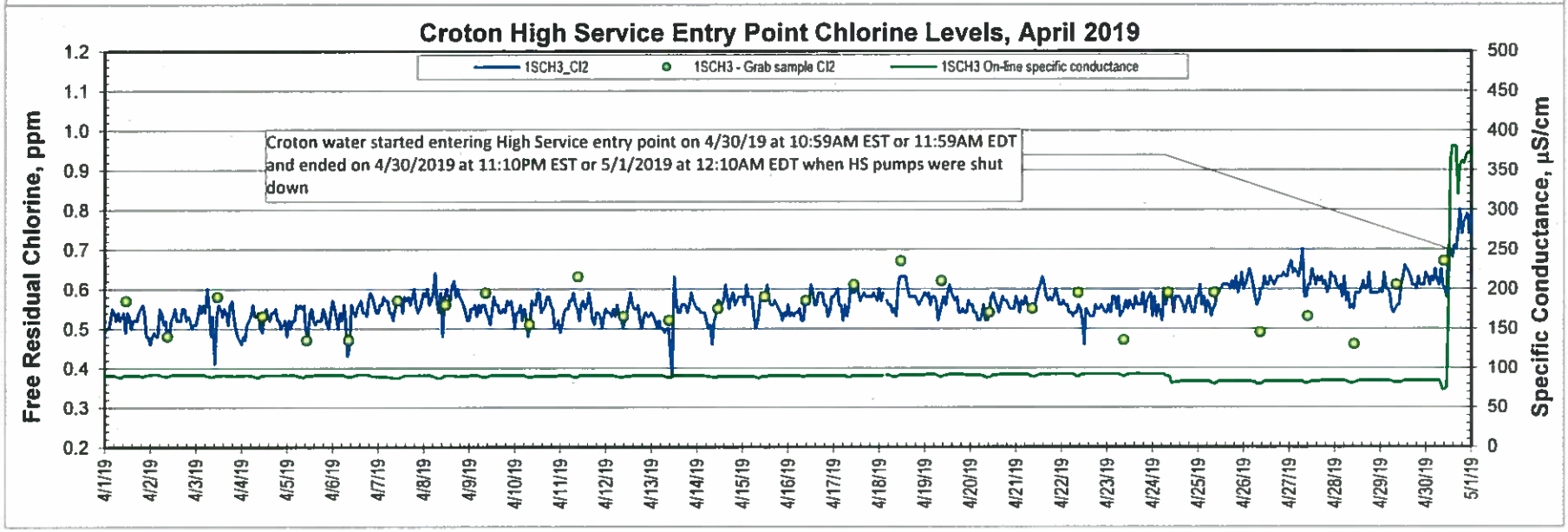
| Tunnel No.1 (Catskill) at Shaft 3 | | | Tunnel No.2 (Delaware) at Shaft 3A | | | Tunnel No.3 (Cat/Del) at Shaft 3B | | |
|---|---|---|---|---|---|---|---|---|
| Date | MinCl_1DL | Remark 1 | Date | MinCl_2DL | Remark 2 | Date | MinCl_3DL | Remark 3 |
| 04/01/19 | 0.52 | | 04/01/19 | 0.79 | | 04/01/19 | 0.55 | |
| 04/02/19 | 0.50 | | 04/02/19 | 0.73 | | 04/02/19 | 0.55 | |
| 04/03/19 | 0.48 | | 04/03/19 | 0.71 | | 04/03/19 | 0.51 | |
| 04/04/19 | 0.46 | | 04/04/19 | 0.75 | | 04/04/19 | 0.57 | |
| 04/05/19 | 0.54 | | 04/05/19 | 0.74 | | 04/05/19 | 0.54 | |
| 04/06/19 | 0.56 | | 04/06/19 | 0.74 | | 04/06/19 | 0.52 | |
| 04/07/19 | 0.54 | | 04/07/19 | 0.74 | | 04/07/19 | 0.59 | |
| 04/08/19 | 0.51 | | 04/08/19 | 0.74 | | 04/08/19 | 0.54 | |
| 04/09/19 | 0.50 | | 04/09/19 | 0.71 | | 04/09/19 | 0.57 | |
| 04/10/19 | 0.50 | | 04/10/19 | 0.74 | | 04/10/19 | 0.54 | |
| 04/11/19 | 0.47 | | 04/11/19 | 0.69 | | 04/11/19 | 0.57 | |
| 04/12/19 | 0.50 | | 04/12/19 | 0.76 | | 04/12/19 | 0.55 | |
| 04/13/19 | 0.52 | | 04/13/19 | 0.76 | | 04/13/19 | 0.44 | |
| 04/14/19 | 0.52 | | 04/14/19 | 0.75 | | 04/14/19 | 0.50 | |
| 04/15/19 | 0.47 | | 04/15/19 | 0.71 | | 04/15/19 | 0.52 | |
| 04/16/19 | 0.46 | | 04/16/19 | 0.75 | | 04/16/19 | 0.47 | |
| 04/17/19 | 0.53 | | 04/17/19 | 0.72 | | 04/17/19 | 0.57 | |
| 04/18/19 | 0.53 | | 04/18/19 | 0.77 | | 04/18/19 | 0.52 | |
| 04/19/19 | 0.50 | | 04/19/19 | 0.77 | | 04/19/19 | 0.51 | |
| 04/20/19 | 0.50 | | 04/20/19 | 0.74 | | 04/20/19 | 0.58 | |
| 04/21/19 | 0.53 | | 04/21/19 | 0.70 | | 04/21/19 | 0.23 | |
| 04/22/19 | 0.55 | | 04/22/19 | 0.77 | | 04/22/19 | 0.43 | |
| 04/23/19 | 0.54 | | 04/23/19 | 0.77 | | 04/23/19 | 0.55 | |
| 04/24/19 | 0.50 | | 04/24/19 | 0.78 | | 04/24/19 | 0.55 | |
| 04/25/19 | 0.59 | | 04/25/19 | 0.75 | | 04/25/19 | 0.54 | |
| 04/26/19 | 0.57 | | 04/26/19 | 0.73 | | 04/26/19 | 0.59 | |
| 04/27/19 | 0.54 | | 04/27/19 | 0.71 | | 04/27/19 | 0.57 | |
| 04/28/19 | 0.53 | | 04/28/19 | 0.70 | | 04/28/19 | 0.50 | |
| 04/29/19 | 0.54 | | 04/29/19 | 0.72 | | 04/29/19 | 0.48 | |
| 04/30/19 | 0.56 | | 04/30/19 | 0.74 | | 04/30/19 | 0.50 | |

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

New York City Department of Environmental Protection
Bureau of Water Supply

# Croton Distribution Entry Point Residual Chlorine Continuous Monitoring Results




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 3/10/19, 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 |
| 04/01/19 | | No Croton water. | 04/01/19 | | No Croton water. |
| 04/02/19 | | | 04/02/19 | | |
| 04/03/19 | | | 04/03/19 | | |
| 04/04/19 | | | 04/04/19 | | |
| 04/05/19 | | | 04/05/19 | | |
| 04/06/19 | | | 04/06/19 | | |
| 04/07/19 | | | 04/07/19 | | |
| 04/08/19 | | | 04/08/19 | | |
| 04/09/19 | | | 04/09/19 | | |
| 04/10/19 | | | 04/10/19 | | |
| 04/11/19 | | | 04/11/19 | | |
| 04/12/19 | | | 04/12/19 | | |
| 04/13/19 | | | 04/13/19 | | |
| 04/14/19 | | | 04/14/19 | | |
| 04/15/19 | | | 04/15/19 | | |
| 04/16/19 | | | 04/16/19 | | |
| 04/17/19 | | | 04/17/19 | | |
| 04/18/19 | | | 04/18/19 | | |
| 04/19/19 | | | 04/19/19 | | |
| 04/20/19 | | | 04/20/19 | | |
| 04/21/19 | | | 04/21/19 | | |
| 04/22/19 | | | 04/22/19 | | |
| 04/23/19 | | | 04/23/19 | | |
| 04/24/19 | | | 04/24/19 | | |
| 04/25/19 | | | 04/25/19 | | |
| 04/26/19 | | | 04/26/19 | | |
| 04/27/19 | | | 04/27/19 | | |
| 04/28/19 | | | 04/28/19 | | |
| 04/29/19 | 0.56 | | 04/29/19 | | |
| 04/30/19 | 0.44 | | 04/30/19 | 0.65 | |

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

Note: Croton water fed to High Service time period was determined by specific conductance greater than 150 uS/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

### April 2019

| All Distribution Sites | | | |
|---|---|---|---|
| Samples | Min | Max | Average |
| 1321 | 0.00 | 1.01 | 0.47 |

Hach DPD Method (analyte is not ELAP certified)

| SAMPLE NUMBER | SAMPLE DATE | SAMPLE SITE | LOCATION TYPE | RESIDUAL CHLORINE | COMMENT |
|---|---|---|---|---|---|
| 12149 | 4/30/19 | 1SCL1 | Reg Stop | 1.01 | Max |
| 11200 | 4/20/19 | 79150 | Reg Stop | 0.00 | Min |

A FCR is to be maintained at representative points in the distribution system and no more than 5% of the samples can be undetectable in any two months.

# *TOTAL COLIFORM MONITORING*

*(FAD Requirement)*

REPORT

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

## Summary of Results for Microbiological Quality Compliance Samples

4/1/2019 to 4/30/2019

| 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 | 130 | 130 | 0 | 0 | 0.0% |
| Brooklyn | 70 | 194 | 194 | 0 | 0 | 0.0% |
| Manhattan | 57 | 164 | 164 | 0 | 0 | 0.0% |
| Queens *** | 79 | 226 | 226 | 0 | 0 | 0.0% |
| Staten Island | 28 | 81 | 81 | 0 | 0 | 0.0% |
| Ground Water Supply *** | - | - | - | - | - | - |
| Total | 280 | 795 | 795 | 0 | 0 | 0.0% |

* 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 Agarwal Date: 05/06/19

Director: [illegible] Date: 5/7/19

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

4/1/2019 to 4/30/2019

| Date | Time | Site Number | Boro | Location | Coliform * | E. coli * | Chlorine Residual (mg/L) ** | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | No positive sample this month. | | | | |

* 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: [signature] Date: 05/06/19

Director: [signature] Date: 5/7/19

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

4/1/2019 to 4/30/2019

| Date | Time | Site Number | Boro | Location | Coliform * | E. coli * | Chlorine Residual (mg/L) ** | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | | | No positive sample this month. | | | | |

* 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: Rupe Aggarwal Date: 05/06/19

Director: [illegible] Date: 5/7/19

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

4/1/2019 to 4/30/2019

| 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 | 130 | 130 | 95 | 0 | 0 | – | 0 | 0.0% |
| Brooklyn | 70 | 194 | 194 | 142 | 3 | 0 | – | 0 | 0.0% |
| Manhattan | 57 | 164 | 164 | 119 | 4 | 0 | – | 0 | 0.0% |
| Queens † | 79 | 226 | 226 | 168 | 22 | 1 | <1 | 0 | 0.0% |
| Staten Island | 28 | 81 | 81 | 58 | 10 | 0 | – | 0 | 0.0% |
| Ground Water Supply † | - | - | - | - | - | - | – | - | - |
| Total | 280 | 795 | 795 | 582 | 39 | 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: 05/06/19

Director: [illegible] Date: 5/7/19

# *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

April 2019

| 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

### April 2019

| All Distribution Sites | | | |
|---|---|---|---|
| Samples | Min | Max | Average |
| 1321 | 0.11 | 1.13 | 0.67 |

Analytical Method SM 2130 B

| SAMPLE NUMBER | SAMPLE DATE | SAMPLE SITE | LOCATION TYPE | TURBIDITY | COMMENT |
|---|---|---|---|---|---|
| 11973 | 4/28/19 | 11450 | Reg Stop | 1.13 | Max |
| 9392 | 4/3/19 | 34050 | Reg Stop | 0.11 | 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

### April 2019

| 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 | 6 | 6 | 5 | 6 | 5 | 7 | 7 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 6 | 6 | 6 | 7 | 6 | 6 | 7 |
| Catskill/Delaware 1S03A (Tunnel 2) | 7 | 7 | 6 | 6 | 7 | 6 | 5 | 7 | 6 | 6 | 6 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 7 | 6 | 7 | 6 | 7 | 7 | 6 | 7 | 7 | 7 | 6 | 7 |
| Catskill/Delaware 1S03B (Tunnel 3) | 7 | 6 | 6 | 6 | 5 | 6 | 6 | 7 | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 6 | 6 | 7 | 7 | 7 | 7 | 7 |
| Croton System 1SCL1 [a] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 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 4/29/2019 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 | 7 |
| Catskill/Delaware 1S03B (Tunnel 3) | 30 | 5 | 7 | 6 |
| Croton System 1SCL1 [a] | 2 | 4 | 4 | 4 |
| Croton System 1SCH3 [a] | - | - | - | - |

Supervisor _____ Date 05/06/19

Director _____ Date 5/7/19

# *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
### April 2019

| 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) | 0.73 | 0.74 | 0.72 | 0.71 | 0.72 | 0.76 | 0.73 | 0.71 | 0.73 | 0.75 | 0.74 | 0.74 | 0.74 | 0.73 | 0.71 | 0.71 | 0.73 | 0.69 | 0.74 | 0.73 | 0.71 | 0.72 | 0.71 | 0.73 | 0.71 | 0.71 | 0.72 | 0.73 | 0.72 | 0.58 |
| Catskill/Delaware 1S03A (Tunnel 2) | 0.74 | 0.74 | 0.72 | 0.72 | 0.72 | 0.76 | 0.73 | 0.72 | 0.73 | 0.75 | 0.72 | 0.74 | 0.74 | 0.73 | 0.72 | 0.71 | 0.73 | 0.70 | 0.74 | 0.73 | 0.72 | 0.72 | 0.72 | 0.74 | 0.71 | 0.72 | 0.73 | 0.72 | 0.71 | 0.70 |
| Catskill/Delaware 1S03B (Tunnel 3) | 0.74 | 0.73 | 0.72 | 0.72 | 0.72 | 0.76 | 0.74 | 0.72 | 0.73 | 0.75 | 0.74 | 0.74 | 0.74 | 0.73 | 0.71 | 0.71 | 0.72 | 0.70 | 0.73 | 0.73 | 0.72 | 0.71 | 0.72 | 0.74 | 0.71 | 0.72 | 0.72 | 0.73 | 0.71 | 0.61 |
| Croton System 1SCL1 [a] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 0.60 | 0.71 |
| Croton System 1SCH3 [a] | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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 4/29/2019 at 1SCL1.

| Entry Point | Samples | Minimum | Maximum | Average |
|---|---|---|---|---|
| Catskill/Delaware 1S03 (Tunnel 1) | 30 | 0.58 | 0.76 | 0.72 |
| Catskill/Delaware 1S03A (Tunnel 2) | 30 | 0.70 | 0.76 | 0.72 |
| Catskill/Delaware 1S03B (Tunnel 3) | 30 | 0.61 | 0.76 | 0.72 |
| Croton System 1SCL1 [a] | 2 | 0.60 | 0.71 | 0.65 |
| Croton System 1SCH3 [a] | - | - | - | - |

Supervisor _____ Date 05/06/19

Director _____ Date 5/7/19