CATSKILL AQUEDUCT REPAIR AND REHABILITATION PROJECT

Environmental Justice Public Participation Plan

In support of

Modification of Existing State Pollutant Discharge Elimination System (SPDES) Permit (SPDES No. NY 028 1042; DEC No. 3-9903-00102/00002)

Prepared for:

Prepared by:

Henningson, Durham & Richardson

Architecture and Engineering, P.C.

October 2022

1 Introduction

The New York City's Department of Environmental Protection (DEP) is responsible for supplying clean drinking water to nearly 10 million upstate and in-City customers in sufficient quantity to meet present water demands and maintain the water supply system to meet future water demands. This is achieved through careful and coordinated management of the City's three surface water supply systems: the Catskill, Delaware, and Croton systems. Recognizing the need to protect the long-term viability and overall resilience of the water supply system, the City continues to make systematic and sustained investments in its critical infrastructure.

DEP developed the Water for the Future (WFF) Program to address significant leakage in one of its most critical pieces of water supply infrastructure: the Delaware Aqueduct. WFF involves construction of a bypass tunnel around a leaking section of DEP's Rondout-West Branch Tunnel (RWBT), the upper portion of the City's Delaware Aqueduct.

To support connection of the bypass tunnel to the RWBT, DEP has advanced several components of WFF: the Catskill Aqueduct Repair and Rehabilitation (CAT-RR) project to restore the capacity of the Catskill Aqueduct; a temporary operating protocol for the water supply system before and during the RWBT connection; and the RWBT Inspection and Repair (including decommissioning of the bypassed section). These components collectively comprise the Upstate Water Supply Resiliency (UWSR) Project and are intended to ensure the continued supply of clean drinking water during the RWBT temporary shutdown.

In support of UWSR, a draft environmental impact statement was issued on September 16, 2016. The Notice of Completion of Draft Environmental Impact Statement (CEQR No. 15DEP006U) included links to the online documents, times/locations of four public hearings, a distribution list, and a repository list. Public hearings were held in October 2016, with the public comment period open until November 14, 2016. The final environmental impact statement was issued, with responses to all oral and written comments, with a Notice of Completion of Final Environmental Impact Statement on December 15, 2017. A final Statement of Findings was issued on January 5, 2018.

As part of the CAT-RR project, DEP received a State Pollutant Discharge Elimination System (SPDES) permit from the New York State Department of Environmental Conservation (NYSDEC) for discharges associated with the CAT-RR project on September 1, 2019. The permit allows for discharges to surface or ground waters associated with construction wastewaters, biofilm wash waters, and chlorinated aqueduct waters at numerous locations along the Catskill Aqueduct. DEP has since requested modifications to the original SPDES permit issued on September 1, 2019. A summary of initial permit acquisition and subsequent modifications is listed below:

- September 1, 2019: Initial approval for the discharge of biofilm and construction wastewaters and dechlorinated aqueduct waters.
- December 15, 2020: Modification #1 for the addition of new discharge outfalls at 10 locations along the Catskill Aqueduct that were not captured in original SPDES permit.
- September 9, 2021: Modification #2 for reconfiguration of the fifteen (15) outfall sampling stations so that a representative sampling location can demonstrate compliance with the effluent limits for all of the outfalls associated with "chlorinated aqueduct waters" that are downstream of the representative location. Removal of two discharge points as internal repairs stopped the leak flows at these locations.
- October 7, 2021: Modification #3 revised the flow volume for Outfalls 01A and 078 from gallons per day (gpd) to million gallons per day (mgd) due to technical limitations within NYSDEC's NetDMR program.
- April 27, 2022: Modification #4 added a new treated aqueduct water discharge at the Croton Lake PT Downtake Chamber located in Yorktown, NY.
- Under Review: Modification #5 to include the addition of action levels for chlorine dioxide and chlorite, revision to the total residual chlorine (TRC) permit limit for chlorination to apply only when sodium hypochlorite is used, and the addition of a primary representative sampling point at the Rondout Downtake Chamber (RDC) Weir Vault.

Pursuant to the original SPDES permit, DEP had envisioned the use of sodium hypochlorite and chlorine dioxide in order to reduce biofilm growth in the Catskill Aqueduct. Dependent upon certain operational conditions and/or seasonal requirements, the intent was to use a combination of these two chemicals, separately, to achieve target chemical concentrations within the Aqueduct. Sodium hypochlorite was originally considered the primary chemical with the use of chlorine dioxide on a much more limited basis. Since that time, DEP has made a commitment to the use of chlorine dioxide for required biofilm control. When the original permit was issued in 2019, permit limits were established for the monitoring of TRC when chemical addition would occur. This was based upon the initial intent that sodium hypochlorite would serve as the primary chemical. TRC is routinely established as a permit parameter in SPDES permits where chlorination through the addition of sodium hypochlorite is used. Likewise, it was originally envisioned that with the use of sodium hypochlorite, dechlorination of releases from the Aqueduct (e.g., leaks or direct discharges to surface waters) would also be required. As noted in the original application, the use of granular activated carbon (GAC) beds or sodium bisulfite were proposed to achieve the dechlorination.

With the shift to chlorine dioxide to control biofilm, TRC is no longer a representative permit parameter and the need for active dechlorination is likewise no longer appropriate.

DEP therefore requested a modification of its current permit to address the intended use of chlorine dioxide for the chlorination of aqueduct waters.

In addition, as part of the current request for permit modification, DEP advised the NYSDEC of an alternative representative sampling point. DEP had previously included the High Falls Meter Pit (HMPT) as a representative sampling point. The HMPT is a representative sampling point for Outfalls 013, 014, 015 and those outfalls downstream of this location (i.e., Outfalls 017, 020, 064, 067, 096, 102, 113, 114, 115, and 116). However, access to the HMPT is difficult because the site is not on DEP property and sampling set up and related safety is challenging. DEP is therefore proposing the addition of an alternative representative sampling point at the Rondout Downtake Chamber (RDC) Weir Vault. The Weir Vault is on DEP property, and the available space for safe sampling set up is more accommodating, especially on short notice. The HMPT and the RDC Weir Vault are both located a short distance from one another, so no substantive change related to the purpose of sampling at either location is anticipated. This public participation plan (PPP) focuses on those local communities potentially affected by the modification of the current SPDES permit, aims to inform interested stakeholders about the permit modification, and provides outreach, public participation, and involvement opportunities as part of the NYSDEC process for the review of and issuance of the permit modification.

1.1 Role of Public Participation in the Permit Review Process

The NYSDEC issued *Commissioner Policy 29 - Environmental Justice and Permitting* (CP-29) to address environmental justice concerns and ensure community participation in the NYSDEC environmental permit review process. CP-29 requires applicants for permits covered by CP-29 to actively seek public participation throughout the environmental review process. Public participation provides opportunities for stakeholders to be informed about, and involved in, the review of a proposed action under the CP-29 process, which in this case is the modification of an existing SPDES permit. Public participation includes open and effective dialogue with stakeholders and can help develop and promote actions that minimize impacts on the surrounding community and the environment as a whole. Under CP-29, Section V.A.1.i, major permits and major modifications including those associated with Title 7 and 8 of Article 17, SPDES, as implemented by 6 NYCRR Part 750 et seq., are subject to the implementation of a public participation plan. The current DEP SPDES permit and the proposed modification (see summary discussed above) require this public participation plan pursuant to CP-29 Section V.A.1.i.

Further, CP-29 requires that where a potential environmental justice area is identified, the applicant shall submit a written Public Participation Plan (PPP) as part of its permit application and/or request for permit modification. As part of the current request for permit modification and to fulfill NYSDEC permitting requirements for the use of chlorine dioxide for the chlorination of aqueduct waters and discharge to surface and ground waters, this PPP has been prepared to engage stakeholders within the potential environmental justice areas in High Falls and Montgomery described in Section 1.2.1 below. Four (4) public informational meetings will be held as part of this permit modification process.

1.2 Public Participation Plan

The PPP for this permit modification includes those activities that will be undertaken by DEP to inform stakeholders about the project and the permit modification being sought from NYSDEC. This will provide stakeholders with access to information about the discharge of chlorinated aqueduct waters and will seek to engage the stakeholders in an open dialogue.

1.2.1 Identify Potential Environmental Justice Areas

Based on the environmental justice analysis completed in support of this SPDES permit modification, four (4) discharge locations would be located within potential environmental justice areas (PEJA). These four (4) discharge locations fall within two (2) distinct PEJA communities. Discharges associated with Outfalls 013, 014, and 015 are located in the hamlet of High Falls, Town of Marbletown, Ulster County, NY (see Figure 1). Discharges associated with Outfall 096, located in the Town of Montgomery, Orange County, NY (see Figure 2), are included in this PPP, as well.

Based on consultation with NYSDEC, this PPP has been prepared to ensure that public outreach will be conducted and targeted to PEJA stakeholders within applicable geographic areas in proximity to the four outfalls. Since the permit modification includes the discharge of chlorinated aqueduct water to surface waters in the identified PEJA communities, the applicable geographic areas (i.e., those areas close to the discharge) were defined as follows. Each applicable geographic area encompasses a reach within the surface water that extends one-mile downstream of the discharge location. In addition, each applicable geographic area includes an ¼-mile buffer as measured from the discharge locations, as well as a ¼-mile buffer on either side of the one-mile downstream reach. See Figures 1 and 2 below for the location of the outfalls (represented by blue squares); the one-mile reaches (represented by the red line); and the ¼-mile buffers (dashed black lines). The figures also show block group and census tract boundaries, legislative districts, and prominent community facilities.

1.2.2 Identify Stakeholders and Create a Contact List

Stakeholders in the two applicable geographic areas have been identified. Figures 1 and 2 outline the applicable geographic areas which define the stakeholder focus and are outlined as follows:

- Property owners adjacent to the one-mile downstream reach of each surface water from the outfall discharge locations;
- Religious establishments, community centers, schools, and camps within the ¼-mile buffers of the downstream reaches and outfall discharge locations;
- Elected officials including municipal, county, State, and federal officials; and
- Community-based organizations, local business groups, and other community resident groups, if any, in the applicable geographic areas. See Appendix A for the full stakeholder list for the two (2) applicable geographical areas.

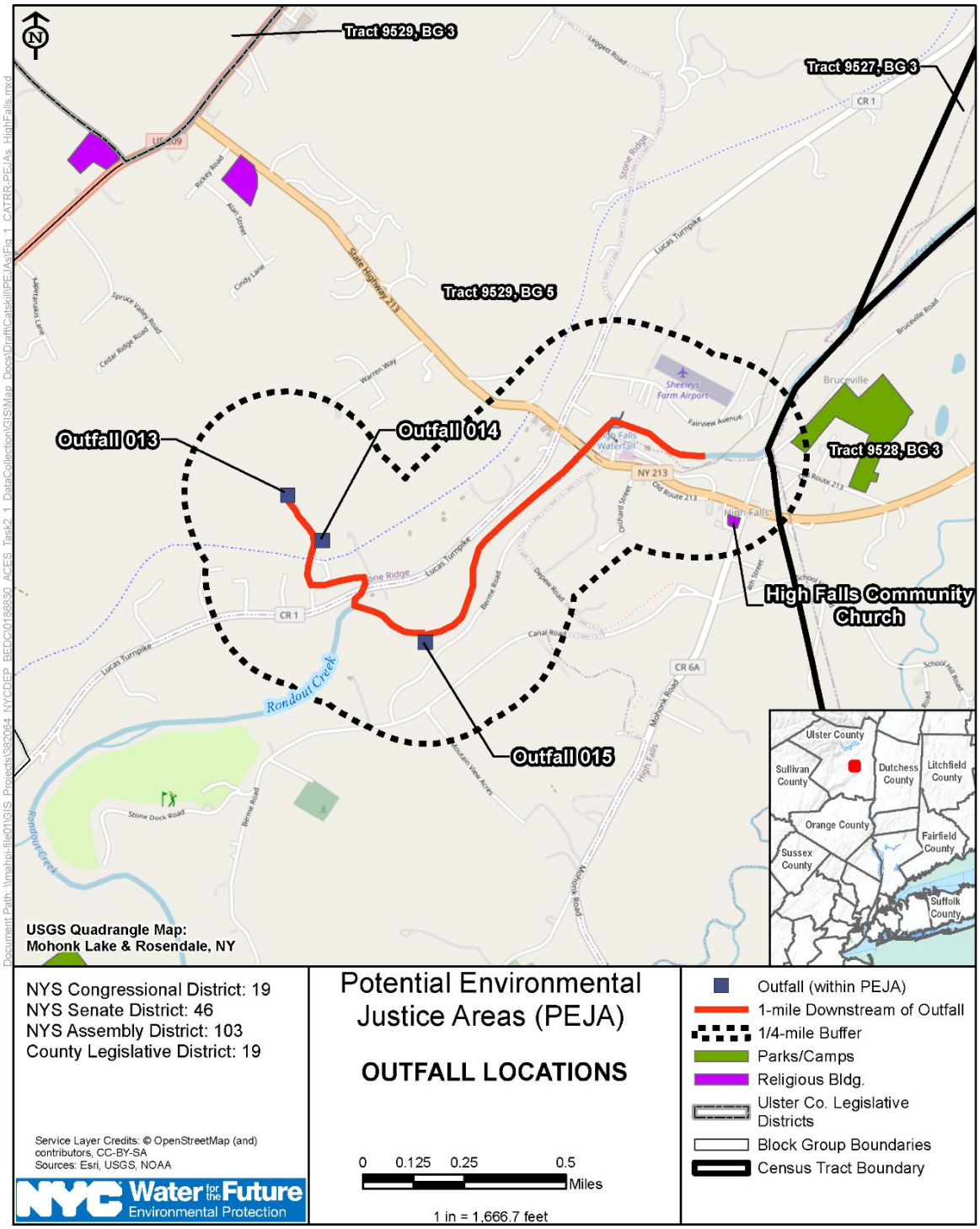

Figure 1: High Falls, Town of Marbletown, Ulster County, NY Affected Area for Public Participation

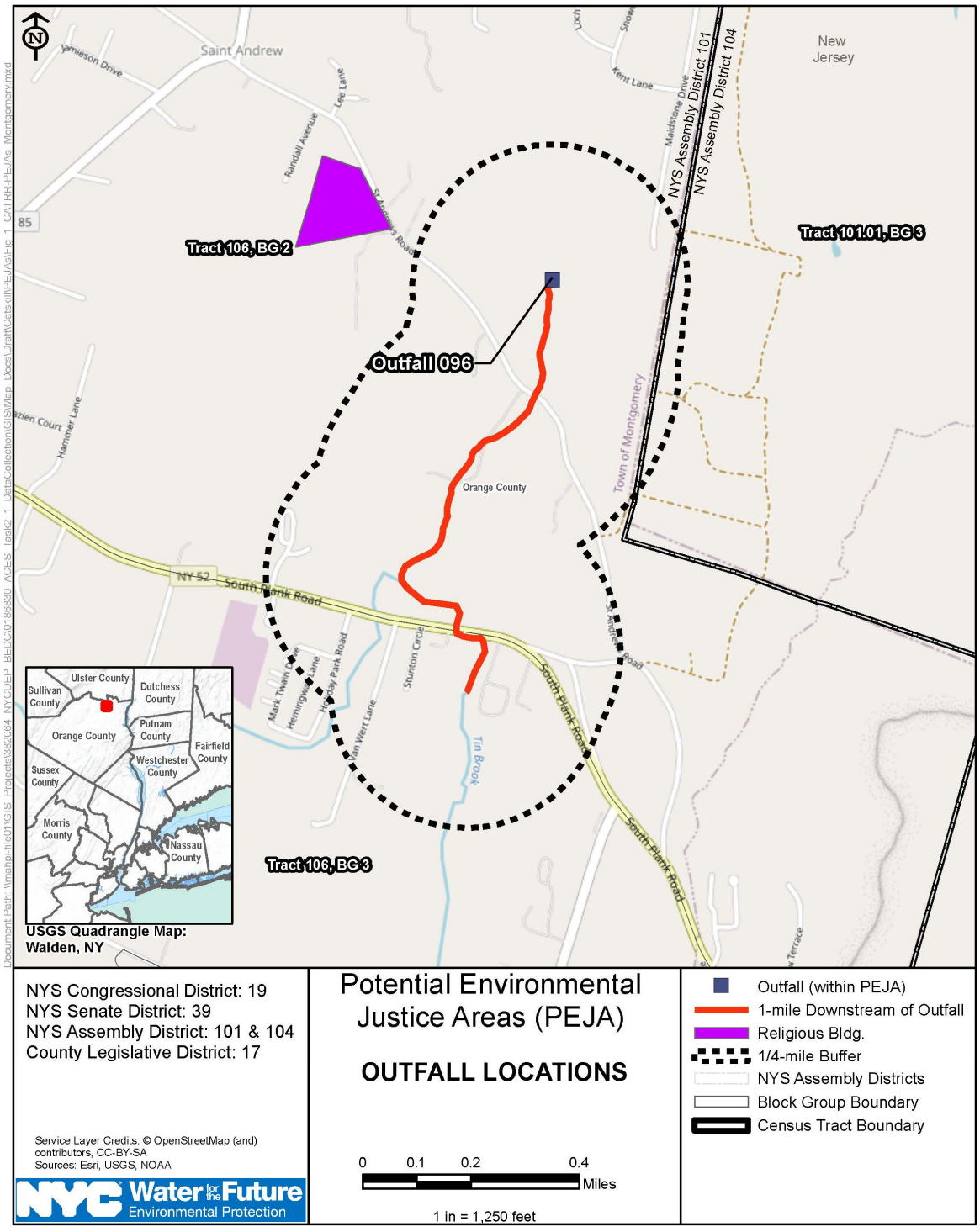

Figure 2: Town of Montgomery, Orange County, NY Affected Area for Public Participation

A preliminary outreach distribution list developed to date is included in Appendix A. It includes names, addresses (if available), telephone numbers (if available) and e-mail addresses (if available) of individuals and/or organizations with potential interest in the proposed permit modification (as described above), as well as a list of repositories.

1.2.3 Prepare Written Materials

Written materials will be prepared by DEP and distributed to notify the stakeholders of the public information meetings, further discussed in Section 1.2.5 below. Notification methods will include local newspapers, repositories, and direct mailings (sent to identified property owners, the local municipality, and identified religious establishments, community centers, schools, camps, community-based organizations, and/or local groups for posting at the location and/or website), as well as publication on DEP's website. The prepared materials will be clear and easy to understand and available for translation upon request.

The following materials will be prepared. The Permit Modification Fact Sheet will be made available to the public through the notification channels as outlined in Table 1.

- Public Participation Plan, October 2022
- Distribution List (Appendix A)
- Permit Modification Fact Sheet (Appendix B)
- Draft SPDES Permit Modification (Appendix C)

Table 1: Public Notifications and Repositories

Notification Channel	Materials to be Delivered
DEP's Website	• Public Participation Plan, October 2022 • Distribution List (Appendix A) • Permit Modification Fact Sheet / Newspaper Notice of Public Meeting (Appendix B) • Draft SPDES Permit Modification (Appendix C)
Repositories	• Public Participation Plan, October 2022 • Distribution List (Appendix A) • Permit Modification Fact Sheet/ Newspaper Notice of Public Meeting (Appendix B) • Draft SPDES Permit Modification (Appendix C)
Local Newspapers	• Newspaper Notice of Public Meeting (Appendix B)
Mailers	• Permit Modification Fact Sheet (Appendix C)

1.2.4 Establish Document Repositories/Distribute Project Information

To promote accessibility, the prepared written materials listed in Section 1.2.3 will be available at several local repositories in or near the outreach areas. The locations of the repositories are listed in the table below and in the Distribution List (Appendix A). The repository locations include one local library in each community. A list of the documents contained in the repository will be prepared to help keep the repositories organized. If any documents go missing, the repository can call DEP for additional copies to be delivered. The documents will be available for public review beginning on the issue date of the public information meeting notice (which will occur approximately three (3) weeks prior to any public information meeting) and ending 10 calendar days after the PPP Certification Document is completed (see Section 1.2.6). Additionally, the documents will be available on the DEP website at https://www1.nyc.gov/site/dep/news/090929/public-participation-plan-catskill-aqueduct-spdes-permit-modification for the same duration.

Table 2: Repository Locations

Location	Repository	
High Falls	1. Stone Ridge Public Library 3700 Main St Stone Ridge, NY 12484 2. Town of Marbletown 1925 Lucas Ave Cottekill, NY 12419	3. DEP Office – Kingston 71 Smith Avenue Kingston, NY 12401
Montgomery	1. Newburgh Free Library Town Branch 1401 Route 300 Newburgh, NY 12550 2. Town of Montgomery 110 Bracken Road Montgomery, NY 12549	3. Town of Newburgh 1496 Route 300 Newburgh, NY 12550 4. DEP Office – Kingston 71 Smith Avenue Kingston, NY 12401
Online	https://www1.nyc.gov/site/dep/news/090929/public-participation-plan-catskill-aqueduct-spdes-permit-modification	

1.2.5 Hold Public Information Meetings

Virtual Public Information Meetings will be held the week of October 31, 2022. Two (2) separate meetings will be held for the identified stakeholders in each PEJA community (one daytime, one evening), for a total of four (4) Public Information Meetings. Public Information Meetings will be advertised in the local municipality's official newspaper three (3) weeks prior to the meetings. In addition, meeting information will be included in the documentation provided to the stakeholders identified in the Contact List. Stakeholders will be invited to the meetings to

engage in an open dialogue. These meetings will be hosted virtually on Zoom Webinars.

Table 2: Proposed Meeting Dates

Community	Date	Time
Montgomery	Tuesday, November 1	12:00 PM
Montgomery	Thursday, November 3	6:00 PM
High Falls	Tuesday, November 1	6:00 PM
High Falls	Thursday, November 3	12:00 PM

These Virtual Public Information Meeting Notices will include:

- the name of the project sponsor;
- the name and location of the project/permit subject;
- a brief description about the project/permitting information available for review (i.e., draft SPDES Permit Modification, Permit Modification Fact Sheet, and the Public Participation Plan outreach documents);
- the description of why the information is being sent;
- directions on how to obtain the draft SPDES Permit Modification materials on DEP's website;
- the time and date of the virtual public information meetings; and instructions detailing how to sign onto the virtual meeting or call-in to participate via telephone;
- a contact list of email or physical addresses for submitting questions;
- instructions for how to submit questions via email or in writing, and the deadline for submitting questions; and
- instructions for how to submit formal comments on the draft SPDES Permit Modification and related deadlines for the formal comments.

1.2.6 Prepare Participation Plan Outreach Summary/Certification Document

A written summary of the outreach conducted under this PPP will be prepared and submitted to the NYSDEC, following the virtual public information meeting and submitted by November 18, 2022. This summary will serve as the PPP's Certification Document, and will include:

- A summary of PPP milestones, outlining plan implementation;
- Methods used to engage the public and solicit outreach;
- Time and date of the virtual public information sessions;
- Any substantive concerns/issues raised during outreach activities or received during the virtual public information sessions from stakeholders or the public at large;
- Descriptions of how the issues raised were addressed; and

- A description of any unresolved or outstanding issues.

The written Certification Document will confirm that the Applicant has complied with the PPP requirements. The Certification Document will subsequently become part of the draft SPDES Permit Modification.

APPENDIX A

Catskill Aqueduct Repair and Rehabilitation Project
Environmental Justice Public Participation Plan

Distribution and Repository List

U.S. Senate
U.S. House of Representatives
New York State Senate
New York State Assembly
New York State Department of Environmental Conservation
New York State Department of Health
Orange County
Ulster County
Town of Marbletown
Town of Montgomery
Town of Newburgh
High Falls Center for the Developmentally Disabled
High Falls Community Church
Newburgh Free Library – Town Branch
Stone Ridge Public Library
Walden Industrial LLC
Back Home Farm LLC
K.P.S Custom Builders Inc
Central Hudson Gas and Electric
2303 Lucas Turnpike LLC
Parkin Family Trust
M Dolores Cronauer Irrev Trust
Duchess Farm Equestrian Comm LLC
Donna Odell
John Gorman
Jeffry Weinberger
Carney Gwenn
Karen Depew
Michael Imbasciani
Rebecca Folkerth
Kurt Schultz
Donald Spoliotis
Richard Stokes
Sharon Albright
Arthur Markle
Daisy Machado
Myron Boice Jr
Daniel Boice

APPENDIX B

Environmental Protection

FACT SHEET

Catskill Aqueduct Repair and Rehabilitation Project

October 2022

Modification of Existing State Pollutant Discharge Elimination System (SPDES) Permit (SPDES No. NY 028 1042; DEC No. 3-9903-00102/00002); Public Sessions Announced

NYSDEC invites you to virtual public sessions to learn about the permit modifications.

Tuesday, November 1st, 6:00 PM
Registration: https://bit.ly/HighFalls-1

Thursday, November 3rd, 12:00 PM
Registration: https://bit.ly/HighFalls-2

We encourage you to share this fact sheet with neighbors and tenants, and/or post this fact sheet in a prominent area of your building for others to see.

Project Overview

The New York City's Department of Environmental Protection (DEP) developed the Water for the Future (WFF) Program to address significant leakage in one of its most critical pieces of water supply infrastructure, the Delaware Aqueduct. WFF involves construction of a bypass tunnel around a leaking section of DEP's Rondout-West Branch Tunnel (RWBT), the upper portion of the City's Delaware Aqueduct.

To support connection of the bypass tunnel to the RWBT, DEP has advanced several components of WFF which collectively comprise the Upstate Water Supply Resiliency (UWSR) Project. Catskill Aqueduct Repair and Rehabilitation (CAT-RR) is one component which will restore the capacity of the Catskill Aqueduct.

Where to Find Information

Access project documents through the DEP website and at these location(s):

www1.nyc.gov/site/dep/news/090929/public-participation-plan-catskill-aqueduct-spdes-permit-modification

Stone Ridge Public Library
3700 Main St
Stone Ridge, NY 12484

DEP Office – Kingston
71 Smith Avenue
Kingston, NY 12401

If you cannot access the online repository, please contact the DEP project manager listed below for assistance.

Who to Contact

Comments and questions are welcome and should be directed as follows:

Project-Related Questions
Phil Simmons
NYCDEP
59-17 Junction Boulevard
Flushing, New York 11373
718-595-4471

CATSKILL AQUEDUCT REPAIR AND REHABILITATION PROJECT

A key goal of the overall CAT-RR project would be to restore and/or increase the capacity of the aqueduct to supply water, thereby augmenting water supply during the RWBT shutdown. This would be accomplished by fixing leaks, removing biofilm, and controlling biofilm regrowth. Construction associated with fixing leaks and the removal of biofilm has been completed.

Permit Modification

As part of the CAT-RR project, DEP received a State Pollutant Discharge Elimination System (SPDES) permit from the New York State Department of Environmental Conservation (NYSDEC) for discharges associated with the CAT-RR project on September 1, 2019. The permit allows for discharges to surface or ground waters associated with chlorinated aqueduct waters at numerous locations along the Catskill Aqueduct. These discharges result from the addition of chlorine dioxide to the aqueduct, an oxidizing agent used to control the regrowth of biofilm. The permit also allows discharges associated with construction wastewaters and biofilm wash washwaters, however, internal construction and biofilm removal has been completed, and discharges from those two sources no longer occur.

DEP has requested a modification if its current permit for the following reasons:

- Add a new representative sampling point to facilitate safer and more efficient discharge monitoring.
- Change the discharge monitoring and reporting to methods that are better aligned for detecting amounts of chlorine dioxide, the primary biofilm control chemical used in the aqueduct. This means that the discharges will need to meet concentration-based action levels for chlorine dioxide and chloride.
- Chlorine dioxide has been selected as the primary biofilm control chemical because, in addition to controlling biofilm, it decays into byproducts that are suitable for discharge at the protective action levels proposed in the permit modification.
- The current effluent limit, total residual chlorine, would still be in place should sodium hypochlorite, an alternative to chlorine dioxide, ever be used to control biofilm in the aqueduct.

Site Description

Outfall 013 is located in a forested area along the Rondout Pressure Tunnel segment of the Catskill Aqueduct, which lies approximately 300 to 500 feet below grade at this location. Outfall 013 is located approximately 0.3 miles northwest of Lucas Turnpike and 0.5 miles southwest of State Route 213, and is located within a delineated freshwater wetland west of the aqueduct. Outfall 013 forms a small pool impounded by an existing wooden weir. Outfall 013 flows over the weir and into a shallow channel, which flows to the southeast, then continues to travel southward towards Outfall 014.

Outfall 014 is located in a forested area, near Shaft 4 of the Rondout Pressure Tunnel segment of the Catskill Aqueduct, which lies approximately 300 to 500 feet below grade at this location. Outfall 014 bubbles into a ponded area at the surface, which is impounded by an existing wooden weir. Outfall 014 is located approximately 0.15 miles northwest of Lucas Turnpike and 0.5 miles southwest of State Route 213, and is located adjacent to a delineated freshwater wetland west of the aqueduct. After joining the flow from Outfall 013, the flow passes through a culvert under the existing Marbletown Ontario & Western Rail Trail, where they join an unnamed tributary to Rondout Creek. The unnamed tributary then continues south through a second culvert under Lucas Turnpike and ultimately discharges to Rondout Creek.

Outfall 015 is located at the bottom of the drainage shaft of the Rondout Drainage Chamber in the Town of Marbletown. Outfall 015 is located approximately 0.03 miles southeast of Canal Road, south of Rondout Creek, and immediately adjacent to an unnamed tributary to Rondout Creek. An existing subsurface blow-off conduit connects the Rondout Drainage

CATSKILL AQUEDUCT REPAIR AND REHABILITATION PROJECT

Chamber to a headwall along the southern bank of Rondout Creek where aqueduct water can be discharged. Outfall 015 has been created by an inoperable valve in the Rondout Drainage Chamber that diverts a small portion of aqueduct water to the blow-off conduit. This flow is then conveyed underground through the conduit before it daylights at an existing concrete headwall at Rondout Creek.

Next Steps

DEP will hold two virtual public sessions to review the permit modifications, receive public comments, revise the permit modification as necessary and submit the permit modification to NYSDEC for approval.

Stay Informed

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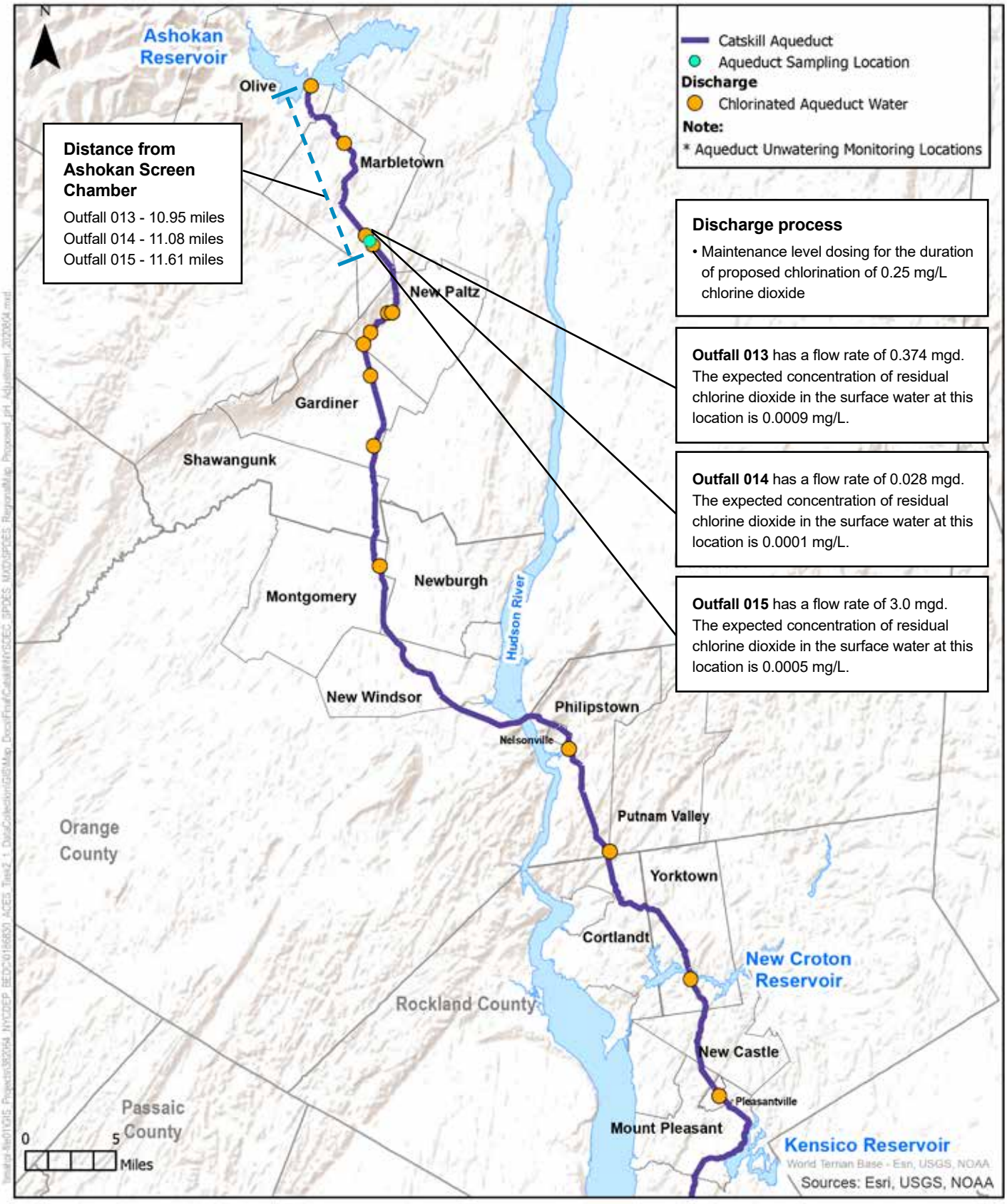
CATSKILL AQUEDUCT REPAIR AND REHABILITATION PROJECT



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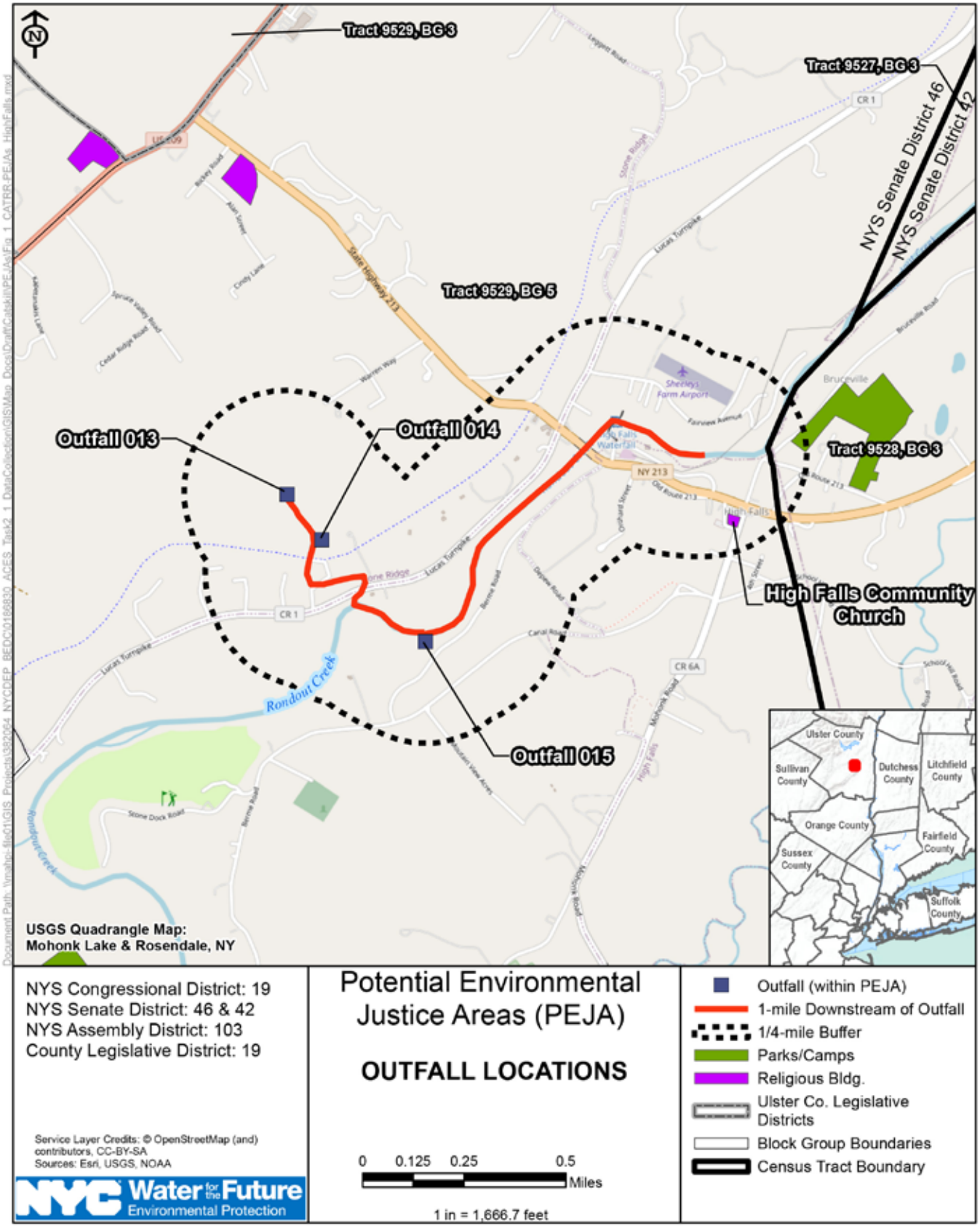

Environmental Protection

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1401 NY-300
Newburgh, NY 12550

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Kingston, NY 12401

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- The current effluent limit, total residual chlorine, would still be in place should sodium hypochlorite, an alternative to chlorine dioxide, ever be used to control biofilm in the aqueduct.

Site Description

Outfall 096 is located approximately 1,000 feet east of St. Andrews Road along the western side of the Catskill Aqueduct in the Town of Montgomery, Orange County, NY. Along cut-and-cover segments of the Catskill Aqueduct, the original design included drains at certain locations where culverts were constructed beneath the aqueduct. Culvert drain sluice gates, when opened, would allow aqueduct water to drain into the culvert and into streams or drainage channels. The existing sluice gate at this site has one discharge point that historically allowed for the release of raw aqueduct water to the culvert and Tin Brook when DEP required unwatering of the aqueduct for maintenance, repair, and/or inspection.

Next Steps

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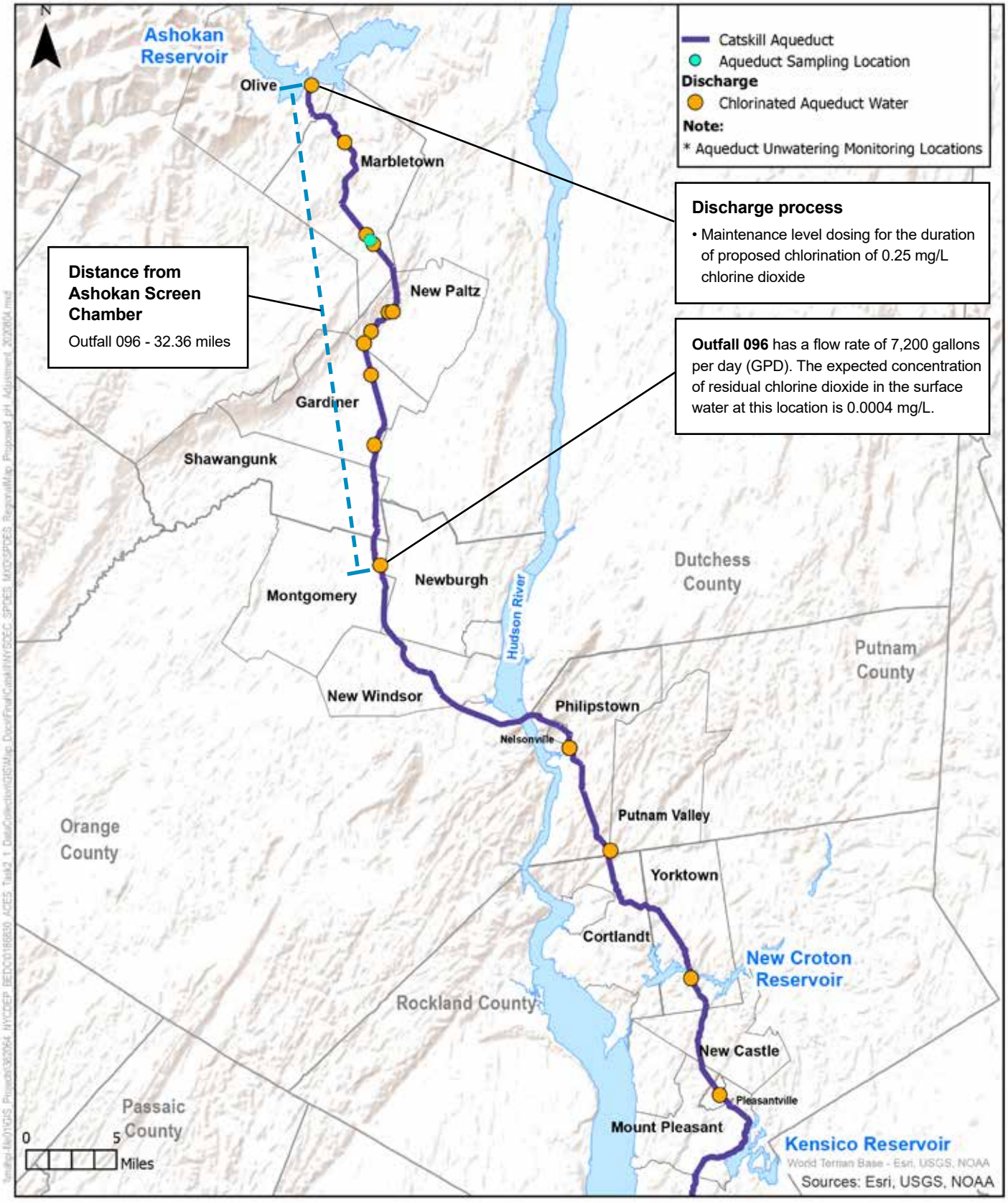
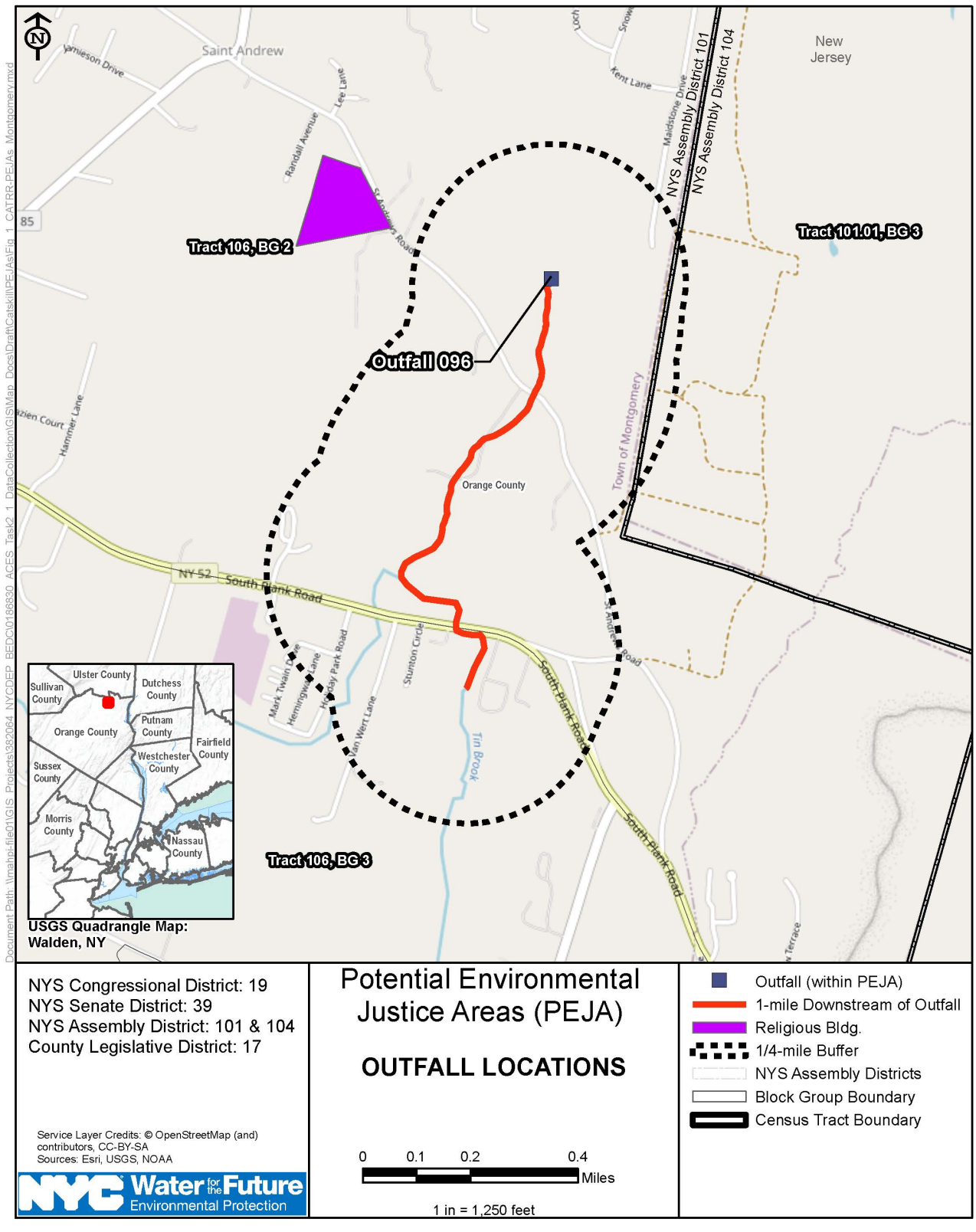


CATSKILL AQUEDUCT REPAIR AND REHABILITATION PROJECT



APPENDIX C

Environmental Protection

Rohit T. Aggarwala
Commissioner

Ana Barrio
Deputy Commissioner
Bureau of Engineering Design & Construction

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Corona, NY 11368

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May 18, 2022

Ms. Lorraine Gregory
Bureau of Water Permits Section Chief, Division of Water
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

RE: Application for SPDES Permit Modification
Catskill Aqueduct Repair and Rehabilitation Project
NYSDEC Permit No. 3-9903-00102/00002 SPDES No. NY0281042

Dear Ms. Gregory:

The City of New York Department of Environmental Protection (DEP) currently has a State Pollutant Discharge Elimination System (SPDES) permit for releases associated with the Catskill Aqueduct Repair and Rehabilitation (CAT-RR) project. The current permit provides for discharges associated with construction wastewaters, biofilm wash waters and chlorinated aqueduct waters at numerous locations along the Catskill Aqueduct. Based upon DEP's further assessment of options for required chlorination of aqueduct waters and the intended use of chlorine dioxide to achieve this with limited exceptions, if required, DEP is seeking to modify its permit to more accurately reflect this proposed change in operation. Through this letter, DEP is requesting a modification of its current permit to address the intended use of chlorine dioxide for the chlorination of aqueduct waters.

The proposed modification consists of the following elements:

- A modification of current discharge requirements due to DEP's intent to primarily use chlorine dioxide for the chlorination of the Catskill Aqueduct.
    - Removal of total residual chlorine (TRC) as a permit limit for chlorination involving the use of chlorine dioxide.
    - Addition of action levels for two new parameters that are more representative and appropriate during the use of chlorine dioxide, specifically, the action levels would be associated with chlorine dioxide and chlorite.
    - Note that the current effluent limits for TRC would remain in the permit but would only apply to the use of sodium hypochlorite should it be used in the future. However, DEP does not anticipate the use of sodium hypochlorite.
- Removal of proposed dechlorination for discharges of chlorinated aqueduct waters which previously consisted of the use of granular activated carbon (GAC) or the addition of sodium bisulfite.

In addition, DEP is also advising the New York State Department of Environmental Conservation (NYSDEC) of an alternative representative sampling point. Pursuant to permit modification number 2 (issued September 9, 2021), DEP added the High Falls Meter Pit (HMPT) as a representative sampling point. The HMPT is a representative sampling point for Outfalls 013, 014, 015 and those outfalls downstream of this location (i.e., Outfalls 017, 020, 067, 096, 102, 113, 114, 115, and 116). Access to the HMPT however requires advance outreach and coordination with the High Falls Water District to allow for DEP sampling. DEP is therefore proposing the addition of an alternative representative sampling point at the Rondout Downtake Chamber (RDC) Weir Vault as this increases safe access and sampling abilities, while eliminating the involvement of a third party. The HMPT and the RDC Weir Vault are both located a short distance from one another so no substantive change related to the purpose of sampling at either location would be anticipated.

Provided within the balance of this request for permit modification and within the attachments to this letter is further discussion of the proposed modification, the reason for the modification and additional supporting documentation.

Background

Pursuant to the original SPDES permit, DEP had envisioned the use of sodium hypochlorite and chlorine dioxide in order to reduce biofilm growth in the Catskill Aqueduct. Dependent upon certain operational conditions and/or seasonal requirements, the intent was to use a combination of these two chemicals, separately, to achieve target chemical concentrations within the Aqueduct. Sodium hypochlorite was originally considered the primary chemical with the use of chlorine dioxide on a much more limited basis. Since that time, DEP has made a commitment to the use of chlorine dioxide for required biofilm control. When the original permit was issued in 2019, permit limits were established for the monitoring of TRC when chemical addition would occur. This was based upon the initial intent that sodium hypochlorite would serve as the primary chemical. TRC is routinely established as a permit parameter in SPDES permits where chlorination through the addition of sodium hypochlorite is used. Likewise, it was originally envisioned that with the use of sodium hypochlorite, dechlorination of releases from the aqueduct (e.g., leaks or direct discharges to surface waters) would also be required. As noted in the original application, the use of GAC beds or sodium bisulfite were proposed to achieve the dechlorination.

With the shift to chlorine dioxide to control biofilm, TRC is no longer a representative permit parameter and the need for active dechlorination is likewise no longer appropriate.

Proposed Modification

Revised Discharge Parameters

DEP is proposing the removal of TRC as a permit limit for any release of chlorinated aqueduct waters associated with the use of chlorine dioxide. If DEP needed to chlorinate aqueduct waters through the use of sodium hypochlorite, monitoring of TRC would be conducted consistent with current permit requirements.

In place of a chlorine dioxide TRC effluent limit, DEP is requesting the addition of action levels for chlorine dioxide and chlorite. The monitoring of chlorine dioxide and chlorite, a decay product of chlorine dioxide, would be more representative and appropriate than discharge monitoring of TRC with a system that achieves biofilm control through the addition of chlorine dioxide. These parameters represent a more focused and direct measure of residual chlorine dioxide and/or decay by-products and are therefore more appropriate analytes to assess potential effects due to the release of chlorinated aqueduct waters. Likewise during TRC sampling conducted during the shakedown activities in spring 2021 that involved the addition of chlorine dioxide, measured TRC levels were very low and below the current TRC permit limit.

In addition, replacement of TRC as a monitoring parameter during chlorine dioxide use would also address other challenges that DEP encountered during the prior short term chlorination of the aqueduct in 2021. Collection of accurate TRC results, while achieved, was a significant challenge. This was related to required holding times, the sensitivity of the analysis to field sampling and the use of ultra low level testing methods required for TRC analysis. Interferences due to the presence of elevated manganese in aqueduct waters also needed to be actively addressed during TRC monitoring. Oxidized manganese can cause false TRC results (biased high) due to its interferences and samples must be corrected to address this, all of which must be conducted in the field. Part of the correction of samples for manganese also requires the use of sodium arsenite which encompasses specific process and handling requirements in the field that present additional challenges. For these reasons, DEP's position is that the removal of TRC as a permit limit and replacement with action levels for chlorine dioxide and chlorite would therefore be more appropriate with DEP's shift to the exclusive use of chlorine dioxide and would serve to eliminate the field sampling challenges associated with TRC.

Based upon a review of available sampling data collected during the previous chlorine dioxide based chlorination efforts in June 2021 and August 2021, the results of prior whole effluent toxicity (WET) testing, and a review of available toxicity data, DEP is proposing the action levels noted in Table 1.

Table 1 Proposed Action Level Concentrations
Chlorine Dioxide and Chlorite

Parameter	Proposed Action Level
Chlorine Dioxide	0.10 mg/L
Chlorite	0.20 mg/L

In order to assist NYSDEC in the integration of this requirement into the proposed permit modification, a suggested markup of the applicable outfall summary tables (derived from the most recent permit, dated March 4, 2022), specific to the release of chlorinated aqueduct waters is provided as an attachment to this letter.

DEP intends to achieve and maintain a target concentration for chlorine dioxide of 0.25 mg/L at the point of chemical addition (Ashokan Chemical Treatment Facility [ACTF]). DEP's proposed Action Levels would be appropriate and protective of the environment. As part of DEP's WTCFx application for the use of chlorine dioxide and NYSDEC's conditional approval for its use, toxicity values for the several vertebrate and invertebrate species were provided as summarized in Table 2.

Table 2. Acute Aquatic Toxicity Data for Chlorine Dioxide and Sodium Chlorite (WTCFx Submission)

Species	Common Name	Result	
		Chlorine Dioxide	Sodium Chlorite
Pimephales promelas	Fathead minnow	96-hr LC50; 0.17 mg/L	-
Lepomis macrochirus	Bluegill	96-hr LC50; 0.15 mg/L	96-hr LC50; 244 mg/L
Oncorhynchus mykiss	Rainbow trout	-	96-hr LC50; 360 mg/L
Cerodaphnia pulex	Water flea	48-hr EC50; 1.8 mg/L	-

The proposed action level of 0.10 mg/L for chlorine dioxide would be below the acute toxicity values illustrated in Table 2 for both vertebrate (0.15 and 0.17mg/L) and invertebrate (1.8 mg/L) species. Similarly, the proposed chlorite action level of 0.20 mg/L are below the vertebrate acute toxicity values.

In addition, results of WET testing completed in 2021 indicated no acute or chronic toxicity to fathead minnows associated with the use of an initial target dose of 0.25 mg/L of chlorine dioxide. Potential toxicity associated with the presence of residual chlorine dioxide or its decay product chlorite within the WET samples was not noted.

Likewise chronic toxicity testing and acute toxicity derived from the chronic testing indicated no impact to the invertebrate test species, *Ceriodaphnia dubia* (water flea) at a target dose concentration of 0.25 mg/L chlorine dioxide. However results of a separate, stand-alone acute toxicity test did indicate potential impacts to the water flea. Based upon a review of this result, the results of the acute toxicity as derived from the chronic testing, and measurements of chlorite concentrations at several locations downstream of the ACTF which ranged between 0.05 and 0.10 mg/L, DEP's position is that this was an anomalous result and did not accurately reflect potential toxicity associated with the use of chlorine dioxide particularly in light of the favorable result associated with the acute toxicity derived from the chronic toxicity testing result.

Elimination of Dechlorination

As noted previously, dechlorination was originally proposed early in the CAT-RR project and was primarily focused upon the use of sodium hypochlorite. With the proposed use of chlorine dioxide, DEP does not intend to advance and/or use dechlorination during anticipated chlorination of the aqueduct. When the initial application for a SPDES permit was submitted in 2018, it was unclear if the concentrations of TRC would require active treatment (GAC beds) or dechlorination. Based upon the most recent chemical addition efforts using chlorine dioxide in 2021 and the collection of TRC results at several downstream locations along the Catskill Aqueduct, concentrations of TRC were all below the current permit limit and at very low levels and/or below detection limits. As a result, DEP will not be implementing treatment or dechlorination as part of its chlorination of the aqueduct and is seeking to remove this from the current permit.

As full scale chlorine dioxide addition is anticipated in the next few months, DEP would appreciate a timely review of our application for a proposed permit modification. Chlorine dioxide addition to the aqueduct is a critical element to facilitate the restoration of the historic capacity of the Catskill Aqueduct which will serve as the primary water supply when temporary shutdown of the Delaware Aqueduct is required for the final connection of the RWBT Bypass Tunnel.

If you have any questions or require additional information, please reach out to Phil Simmons, Senior Program Manager (psimmons@dep.nyc.gov or 917-587-2197).

Sincerely,

Ana Barrio

Ana Barrio

Enclosures

Table 1: Proposed Effluent Limits for 014, 067, 096, 102 and 113 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE					RECEIVING WATER		EFFECTIVE	EXPIRING
014, 067, 096, 102, 113	Chlorinated Aqueduct Waters					See Outfall Summary Table		EDPM	8/31/2024
PARAMETER	EFFLUENT LIMITATION			ACTION LEVEL		MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	Monthly Average	Monitor	GPD			Continuous	Estimate		X	1
	Daily Maximum	Monitor								
pH	Minimum	6.5	SU			1/Month	Grab		X	1,2,3
	Maximum	8.5								
Total Residual Chlorine	Monthly Average	Monitor	ug/L			1/Month	Grab		X	1,2,3,4
	Daily Maximum	30								
Chlorine Dioxide	Monthly Average			Monitor	mg/L	1/Month	Grab		X	1,2,5
	Daily Maximum			0.10						
Chlorite	Monthly Average			Monitor	mg/L	1/Month	Grab		X	1,2,5
	Daily Maximum			0.20						

Footnote:

1. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report "No discharge" on DMR.
2. Compliance sampling for Outfalls 014, 067, 096, 102, and 113 will be performed at the High Falls Meter Pit or at the Rondout Downtake Chamber Weir Vault on the Rondout Pressure Tunnel.
3. Reporting and sample frequency will be consistent with those established in the permit for specific outfalls. Reported effluent values for these outfalls will match that of the representative compliance sampling location (see footnote 2).
4. Total residual chlorine only monitored when sodium hypochlorite is used for chlorination in lieu of chlorine dioxide.
5. Chlorine dioxide and chlorite only monitored during the use of chlorine dioxide for chlorination.

Table 2: Proposed Effluent Limits for 010 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE					RECEIVING WATER		EFFECTIVE		EXPIRING
010	Chlorinated Aqueduct Waters					See Outfall Summary Table		EDPM		8/31/2024
PARAMETER	EFFLUENT LIMITATION			ACTION LEVEL		MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	Monthly Average	Monitor	GPD			Continuous	Estimate		X	2
	Daily Maximum	Monitor								
pH	Minimum	6.5	SU			1/Month	Grab		X	
	Maximum	8.5								
Total Residual Chlorine	Monthly Average	Monitor	ug/L			1/Month	Grab		X	1,3
	Daily Maximum	30								
Chlorine Dioxide	Monthly Average			Monitor	mg/L	1/Month	Grab		X	4
	Daily Maximum			0.10						
Chlorite	Monthly Average			Monitor	mg/L	1/Month	Grab		X	4
	Daily Maximum			0.20						

Footnote:

1. Stream is classified for trout
2. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report “No discharge on DMR”.
3. Total residual chlorine only monitored when sodium hypochlorite is used for chlorination in lieu of chlorine dioxide.
4. Chlorine dioxide and chlorite only monitored during the use of chlorine dioxide for chlorination.

Table 3: Proposed Effluent Limits for 013 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE					RECEIVING WATER			EFFECTIVE	EXPIRING
013	Chlorinated Aqueduct Waters					See Outfall Summary Table			EDPM	8/31/2024
PARAMETER	EFFLUENT LIMITATION			ACTION LEVEL		MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	Monthly Average	Monitor	GPD			Continuous	Estimate		X	1
	Daily Maximum	Monitor								
pH	Minimum	6.5	SU			2/Month	Grab		X	1,2,3
	Maximum	8.5								
Total Residual Chlorine	Monthly Average	Monitor	ug/L			2/Month	Grab		X	1,2,3,4
	Daily Maximum	30								
Chlorine Dioxide	Monthly Average			Monitor	mg/L	2/Month	Grab		X	1,2,5
	Daily Maximum			0.10						
Chlorite	Monthly Average			Monitor	mg/L	2/Month	Grab		X	1,2,5
	Daily Maximum			0.20						

Footnote:

1. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report "No discharge" on DMR.
2. Compliance sampling for Outfall 013 will be performed at the High Falls Meter Pit or at the Rondout Downtake Chamber Weir Vault on the Rondout Pressure Tunnel.
3. Reporting and sample frequency will be consistent with those established in the permit for specific outfalls. Reported effluent values for these outfalls will match that of the representative compliance sampling location (see footnote 2).
4. Total residual chlorine only monitored when sodium hypochlorite is used for chlorination in lieu of chlorine dioxide.
5. Chlorine dioxide and chlorite only monitored during the use of chlorine dioxide for chlorination.

Table 4: Proposed Effluent Limits for 015, 017 and 114 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE					RECEIVING WATER		EFFECTIVE	EXPIRING
015, 017, 114	Chlorinated Aqueduct Waters					See Outfall Summary Table		EDPM	8/31/2024
PARAMETER	EFFLUENT LIMITATION			ACTION LEVEL		MONITORING REQUIREMENTS			FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	Monthly Average	Monitor	GPD			Continuous	Estimate		X	1
	Daily Maximum	Monitor								
pH	Minimum	6.5	SU			1/Week	Grab		X	1,2,3
	Maximum	8.5								
Total Residual Chlorine	Monthly Average	Monitor	ug/L			1/Week	Grab		X	1,2,3,4
	Daily Maximum	30								
Chlorine Dioxide	Monthly Average			Monitor	mg/L	1/Week	Grab		X	1,2,5
	Daily Maximum			0.10						
Chlorite	Monthly Average			Monitor	mg/L	1/Week	Grab		X	1,2,5
	Daily Maximum			0.20						

Footnote:

1. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report "No discharge" on DMR.
2. Compliance sampling for Outfalls 015, 017 and 114 will be performed at the High Falls Meter Pit or at the Rondout Downtake Chamber Weir Vault on the Rondout Pressure Tunnel.
3. Reporting and sample frequency will be consistent with those established in the permit for specific outfalls. Reported effluent values for these outfalls will match that of the representative compliance sampling location (see footnote 2).
4. Total residual chlorine only monitored when sodium hypochlorite is used for chlorination in lieu of chlorine dioxide.
5. Chlorine dioxide and chlorite only monitored during the use of chlorine dioxide for chlorination.

Table 5: Proposed Effluent Limits for 063 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE					RECEIVING WATER		EFFECTIVE	EXPIRING
063	Chlorinated Aqueduct Waters					See Outfall Summary Table		EDPM	8/31/2024
PARAMETER	EFFLUENT LIMITATION			ACTION LEVEL		MONITORING REQUIREMENTS			FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	Monthly Average	Monitor	GPD			Continuous	Estimate		X	1
	Daily Maximum	Monitor								
pH	Minimum	6.0	SU			1/Week	Grab		X	1,2,3
	Maximum	9.0								
Total Residual Chlorine	Monthly Average	Monitor	ug/L			1/Week	Grab		X	1,2,3,4
	Daily Maximum	50								
Chlorine Dioxide	Monthly Average			Monitor	mg/L	1/Week	Grab		X	1,2,5
	Daily Maximum			0.10						
Chlorite	Monthly Average			Monitor	mg/L	1/Week	Grab		X	1,2,5
	Daily Maximum			0.20						

Footnote:

1. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report "No discharge" on DMR.
2. Compliance sampling for Outfall 063 will be performed at the High Falls Meter Pit or at the Rondout Downtake Chamber Weir Vault on the Rondout Pressure Tunnel.
3. Reporting and sample frequency will be consistent with those established in the permit for specific outfalls. Reported effluent values for these outfalls will match that of the representative compliance sampling location (see footnote 2).
4. Total residual chlorine only monitored when sodium hypochlorite is used for chlorination in lieu of chlorine dioxide.
5. Chlorine dioxide and chlorite only monitored during the use of chlorine dioxide for chlorination.

Table 6: Proposed Effluent Limits for 078 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE					RECEIVING WATER		EFFECTIVE		EXPIRING
078	Chlorinated Aqueduct Waters					See Outfall Summary Table		EDPM		8/31/2024
PARAMETER	EFFLUENT LIMITATION			ACTION LEVEL		MONITORING REQUIREMENTS				FN
	Type	Limit	Units	Limit	Units	Sample Frequency	Sample Type	Location Inf.	Location Eff.	
Flow	Monthly Average	Monitor	GPD			Continuous	Estimate		X	2
	Daily Maximum	Monitor								
pH	Minimum	6.5	SU			1/Day	Grab		X	1,2
	Maximum	8.5								
Total Residual Chlorine	Monthly Average	Monitor	ug/L			1/Day	Grab		X	1,2,3
	Daily Maximum	30								
Chlorine Dioxide	Monthly Average			Monitor	mg/L	1/Day	Grab		X	2,4
	Daily Maximum			0.10						
Chlorite	Monthly Average			Monitor	mg/L	1/Day	Grab		X	2,4
	Daily Maximum			0.20						

Footnote:

1. Stream is classified for trout.
2. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report "No discharge" on DMR.
3. Total residual chlorine only monitored when sodium hypochlorite is used for chlorination in lieu of chlorine dioxide.
4. Chlorine dioxide and chlorite would only be monitored during the use of chlorine dioxide for chlorination.

Table 7: Proposed Effluent Limits for 115 and 116 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE	RECEIVING WATER	EFFECTIVE	EXPIRING
115, 116	Chlorinated Aqueduct Waters	See Outfall Summary Table	EDPM	8/31/2024

PARAMETER	EFFLUENT LIMITATION			MONITORING REQUIREMENTS				FN
						Location		
	Type	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
Flow	Monthly Average	Monitor	GPD	Continuous	Estimate		X	1
	Daily Maximum	Monitor						
pH	Minimum	6.5	SU	1/Month	Grab		X	1,2,3,4
	Maximum	8.5						

Footnote:

1. Monitoring only required during chlorination activities. If there is no discharge from certain outfalls, report "No discharge" on DMR.
2. Discharge of Outfalls 115 and 116 are to groundwater.
3. Compliance sampling for Outfalls 115 and 116 will be performed at the High Falls Meter Pit or at the Rondout Downtake Chamber Weir Vault on the Rondout Pressure Tunnel.
4. Reporting and sample frequency will be consistent with those established in the permit for specific outfalls. Reported effluent values for these outfalls will match that of the representative compliance sampling location (see footnote 3).

Table 8: Proposed Effluent Limits for 01A, 01N and 078 (red text indicates proposed changes)

OUTFALL	WASTEWATER TYPE			RECEIVING WATER		EFFECTIVE		EXPIRING
01A, 01N, 078	Aqueduct Unwatering			See Outfall Summary Table		EDPM		8/31/2024
PARAMETER	EFFLUENT LIMITATION			MONITORING REQUIREMENTS				FN
						Location		
	Type	Limit	Units	Sample Frequency	Sample Type	Inf.	Eff.	
Flow	Monthly Average	Monitor	GPD	Continuous	Estimate		X	1,2,3,5
	Daily Maximum	Monitor						
Total Residual Chlorine	Monthly Average	Monitor	ug/L	1/Event	Grab		X	4,5
	Daily Maximum	Monitor						
Chlorine Dioxide	Monthly Average	Monitor	mg/L	1/Event	Grab		X	5,6
	Daily Maximum	Monitor						
Chlorite	Monthly Average	Monitor	mg/L	1/Event	Grab		X	5,6
	Daily Maximum	Monitor						

Footnote:

1. These sampling points are representative of aqueduct conditions prior to unwatering.
2. Permittee shall provide DEC a minimum of 3 days' notice prior to planned unwatering activities.
3. Estimate total volume of water released during aqueduct unwatering.
4. For chlorination involving sodium hypochlorite, sample shall be taken prior to aqueduct unwatering. If sample is below 30 ug/L, aqueduct unwatering may commence.
5. Compliance sampling for Outfall 01N will be performed in the aqueduct upstream of the outfall.
6. For chlorination involving chlorine dioxide, sample shall be taken prior to aqueduct unwatering. If sample is below 0.10 mg/L for chlorine dioxide and 0.20 mg/L for chlorite, aqueduct unwatering may commence.

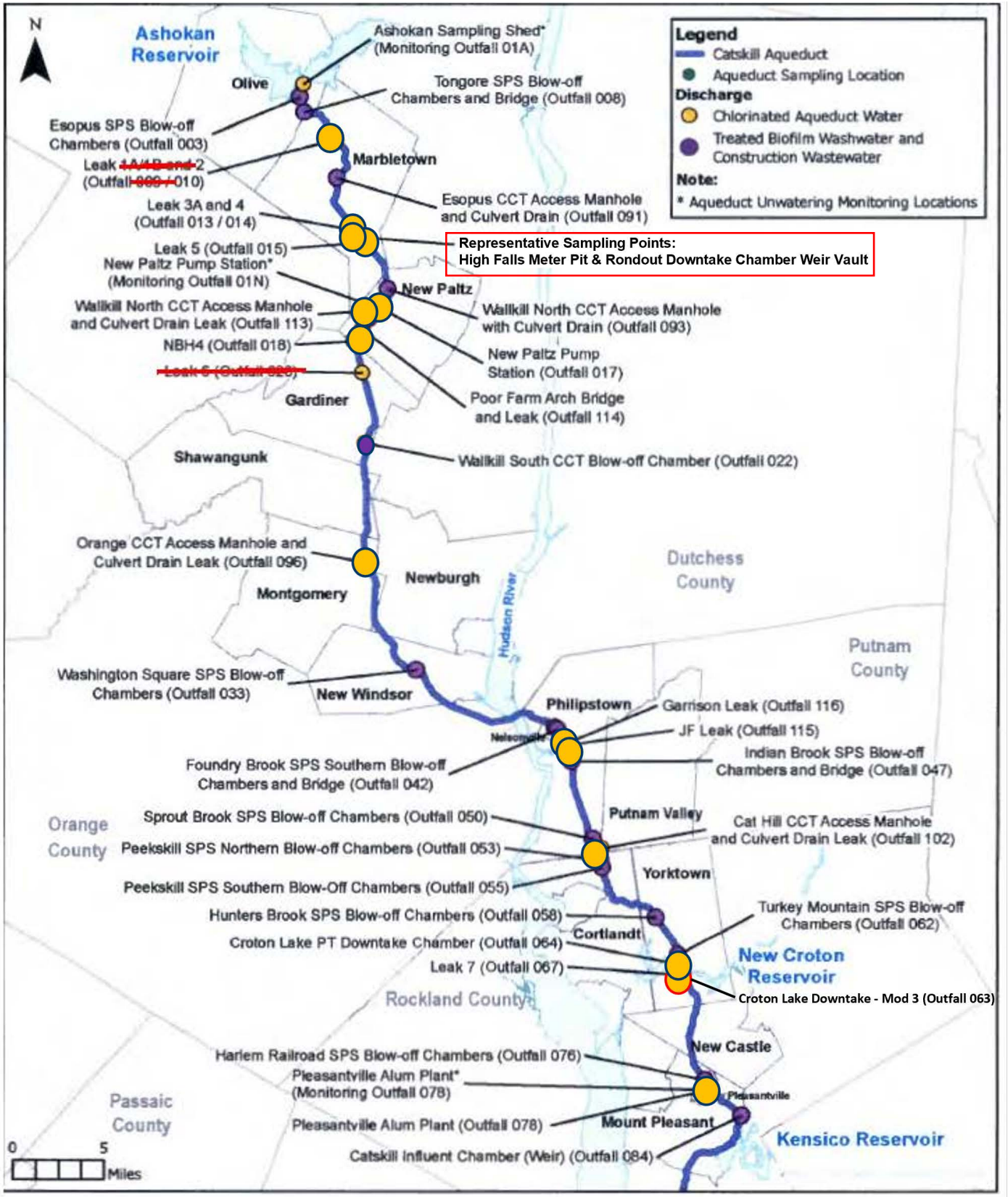
PROPOSED ACTION LEVELS AND TIERED ACTIONS

Action Levels have been established for the monitoring of chlorine dioxide and chlorite, which do not have existing water quality standards, as part of this permit. In the event that measured values exceed the Action Levels, DEP would implement the following measures based upon the measured concentrations and/or the recurrence of ongoing elevated values.

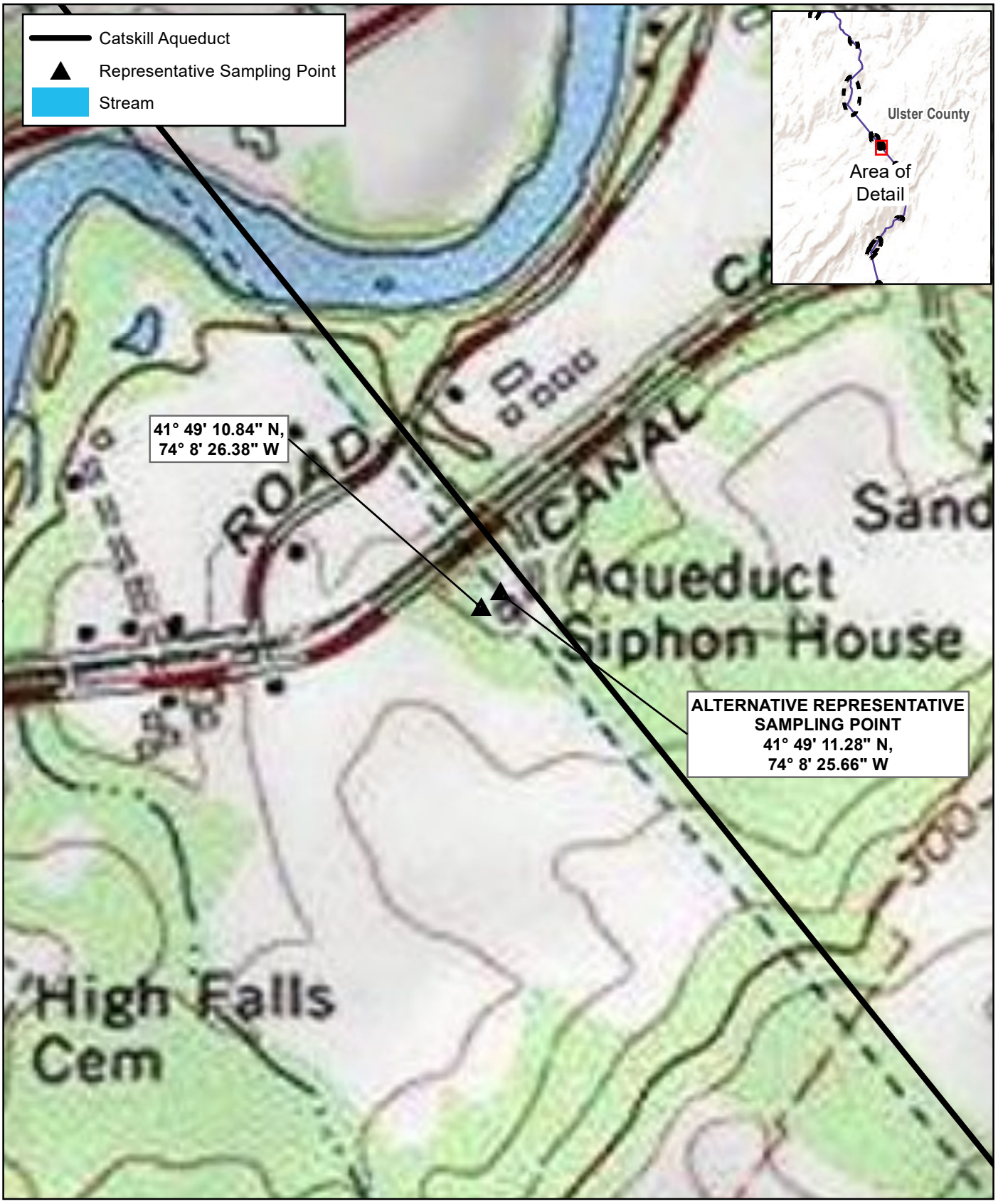
Tier Level	Chlorine Dioxide	Chlorite	Actions
Tier 1	0.10-0.20 mg/L	0.20-0.25 mg/L	• Review sampling results, laboratory QC data and field notes and perform data check. • Review ACTF daily concentration monitoring records for potential anomalies • Review ACTF operating logs for variances/upsets related to target dosing • Review ACTF calibration logs • Perform recalibration if required • Persistent exceedance would be considered Tier 2: Action Level is exceeded in three (3) or more consecutive sampling events.
Tier 2	>0.20-0.25 mg/L	>0.25-0.30 mg/L	• Implement Tier 1 measures • Conduct five (5) days of additional sampling • Determine if in compliance with applicable Action Level(s) • Persistent exceedance would be considered Tier 3: Action Level is exceeded throughout five (5) days of additional sampling.
Tier 3	>0.25 mg/L	>0.30 mg/L	• Implement Tier 1 measures • Implement Tier 2 efforts including five (5) days of additional sampling • If measured values exceed these concentrations, operation of the ACTF will be temporarily ceased until applicable Action Levels can be met.

MONITORING LOCATIONS

The permittee shall take samples and measurements, to comply with the monitoring requirements specified in this permit, at the locations(s) specified below:



Note: Leak 1A/1B (Outfall 009) and Leak 6 (Outfall 020) have been repaired and no longer discharge aqueduct water. These outfalls were removed from the permit in the previous modification.



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Miles

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NYC Water for the Future Environmental Protection

Aqueduct Connection Environmental Support (ACES)

REPRESENTATIVE SAMPLING POINT
RONDOUT DOWNTAKE CHAMBER