

Post Construction Compliance Monitoring Program (PCCMP)

Sampling Methods

Detailed sampling protocols will follow those developed and documented in the *Receiving Water Quality Sampling Plan* (RWQSP, included in Appendix A of the CSO LTCP).

In the original RWQSP, analysis was performed for both fecal coliform and E. coli to determine if the indicator organism used to measure recreational attainment was appropriate. Results from the 2008 Receiving Water Conditions Assessment showed that both E. coli and fecal coliform provided similar measures of recreational use impairment. For the purposes of post construction compliance monitoring, testing will be limited to fecal coliform due to the fact that the fecal coliform concentrations can be directly compared to the current NYS standard for recreational use.

Sampling Locations

For the PCCMP, discrete samples will be collected for laboratory analysis of fecal coliform from five River Transects, seven tributaries, five WWTPs, and two randomly selected duplicate samples for the assessment of the attainment of Water Quality Standards for each of the receiving waters. Table 1 details the sampling locations, purpose, and analytical parameters that will be analyzed. Figure 1 illustrates the sampling locations.

Table 1: Locations and Designations of Sampling Sites

Sampling Location Identification Number	Location	Sample Collection Location	Purpose	Parameters
River Transect Locations				
RT1-RC	Route 9 bridge crossing of Mohawk River upstream of Cohoes and Crescent Dam	Bridge	Documentation of Mohawk River Background	Fecal Coliform
RT2-RC	Bridge Avenue crossing the Mohawk River in Cohoes	Bridge	Documentation of Attainment	Fecal Coliform
RT3A-RC	126th Street Bridge crossing of Hudson River just south of the City of Troy boundary	Bridge	Documentation of Hudson River Background	Fecal Coliform
RT6-WB RT6-RC RT6-EB	Hudson River, downstream of Route 378 bridge near City of Troy boundary with North Greenbush	Boat	Documentation of Attainment	Fecal Coliform
RT9-WB RT9-RC RT9-EB	Hudson River, upstream of city of Rensselaer boundary with East Greenbush	Boat	Documentation of Attainment	Fecal Coliform

Post Construction Compliance Monitoring

Tributary Locations				
T00-00	Dry River Creek/Gas House Creek discharge to Hudson	Shore/manhole	Documentation of Tributary Contribution	Fecal Coliform
T11-02	Norman's Kill near confluence with Hudson River at River Road Bridge north of intersection with Corning Hill Road in Albany	Shore	Documentation of Tributary Contribution	Fecal Coliform
T12-05	Mill Creek near confluence with Hudson River at the Washington Avenue bridge south of Fourth Avenue in Rensselaer	Shore	Documentation of Tributary Contribution and Attainment of WQS for Rensselaer CSO 011	Fecal Coliform
T13-08	Wynants Kill near confluence with Hudson River	Shore	Documentation of Tributary Contribution	Fecal Coliform
T14-11	Poesten Kill near confluence with Hudson River at the 2 nd Street bridge between Canal Ave. and Ida Street in Troy	Shore	Documentation of Tributary Contribution	Fecal Coliform
T16-13	Patroon Creek near confluence with Hudson River near Tivoli Street northwest of the intersection of Tivoli Street and North Pearl Street in Albany	Shore	Documentation of Tributary Contribution	Fecal Coliform
T00-01	Krum Kill downstream of the Woodville Pump Station at Krum Kill Road	Bridge	Documentation of Attainment of WQS for Albany CSO 012	Fecal Coliform
WWTP Locations				
N-WWTP	Albany County Sewer District North Plant	Effluent	Documentation of WWTP Contribution	Fecal Coliform
S-WWTP	Albany County Sewer District South Plant	Effluent	Documentation of WWTP Contribution	Fecal Coliform
R-WWTP	Rensselaer County Sewer District Plant	Effluent	Documentation of WWTP Contribution	Fecal Coliform
EG-WWTP	East Greenbush WWTP	Effluent (Downstream Manhole)	Documentation of WWTP Contribution	Fecal Coliform ⁽¹⁾
W-WWTP	Waterford WWTP	Effluent	Documentation of WWTP Contribution	Fecal Coliform ⁽¹⁾

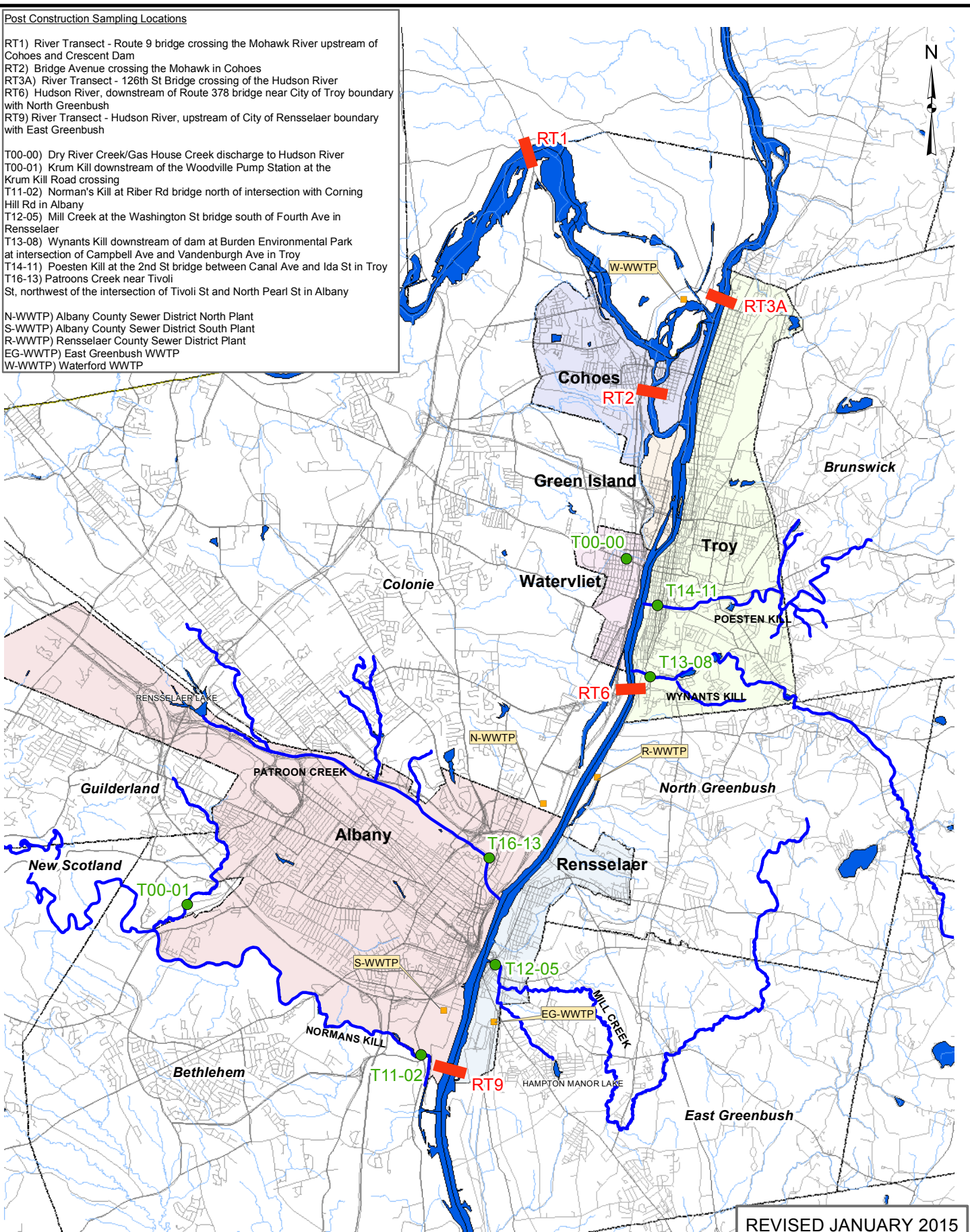
⁽¹⁾ Pending access agreements are obtained from SPDES permit holder.

Post Construction Sampling Locations

RT1) River Transect - Route 9 bridge crossing the Mohawk River upstream of Cohoes and Crescent Dam
 RT2) Bridge Avenue crossing the Mohawk in Cohoes
 RT3A) River Transect - 126th St Bridge crossing of the Hudson River
 RT6) Hudson River, downstream of Route 378 bridge near City of Troy boundary with North Greenbush
 RT9) River Transect - Hudson River, upstream of City of Rensselaer boundary with East Greenbush

T00-00) Dry River Creek/Gas House Creek discharge to Hudson River
 T00-01) Krum Kill downstream of the Woodville Pump Station at the Krum Kill Road crossing
 T11-02) Norman's Kill at Riber Rd bridge north of intersection with Corning Hill Rd in Albany
 T12-05) Mill Creek at the Washington St bridge south of Fourth Ave in Rensselaer
 T13-08) Wynants Kill downstream of dam at Burden Environmental Park at intersection of Campbell Ave and Vandenburg Ave in Troy
 T14-11) Poesten Kill at the 2nd St bridge between Canal Ave and Ida St in Troy
 T16-13) Patroons Creek near Tivoli St, northwest of the intersection of Tivoli St and North Pearl St in Albany

N-WWTP) Albany County Sewer District North Plant
 S-WWTP) Albany County Sewer District South Plant
 R-WWTP) Rensselaer County Sewer District Plant
 EG-WWTP) East Greenbush WWTP
 W-WWTP) Waterford WWTP



REVISED JANUARY 2015

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**ALBANY CSO POOL
 LONG TERM
 CONTROL PLAN**

**POST CONSTRUCTION
 MONITORING
 SAMPLING LOCATIONS**

**JUNE 2011
 FIGURE 9-2**

River transects RT2, RT6 and RT9 will be used to monitor attainment of Water Quality Standards; while river transects RT1 and RT3A will be used to monitor the background contributions of the headwaters. River transects RT1, RT2 and RT3 will be sampled at the river center; while river transects RT6 and RT9 will be sampled at the west bank, river center and east bank.

Samples will also be collected at each of the five (5) major tributaries to the Hudson River within the Albany Pool, along with two new sampling points. Samples will be collected to capture the discharges of the Gas House Creek and Dry River Creek which originate in the Town of Colonie and are piped through the City of Watervliet. In addition, samples will be collected in the Krum Kill to demonstrate attainment of the water quality standards downstream of the Woodville Pump Station in Albany. The tributary sampling will provide documentation of the tributaries' contributions toward attainment at the sampling time and will be coordinated with any monitoring efforts associated with illicit discharge detection and removal in the major tributaries. The fecal coliform data collected at the WWTPs will also be utilized to identify their contributions toward attainment at river transects RT6 and RT9.

Table 2 lists the specific River Transect locations by latitude and longitude. These locations were previously documented during the 2008 and 2009 sampling program.

Table 2: Specific of River Transect Sampling Sites

Sampling Location Identifier	West Bank	River Center	East Bank
RT1	-	42.821313	-
	-	-73.731467	-
RT2	-	42.767971	-
	-	-73.695763	-
RT3A	-	42.788682	-
	-	-73.673883	-
RT6	42.700243	42.700625	42.700609
	-73.704516	-73.702782	-73.701651
RT9	42.616779	42.616765	42.616111
	-73.760192	-73.758557	-73.757529

Sampling Frequency

Sampling will be performed (beginning the first week of May) and performed weekly throughout the recreation season at a consistent and repeated day and time. In general, sampling will be performed each Wednesday, beginning in the morning and in coordination with staff schedules. The only constraints on sampling days will be that they would not occur under conditions unsafe for boating. Should bad weather and/or river conditions prohibit sampling during the scheduled day or time, sampling will be completed when the weather and/or conditions allow for safe working conditions. This schedule assures that sampling will be performed regularly without bias toward day, time, weather, or rainfall.

Each weekly sampling event will include 23 samples comprised of three transect samples from RT6 and RT9; river center samples from RT1, RT2 and RT3A; seven tributary samples, five WWTP samples and two randomly selected

duplicate samples. Weekly sampling will be performed for up to 25 weeks per year for a total of up to 575 samples per recreational season.

Frequency of overflow data will be collected at Rensselaer CSO 011 (Mill Creek) and Albany CSO 012 (Krum/Normans Kill) to confirm the LTCP model predictions of discharges. The frequency of overflow data will be compared with tributary sampling data to verify LTCP conclusions under the “Presumption Approach” that these CSOs do not preclude the attainment of WQS for the respective tributaries. Local rainfall and tidal data will also be collected concurrently with the monitoring program to determine if relationships with wet weather or tide conditions exist.

Calculation of the 30-day Geomean

For the purposes of assessing attainment of water quality standards, the methodology must be consistent with current New York State water quality standards for each of the receiving waters included in the sampling program. The PCCMP described herein provides for sampling at a set time and date each week to eliminate the potential for any bias in the sampling process and calculation of the 30-day geometric mean. For those months where there are only four Wednesdays, the lab results for the sample taken on the last Wednesday of the prior month will be used so that there are five samples collected within 30 days for use in calculating the 30-day geomean for verification of compliance with the water quality standards for Fecal Coliform.

Frequency Modifications for Attainment of Water Quality Standards

Water quality attainment will be measured at RT2, RT6 and RT9 based on a geometric mean of five consecutive samples less than 200 cfu/100ml. If conditions for the first four sampling periods (i.e., consecutive 5 weekly samples at each transect for the months of May, June, July and August) show consistent attainment of the water quality standard for Fecal Coliform, monitoring in that season will stop and will not continue into the September and October periods.

Frequency Modifications for Non-Attainment of Water Quality Standards

Modifications to the sampling program for non-attainment will be implemented following the commission of the WWTP disinfection projects at the ACSO North and South Plants and the RCSO Plant. Water quality attainment will be measured at RT2, RT6 and RT9 based on a geometric mean of five consecutive samples less than 200 cfu/100ml. In the case that a 5 week period indicates an exceedance of the water quality standard, sampling will be performed through the September and October sampling periods.

Should the results of the first three years of sampling suggest non-attainment of the water quality standards, water quality modeling will be performed in an attempt to replicate the observed non-attainment conditions and retest the loading assumptions developed during the development of this LTCP. If Water Quality Modeling results indicate that wet weather conditions are causing Albany Pool CSO's to directly cause non-attainment of the standards in receiving waters, an additional monitoring and modeling study will be proposed to prioritize which wet weather sources should be addressed to eliminate any remaining violations. That study will continue to coordinate with the results of the illicit discharge investigations on the tributaries where non-attainment was observed during the performance of the Receiving Water Conditions Assessment performed during the development of the CSO LTCP.

Supplemental Wet Weather Sampling (If Necessary)

The APC's are committed to the collection of 5 wet weather events annually. Should unseasonably dry weather conditions be encountered, additional sampling in September and October will be performed for the purposes of assessing the performance of CSO controls. This additional sampling for wet weather events will be performed only with the intent of capturing the five (5) events for the season.

While it is recognized that additional sampling may be necessary to collect wet weather data for the purposes of assessing river recovery times and the effectiveness of the CSO controls implemented under the LTCP, the additional sampling/test results will not be used in the calculation of the 30-day geomean. Data used in the geomean calculation will be solely limited to the samples collected on the preset sampling schedule for assessing attainment of water quality standards.

Sampling Schedule

Sampling will be conducted through three consecutive recreational seasons following completion of the proposed disinfection projects. If the three seasons show attainment of recreational use criteria, then sampling should be repeated once every five years to provide a long term history of recreational use attainment. If one or more of the seasons shows non-attainment (as described above) an additional year of monitoring will be added for each non-attaining year. At this time, it is anticipated that sampling will be performed in 2015, 2016, 2017, 2022 (pending completion of the Big C satellite treatment facility) and 2027 (pending final completion of the LTCP).

PCCMP Deliverables

After the sampling is completed for the 2015 recreational season, a letter report will be prepared summarizing the receiving water sampling data and any observations that can be made from the data set. Due to the potential for varying dry or wet recreational seasons, no firm conclusions will be developed until after a greater data set has been compiled (i.e., data has been collected for the first three seasons following operation of the disinfection facilities at the RCSD and ACSD facilities). The report will present the calculated geomeans for each 30-day sampling period and make comparisons to the water quality standards. Comparisons of dry and wet weather receiving water conditions with the 2008 baseline conditions will be presented and observations made relating to the water quality improvements as a result of the continual progress in implementation of CSO controls.

The letter report will be submitted with the year-end Albany Pool CSO LTCP Annual Report. The report will also be updated with each subsequent round of sampling performed throughout the implementation phase of the LTCP. Upon completion of sampling following full implementation of the LTCP, a final report will be prepared summarizing all of the data collected and present conclusions relating to the attainment of water quality standards and the effectiveness of the CSO controls.