

Onondaga County Department of Water Environment Protection Tributary Audit Report

Audit Date: Tuesday July 2, 2013
Completed by: Anthony R. Prestigiacomo, UFI

Summary of Audit Activities

Pre-Departure

I arrived at the Henry Clay Bvd. facility at approximately 7:30 AM on Tuesday July 2, 2013. Upon my arrival, crew members (both crews) were packing the vehicles for the sampling day. I met with Mark H. and he showed me to the field prep. area where the field crew members were preparing the equipment blanks. Because the rainfall on Monday (7/1) had caused elevated stream flows in the county, the field crew checked the flow at Spencer St. for Onondaga Creek. It was 4.26 m³/s, which is above the long-term July average of 3.05 m³/s. The paperwork was changed from Biweekly to High Flow to accommodate the fact that the trip was also a high flow sampling day. This was a good observation that showed good attention to detail.

I observed the collection of the equipment/wash blanks. All crew members were wearing nitrile gloves. All equipment was rinsed with DI and then used to fill equipment. All bottles were rinsed and filled properly and filtered and/or preserved if necessary. pH on the final preserved samples were verified with the litmus (pH) strips. The bottles were properly labeled and dated. The COCs were filled out properly and samples were relinquished to the lab before departure. Throughout the collection there was good teamwork and open communication. The lab verified sample pH and confirmed that all samples were collected as required.

I was able to observe the data sonde calibration for the Crew A for pH and dissolved oxygen. The procedures used were in accordance with the QAPP. The instrument log book was complete, had all proper documentation, and was in good order.

Dan Walpole and Janaki Suryadevara introduced me to WEP's new daily safety meeting requirements. Every morning the field crews discuss the day's activities and potential hazards including weather forecasts.

Before departure I reviewed the pre-departure checklist with Dan Walpole and observed the crews loading the trucks.

Crew A Water Chemistry and Field Data Collection

I was able to observe Crew A work at two sites, Onondaga Creek at Kirkpatrick St. and Onondaga Creek at Genesee St.

Onondaga Creek at Kirkpatrick St. (08:30 AM)

Upon arrival at Kirkpatrick St., the crew had setup on the upstream side of the bridge and had all appropriate traffic safety equipment deployed (cones, flag, and truck lights). Water sample collection and field YSI measurements at this site were completed in accordance with the procedures and requirements outlined in the QAPP with no observed deviations. As per the work plan (as of 7/2 awaiting NYSDEC approval), the crew was collecting the sample from the bridge with a stainless steel bucket mid-channel. The equipment was properly rinsed with sample water prior to filling for sample collection. The bucket was emptied into the churn mixer, which was used to fill the bottles. The bottles were rinsed prior to filling. A sample was tested for Cl₂ and none were present. Sample filtration and preservation was completed and verified, and proper chain of custody procedures was followed. The field data was collected properly mid-channel and was verified to not be on channel bottom. The F. Coli sample was collected and then transferred to the pre-preserved bottle. The equipment was properly rinsed after completion with DI water.

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Onondaga Creek at Genesee St. (09:10 AM)

At Genesee St., F. Coli samples were collected at the three transect locations because of this site's proximity to a side-channel storm water outfall (formerly CSO 022). The transects were clearly marked and the F. Coli samples were collected according to protocol. The field data was also collected properly at the three transect locations. The high flow made it difficult to keep the sonde below the water surface, but the field crew did a good job of verifying sonde location prior to data collection. The crew collected the sample from the bridge with a quart glass jar which was used to fill the bottles. The equipment was properly rinsed with sample water prior to filling for sample collection. The F. Coli samples were collected and then transferred to the pre-preserved bottles. The equipment was properly rinsed after completion with DI water. A sample was properly tested for Cl₂. Sample preservation was completed and verified, and proper chain of custody procedures were followed.

Below are several notes and areas for potential improvements:

Suggestions: Crew A.

Onondaga Creek at Kirkpatrick St.

1. The YSI field data is collected electronically, with no paper backup. If the data is lost due to logger malfunction or during electronic transfer the potential exists to lose the entire day's field data. Perhaps considering keeping a hand written copy of the data as an emergency backup (applies to all sites).

Onondaga Creek at Genesee St.

1. The short cable made it difficult for the field crew to collect the field data with the YSI. The longer cable(s) should be repaired as soon as possible. This is more of a safety/equipment loss concern than a data integrity concern.
2. None other than previously specified (# 1 for Kirkpatrick St.).

After Genesee St., Janaki, Mark and I met up with Crew B at Onondaga Lake Outlet.

Crew B Water Chemistry and Field Data Collection

I was able to observe Crew B work at two sites, Onondaga Lake Outlet and Bloody Brook at the Onondaga Lake Parkway.

Onondaga Lake Outlet (09:45 AM)

Water sample collection and field YSI measurements at the Outlet were completed in accordance to the procedures and requirements outlined in the QAPP with no observed deviations. The equipment (vertical Kemmerer) was properly rinsed with sample water prior to filling for sample collection. A sample was properly tested for Cl₂. The water was collected in the churn and then taken to the truck for bottle filling (safer and more convenient than attempting on the bridge). The bottles were rinsed prior to filling. Sample filtration and preservation was completed on the appropriate samples and verified with pH strips. Proper chain of custody procedures were followed. The F. Coli sample is collected at the 2 ft sampling depth at the Outlet (not at 12ft). The equipment was properly rinsed after completion with DI water. The correct equipment was used sample preservation was completed and verified, and proper chain of custody procedures were followed. The field data profile from near surface to 12 ft was collected properly mid-channel and logged electronically.

Bloody Brook at Onondaga Lake Parkway (10:20 AM)

Sampling at Bloody Brook took place on the upstream side of the bridge across from the park entrance. This is a very busy road and the field team was aware of their surroundings and showed a very high level of attention to safety. All crew members wore yellow reflective vests; the truck was parked in a conspicuous location with flashers and top light on and was parked in manner to shield them from oncoming traffic. Water sample collection (glass quart jar) and field

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YSI measurements at this site were completed in accordance with the procedures and requirements outlined in the QAPP with no observed deviations. The quart jar was emptied into the churn mixer, which was used to fill the bottles. After the churn was full, the crew moved to a safer location to fill the bottles (driveway near storage facility). The equipment was properly rinsed with sample water prior to filling for sample collection. The bottles were rinsed prior to filling. A sample was tested for Cl₂. Sample filtration and preservation was completed and verified, and proper chain of custody procedures were followed. The field data was collected properly mid-channel and was verified to not be on the channel bottom. The F. Coli sample was collected and then transferred to the pre-preserved bottle. The equipment was properly rinsed after completion with DI water.

Below are several notes and areas for potential improvements:

Suggestions: Crew B.

Onondaga Lake Outlet at 12ft

1. None other than previously specified (# 1 for Crew A, Kirkpatrick St.).

Bloody Brook at Onondaga Lake Parkway

1. None other than previously specified (# 1 for Crew A, Kirkpatrick St.).

Chemistry Sample Transfer (10:55 AM)

After this site we went back to the Henry Clay facility to observe sample transfer from Crew B to the lab. The crew members took the samples from the truck to the lab where the samples were received. All required samples were present and the COCs were filled out correctly and verified by the lab. The temperature in the cooler was acceptable (2.3°) and all preserved samples were at the appropriate pH. The transfer process was efficient and there were no errors observed by the lab technician.

Conclusions

Overall, the lake tributary monitoring is well organized, professionally run, and executed very efficiently. All field crew members were knowledgeable and were able to answer all of my questions. Field SOPs and field YSI calibration notebooks were present and easily read. All field sampling procedures were consistent with the program design in the 2013 QAPP and there are only a few minor suggestions (summarized below). Chain of custody and field note documentation was adequate. The equipment was in good working condition and the sites were well maintained. The bridge transect marks at Genesee St. were clearly visible. Safety procedures, safety precautions and personal protective equipment were exemplary and the addition of the daily safety meeting to discuss weather and potential hazards should be commended.

The only suggestions I have, and again they are not major flaws, would be:

1. Consider keeping a hand written backup of the YSI field data in the case of data logger malfunction or electronic transfer error from the logger to the computer, either of which could cause the whole day's field data to be lost.

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July 16, 2013

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Audit Checklist (1 of 2)

Quality Assurance Project Plan Requirement	Acceptable/ Unacceptable	Notes/Comments
Sondes calibrated according to the SOP and logged in bound notebook	A	calibration record for the event (calibrated on 7/2), and verified pH calibration on the sonde to be used by Crew A, observed DO cal.
Bottles pre-labeled and match planned field effort	A	altered to accommodate high flow scenario
Chain of custody accurate and complete	A	verified COC completion for Crew A at Onon. Cr. at Kirkpatrick St. and Genesee St.; verified COC completion for Crew B at Onon. L. Outlet and Bloody Brk. at Onon. L. Parkway
Wash/equipment blanks prepared on cleaned equipment and submitted to lab check-in prior to departure	A	
Field crews verified that all equipment is packed in vehicles prior to departure	A	Dan Walpole provided the pre-departure checklist for review
Schedule and sequence of sites are reviewed prior to departure	A	field team showed great attention to detail to update sampling from biweekly to high flow based on previous day's rain
Daily safety meeting prior to departure, potential hazards discussed	A	safety preparations and equipment were excellent and new daily safety meetings
Safety precautions observed	A	excellent attention to safety; weekly safety meetings; monthly safety reviews; best strategies for parking at each location
Field crew verifies correct location prior to initiating sampling	A	all field crew members had extensive experience of all sampling locations
Field crews verify correct pre-labeled bottles filled at proper location	A	all bottles arranged and checked prior to filling
Samples collected according to QAPP	A	
Duplicate sample collected	not asses.	I did not observe the duplicate collection for this trip
Water mixed in churn	A	plenty of water in churn for all samples to be collected; good speed (according to QAPP); churn rinsed with sample water prior to filling; churn rinsed with DI water after use
Bottles rinsed with sample water prior to collection	A	
Field filtration SRP, TDP samples	A	filters, apparatus rinsed with sample water prior to use; filter apparatus rinsed with DI after use

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Audit Checklist (2 of 2)

Quality Assurance Project Plan Requirement	Acceptable/ Unacceptable	Notes/Comments
Preservation according to QAPP	A	Cl2 check at each site
Samples iced and kept out of direct sunlight	A	
Proper equipment used for each sampling location	A	exactly according to QAPP
Field crews observe ambient conditions and make notes as needed	A	observations were made and notations made on COC and field sheets
Field crews properly trained and understand assignments	A	all crew members were knowledgeable about sites, samples collected, equipment and procedures; all observed good safety protocols and displayed good teamwork and showed good communication