NEW MEXICO ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

SANTA FE RIVER WATERSHED –

PCB, *E. coli*, and Total Recoverable Aluminum

Supplemental Sampling

FIELD SAMPLING PLAN

Prepared by

SWQB

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Approvals

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6-10-2016

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OVERVIEW

The Surface Water Quality Bureau (SWQB) TMDL and Assessment Team (TAT) plans to draft a Total Maximum Daily Load (TMDL) planning document for the Santa Fe River during calendar year 2016. Current impairments include polychlorinated biphenyls (PCBs), total recoverable aluminum, nutrients, and *E. coli* bacteria (NMED/SWQB 2016a). The PCB data used to make the impairment determination are from 2003 – 2007. SWQB is also reviewing the current total recoverable aluminum filtering protocol. According to Paragraph I of 20.6.4.900 NMAC, the hardness-based aquatic life criteria are based on analysis of total recoverable aluminum in a sample that is filtered to minimize mineral phases as specified by the department. The total aluminum data used to determine the impairment were collected using this protocol. Further sampling and analysis is required to 1) confirm the existing listings prior to TMDL development, 2) acquire additional data regarding storm drains in the upper assessment unit (AU) for the purposes of probable source detection, and 3) ensure representation on various points on the hydrograph. Because the Santa Fe River is also impaired for *E. coli*, this parameter along with needed concurrent hardness will also be collected to strengthen the TMDL dataset. In summary, TAT plans to collect additional PCB, total aluminum, and E.coli data as well as hardness and supporting basic field parameters, and flow observations/measurements as needed and possible given flow conditions.

The Santa Fe River has two headwater municipal water supply reservoirs. Therefore, the surface flow through town is highly managed to ensure adequate public water supply from the reservoirs. In 2012, the city codified its commitment to create a "living river" when hydrologic predictions/conditions allow by adopting the Santa Fe River Target Flow Ordinance (available at: http://www.santafenm.gov/river_and_watershed). The ordinance commits up to 1000-acre-feet per year of the city's water supply back to the river each year depending on predicted and measured available surface water. The city of Santa fe Public Works Department was contacted to determine if and when releases would occur during 2016. They are proposing a 740 acre feet target flow release this year. They have a few planned construction projects that may require a few days of decreased flows, and stated they would notify SWQB regarding the exact timing of these projects as they move forward. Figure 1 displays the 2016-2017 planned hydrograph in the Santa Fe River. Sampling dates will be determined to accomodate the final release schedule (and mentioned construction projects).

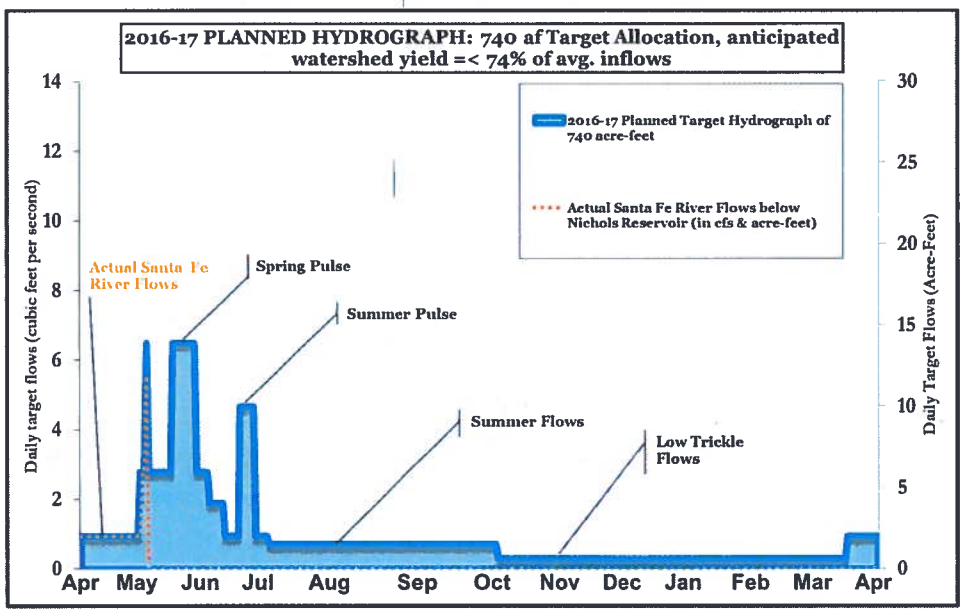

Figure 1. 740 acre feet planned flow release scenario (City of Santa Fe)

Sampling will occur June through August 2016, and will ideally cover spring pulse, summer pulse/storm, and summer flows. Sufficient surplus in the 2016 chemistry analysis budget allows for sample analysis at the New Mexico State Laboratory Division (SLD). Monitoring responsibilities will be covered by TAT staff, with assistance from the Monitoring Team. Sampling permits are not required. City of Santa Fe staff will be notified prior to each water quality sampling event in the event that they want to observe and/or collect their own concurrent samples. Sample locations were selected at the bottom of the listed impaired AUs, plus one additional station to bracket and/or provide data for specific outfall storm drains of concern in the reach through downtown based on information of discharge into the storm sewers from Point Source Regulation Section staff (Table 1). Projected costs are detailed in Table 2.

Table 1. Santa Fe River stations and parameters to be monitored in 2016

Santa Fe River	Total PCBs (EPA 1668C)	*E. coli*	Total recoverable aluminum (10 micron filter)	Total recoverable aluminum (1 micron filter)	Dissolved aluminum (0.45 micron filer); Ca and Mg for hardness
Santa Fe River upstream of WWTP effluent channel - 30SantaF032.9 (bottom of AU) [1]	4	4	4	4	4
Santa Fe River 5 meters upstream of Guadalupe St - 30SantaF050.3 (bottom of AU)	4	4	4	4	4
Santa Fe River upstream of storm drains outfalls of concern- 30SantaF0XX.X or at storm drain outfall(s)[2] (bracket potential sources)	2	2	2	2	2
Santa Fe River above McClure Reservoir at gage – 30SantaF061.1 (aluminum filtration study data set)	-	-	4	4	4
QA (equipment blanks)	see note[3]	4	-	-	4
TOTAL	**10**	**14**	**14**	**14**	**18**

NOTES:

1. If this station is dry, the next upstream station with flow will be sampled, namely at CRd 68A (San Isidro Crossing), at Siler Rd - 30SantaF042.6, or below Frenchies Field - 30SantaF044.5.

2. Exact location TBD in coordination with the SWQB Point Source Regulation Program and city of Santa Fe. These samples will be taken during storm events when outfalls of concern are flowing.

3. PCBs method 1668C has a one year holding time. All samples will be submitted as one batch. Contractor will run duplicates with each batch, and will blank correct all data.

Table 2. Chemical Cost Summary

Analyte	Total # Samples	Cost per Sample (WTU or $)	Total Expenditure (WTU or $)
Total PCBs (method 1668C)	10	$ 880.00	$ 8,800.00
Gross Receipts Tax (Albuquerque, NM)	N/A	7.1875%	$ 632.50
Total recoverable aluminum	28	20 WTUs	560 WTUs
Dissolved Hardness (Ca, Mg)	18	60 WTUs	1080 WTUs
E. coli (in house)	14	$ 5.08	$ 71.12
TOTAL $			**$ 9,503.62**
TOTAL WTU			**1640**

DOCUMENTATION

Project documents include this field sampling plan, calibration records, validation and verification records, sample collection data, records of analytical data in hard copy or in electronic form and quality control (QC) records. Documents will be maintained in accordance with the requirements of the SWQB Quality Assurance Project Plan (QAPP) (NMED/SWQB 2016b). Project documentation will include narrative descriptions of progress throughout the life of the project relating to planning and implementation efforts, including deviations from the original plan and issues that arise along with any associated corrective actions. Planned project deviations for any reason will be presented for review by the SWQB QAO. Project activities will be documented in SWQB Monitoring Section Field Sheets. Information from the field sheets is entered and organized in the SWQB database (SQUID). Analytical results are electronically transferred into the SQUID database and eventually uploaded to USEPA's Water Quality Exchange database (STORET WQX). All data are verified and validated for completeness and accuracy. Project data housed in the SQUID database are organized in reports and assessed by TAT to determine if water quality standards are being attained. Probable Source forms will also be filled out during the survey. All paper documentation, field sheets, probable source forms, etc., will be housed together in the SWQB library.

CHEMISTRY SAMPLING

Water quality samples will be collected and analyzed in accordance with procedures as outlined in the SWQB Standard Operating Procedures for Data Collection (SOPs) (NMED/SWQB 2015), with the exception noted in Table 1 footnote 3. Total recoverable aluminum and dissolved hardness (via dissolved calcium and magnesium determinations) samples will be submitted to New Mexico's State Laboratory Division (SLD). *E. coli* samples will be processed in the SWQB Santa Fe laboratory. PCB samples will be submitted to a contract laboratory on the NMED vendor list that is able to provide blank corrected PCB results using method EPA 1668C (available at: https://www.epa.gov/sites/production/files/2015-09/documents/method_1668c_2010.pdf).

CONTACT LIST

To request access to the station above McClure Reservoir in the closed municipal watershed: Alex Puglisi, City of Santa Fe Environmental Compliance Specialist, Public Utilities Water Administration, (505) 955-4232

To request proposed reservoir release hydrograph: Alan Hook, City of Santa Fe Water Resource Analyst, Public Utilities Water Resources and Conservation, (505) 955-4205

REFERENCES

New Mexico Administrative Code (NMAC). 2013. *State of New Mexico Standards for Interstate and Intrastate Surface Waters; 20.6.4.* New Mexico Water Quality Control Commission. Santa Fe, NM. Available at: https://www.env.nm.gov/swqb/Standards/.

NMED/SWQB. 2015. *Standard Operating Procedures*.Santa Fe, NM. Available at: https://www.env.nm.gov/swqb/SOP/.

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