



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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5-19-16

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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. 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 that bracket a series of storm drains in the upper assessment unit (AU), 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.

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. 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 anticipating a 1,000 acre feet target flow release scenario 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 represents a typically 1,000 acre feet target flow scenario in the Santa Fe River. Exact sampling dates will need to accommodate the final release schedule (and mentioned construction projects), which the city will forward once developed.

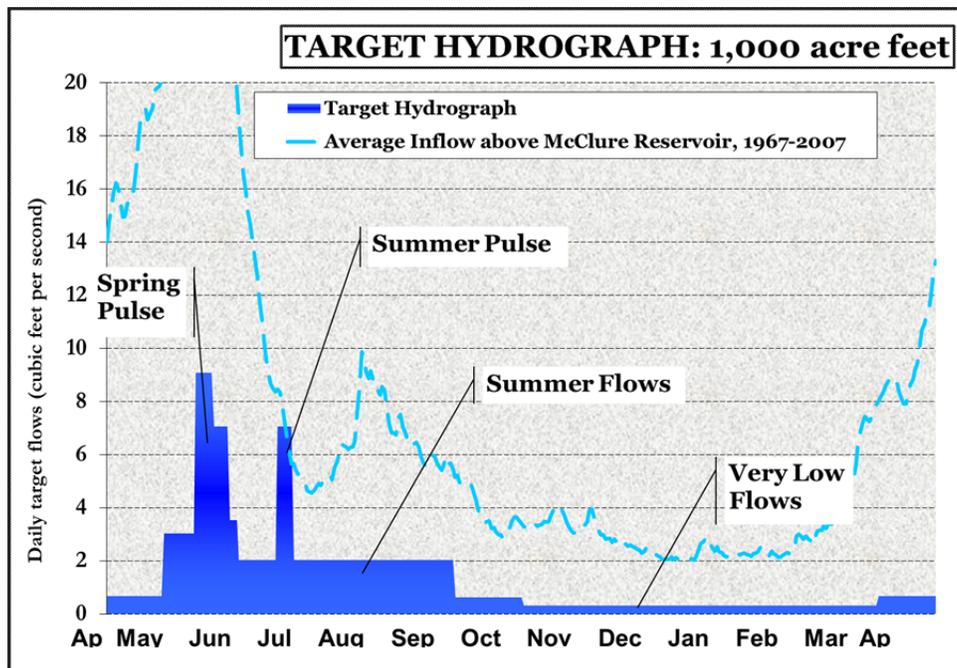


Figure 1. 1,000 acre feet target flow release scenario (City of Santa Fe)

Sampling will occur between March through October 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 several outfall storm drains 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 1668)	<i>E. coli</i>	Total recoverable aluminum (10 micron filter)	Total recoverable aluminum (1 micron filter)	Dissolved aluminum (0.45 micron filter); Ca and Mg for hardness
Santa Fe River upstream of WWTP effluent channel - 30SantaF032.9 (bottom of AU)	4	4	4	4	4
Santa Fe River downstream of Sandoval St - 30SantaFOXX.X ¹ (bottom of AU)	4	4	4	4	4
Santa Fe River upstream of storm drains outfalls of concern- 30SantaFOXX.X 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. Exact location TBD. The nearby historic station “Santa Fe River ~75m u/s of Sandoval St - 30SantaF050.5” does not capture contributions from a large outfall on the downstream side of the Sandoval bridge, so a new station further downstream will be established.
2. Exact location TBD. These samples will be taken during storm events when outfalls are flowing.
3. PCBs method 1668 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 1668)	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 metals (incl. Ca, Mg)	18	195 WTUs	3510 WTUs
<i>E. coli</i> (in house)	14	\$ 5.08	\$ 71.12
TOTAL \$			\$ 9,503.62
TOTAL WTU			4070

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). 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. 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 moved 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.

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; <http://www.nmenv.state.nm.us/swqb/SOP/>), with the exception noted in Table 1. Total recoverable aluminum and dissolved hardness (via dissolved calcium and magnesium samples) samples will be submitted to 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 1668.