STEPP Quality Assurance Project Plan (QAPP) for Lab Testing Overview Document

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The purpose of a QAPP is to outline the procedures a project will use to ensure the data it collects and analyzes will meet project requirements. When used as intended, a QAPP documents the project planning phase and guides implementation and assessment. A QAPP helps the data user and project leaders ensure the collected data meets their needs and that quality control measures are implemented.

In the context of a STEPP verification program, a QAPP provides a mechanism to ensure that the resulting report will meet and/or exceed quality assurance/quality control requirements. Following an approved QAPP increases the probability that the testing project will result in verification. Developing a QAPP should be a collaboration between the proponent, the testing entity and the verifier.

It is highly recommended the QAPP be submitted to and reviewed by the STEPP External Review Group (SERG) and STEPP and approved prior to the beginning of testing. Once received, STEPP and the SERG will review the draft QAPP and advise the SCM proponent of any changes that are needed within 40 business days.

The STEPP verification QAPP shall generally follow the outline of the EPA's *Guidance for Quality Assurance Plans* (2002). Chapter 2 of the EPA guidance discusses the QAPP elements one would expect to find in a variety of project applications while offering flexibility in determining which elements are applicable for a specific project.

At a minimum, the following elements are required for a STEPP Stormwater Control Measure (SCM) Verification Study QAPP (Please reference EPA 2002 and Geosyntec et. al, 2009 for specific details for each QAPP element).

General information

- Cover page
- Table of Contents
- Distribution List (a list of entities that will receive the approved plan)
- Project Introduction
- Description of Technology Tested
    - SCM Sizing Methodology
    - Treatment mechanism
    - Bypass configuration
    - Design drawings
    - Maintenance requirements, including anticipated maintenance frequency and methods

Testing and laboratory information

- Test Setup
    - Include all relevant diagrams and/or engineering design sheets
- Testing Laboratory Arrangement (if applicable)
    - Test contaminant description (i.e. sediment, trash, nutrient solution). Must reference a specific standard (ASTM, NJDEP sediment standard, etc.) that STEPP will verify against.
    - Test Unit Description and Lab Setup

        - Include appropriate drawings and photos of the lab setup, including sampling points, pollutant dosing location, etc.
    - Scour test setup (if applicable)
    - Removal efficiency setup
- Testing laboratory personnel and/or research personnel qualifications. Note STEPP will accept first-party testing, but in the QAPP identify if testing will be done first-party or third-party as well as the qualifications of the personnel providing oversight (i.e. testing). Third party staff should provide a signed documentation as part of the QAPP, stating they meet STEPP qualifications and are conflict free (for STEPP qualifications see the STEPP Program Overview document). No testing lab qualifications are needed provided the laboratory is able to follow ASTM standards.
- If a first-party leads the testing, describe the third-party observer(s) qualifications
- Identify all water quality analytical methods to be used (Table format)
    - Reference appropriate analytical methods (ASTM, EPA, Standard Methods, etc.), holding times, sample technique (grab, composite, autosampler, etc.)
- Identity of analytical laboratory(s). (Examples of acceptable analytical laboratories include NELAP-certified or state agency approved laboratories). For more information on laboratory requirements, see the STEPP Overview document.
- Test Plan (Protocol) – shall reference an ASTM standard
- Quality objectives and criteria – shall reference an ASTM standard
    - Must include standard operating procedures (SOPs) and describe how the proponent will curate laboratory, record outputs from laboratory instruments, handle chain-of-custody records, collect sample and equipment blanks, and ensure internal and external laboratory water quality records and reports are properly recorded and stored.
- Include statement on how the study QA/QC will be adhered to and how deviations will be acknowledged and addressed.

Information on data validation and verification

- Discussion on data validation and useability (see Section 13, page 40, in the Washington Department of Ecology reference for an example of detailed information)
    - Data verification and validation for hydrologic data, if applicable
    - Data verification and validation for water quality data

Though not required, the QAPP should include confidential business (proprietary) information. If not included, the SERG will request this information during the review process if deemed necessary to complete the review. The proponent should clearly indicate what information is confidential.

Deviations from the above list may be required depending on testing conditions. Any deviations should be indicated in the QAPP by the proponent. The SERG will review the submitted QAPP and provide comments on any deviations noted by the proponent. If there are changes to the test project (new lab, changes to the technology, different 3rd party reviewer) the proponent should submit an addendum to STEPP for review and approval.

In addition to the EPA document referenced above, the following references provide examples of established and accepted procedures for developing a QAPP. While these references provide examples of established protocol, note that any QAPP must be tailored to the specific requirements of the project.

- Washington Department of Ecology. Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies. Publication no. 04-03-030. July 2004. Revised December 2016. (Accessed January 6, 2023)(https://apps.ecology.wa.gov/publications/summarypages/0403030.html).
- New Jersey Department of Environmental Protection. New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device January 14, 2022. Last updated April 25, 2023. (https://dep.nj.gov/wp-content/uploads/stormwater/filter-protocol-04252023-final.pdf).
- New Jersey Department of Environmental Protection. New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device. January 1, 2021. Last updated April 25, 2023. (https://dep.nj.gov/wp-content/uploads/stormwater/hds-protocol-04252023-final.pdf).
- Geosyntec Consultants and Wright Water Engineers. 2009. Urban Stormwater BMP Performance Monitoring. https://bmpdatabase.org/s/2009_BMPMonitoringManual_11-09.pdf (Accessed January 6, 2023)

References:

1. US Environmental Protection Agency. 2002. Guidance for Quality Assurance Project Plans. EPA/240/R-02/009. https://www.epa.gov/sites/default/files/2015-06/documents/g5-final.pdf (Accessed January 6, 2023).
2. US Environmental Protection Agency. 2023. Guidance for Preparing Standard Operating Procedures, EPA QA/G-6 from March 2001.