New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB)

Standard Operating Procedure (SOP) for

[SOP Titile]

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|  |
| [Name]Subject Matter Expert |  | Date |
|  |  |  |
| [Name]Quality Assurance Officer |  | Date |
|  |  |  |
| [Name]Program Manager – [Name of Section] Section |  | Date |

# 1**.0 Purpose and Scope**

*State the purpose of the SOP and applicability to the SWQB by indicating the scope of the work or tasks that it covers (for example, the collection of water samples for chemical analysis). The scope may be used to expand on the brief title.*

The purpose of this procedure is to describe the process for……[narrative text]

# 2.0 Personnel Responsibilities

*List by title or group the persons who are responsible for implementing the SOP. This should include staff involved in the development, implementation or oversight of the SOP. This should include each individual title and their responsibilities as well as qualifications to carry out those responsibilities.*

Program Manager [narrative text regarding responsibilities]

Project Manager [narrative text regarding responsibilities]

Project Team [narrative text regarding responsibilities]

The Quality Assurance Officer (QAO) is involved in the development and revision of this SOP to ensure the SOP meets the requirements of the SWQB’s Quality Assurance Project Plan. The QAO, along with the Subject Matter Expert and Program Manager will determine if any revisions to this SOP are needed at a minimum of every two (2) years in accordance with SOP 1.1 for the Creation and Maintenance of SOPs (https://www.env.nm.gov/surface-water-quality/sop/). Pending the review and approval of the document, the QAO will ensure the SOP is accessible through the SWQB's website.

SWQB Personnel [narrative text regarding responsibilities]

# 3.0 Background and Precautions

### 3.1 Background

*Provide any background that will make the SOP more useful. Do not include “background information,” which, although perhaps interesting, does not contribute to the usefulness of the SOP.*

[narrative text on background for SOP]

### 3.2 Procedural Precautions

*Any interferences or reasoning on process that needs to be considered, cautions on equipment use, or implementation that could cause data invalidation (holding a flow meter at an unlevel angle)*

[narrative text for procedural precautions for SOP]

### 3.1 Safety Precautions

*Should include any personal health or safety warnings or precautions to be aware of when implementing the SOP.*

[narrative text for safety precautions for SOP]

# 4.0 Definitions, Abbreviation, Acronyms

*Include definitions that make the SOP more useful; particularly define terms that may be easily or commonly confused.*

[useful definitions, see below]

Surface Water Quality Bureau (SWQB)

Quality Management Plan (QMP)

Quality Assurance Project Plan (QAPP)

Project Manager

Program Manager (may be the same as the project manager)

Subject Matter Expert (SME, may be the same as Project Manager or Program Manager)

Quality Assurance Officer (QAO)

Standard Operating Procedure (SOP)

Assessment Units (AUs) ─ River or stream reaches defined by various factors such as hydrologic or watershed boundaries, geology, topography, incoming tributaries, surrounding land use/land management, water quality standards, etc. AUs are designed to represent waters with assumed homogeneous water quality (WERF 2007). Stream or river AUs in New Mexico are typically no more than 25 miles in length unless there are no tributaries or land use changes to consider along the reach (NMED/SWQB 2017).

Field Sampling Plan (FSP) – A document that provides guidance for all fieldwork by defining in detail the sampling and field data-gathering methods as well as resource requirements for the project.

Program Manager ─ An individual within the SWQB that manages a program such as the Watershed Protection Section (WPS), the Point Source Regulation Section (PSRS) or the Monitoring, Assessment and Standards Section (MASS). The Program Manager and Project Manager are not necessarily synonymous.

Quality Assurance Officer (QAO) ─ An individual within the MASS that is responsible for overseeing the development and implementation of all quality assurance procedures and processes within the SWQB including those projects that receive support or funding from the SWQB. The QAO is also responsible for validating and verifying data sets for potential use in assessment of surface waters.

RID – A reference ID. This is a unique number and barcode assigned to each water chemistry and benthic macroinvertebrate sample. RID stickers provided by SLD contain both the number and barcode and can be adhered to the sample container.

Sampling Frame ─ for this SOP consists of approximately 25,000 500-meter stream increments in New Mexico.

Sample Population -- Perennial, actively flowing, wadeable streams and rivers in New Mexico within a specific watershed as defined in the SWQB Comprehensive Assessment and Listing Methodology, or CALM, for Sedimentation (NMED/SWQB 2019).

State Laboratory Division (SLD) – A state-run laboratory located in Albuquerque, New Mexico. The majority of SWQB water chemistry samples are submitted to this laboratory for analysis.

Subject Matter Expert (SME) ─ A person who is familiar with the purpose and procedure for accomplishing a task. The SME may be the same individual as the Project Manager.

Standard Operating Procedure (SOP) ─ A document that lists the steps that should be completed when doing a task.

Surface Water Quality Bureau (SWQB) ─ A Bureau under the Water Protection Division of the New Mexico Environment Department. The SWQB’s mission is to preserve, protect, and improve New Mexico’s surface water quality for present and future generations.

SQUID – The SWQB internal database for entering and storing surface water quality information including but not limited to projects, monitoring locations and all associated water quality data.

Trainee ─ A person undergoing training for a particular data collection survey(s) identified in this SOP.

# 5.0 Equipment and Tools

*List the equipment and tools that are needed to accomplish the task described by the SOP. Include any periodic maintenance notes and common trouble shooting procedures (if brief) or citations to documents addressing these equipment and tool procedures.*

* + - [Llst equipment]
		- Field Equipment
		- .

# 6.0 Step-by-step Process Description

*List the steps that are required to accomplish the task. Write this section as a series of stepwise instructions using the following guidelines in structure and content: Use simple imperative sentences. For example, say “Calibrate the sensors in the lab,” and not “The sensors shall be calibrated in the lab.” Make the instructions clear and complete so that most personnel could take the instructions and complete the task in accordance with the SOP. If a flow chart would make the SOP more useful, prepare one.*

*• Describe preparation. Include how equipment is cleaned and calibrated, or if there is a specific SOP on equipment calibration, then reference that SOP*

*• Provide complete sampling procedures*

*• Specify the person who is responsible for doing each step*

*• Describe when and how data collection forms or other forms should be completed and where to find them. Include forms in Section 9 (Related Forms) of the SOP.*

*• If applicable state the specific standard method that will be followed. It may be an EPA approved method or other standard method. Explain any deviations or modifications to the standard method and the circumstances under which a deviation may or may not be acceptable*

*• State how samples will be preserved, processed, handled and stored to ensure integrity*

*• Provide directions for operation and maintenance of field equipment*

*• Describe sample tracking method/ chain of custody information if submitting samples to an analytical laboratory*

*• Describe post collection/processing procedures*

*• Explain the process for data verification and validation*

*• Include any other QA processes or applicable references to the QAPP or other SOPs.*

[short narrative text summarizing objective of procedure]

### 6.1 Office Procedures (Prior to field work)

[narrative text regarding office procedure]

### 6.2 Field Protocols

[narrative text regarding field procedure]

### 6.3 Logistics and Field Data Collections

[narrative text regarding logistics and field data collections]

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**7.0 Data and Records Management**

*Describe where the data will be stored or managed after obtaining it from field work or the laboratory. Records, including field notes, should be described here with information as to length of time they will be retained. Be sure to ensure management and retention of records are in accordance with the State’s General Government Administration, Public Records regulations (1.13 NMAC) and the New Mexico's General Government Administration, Functional Records Retention and Disposition Schedules, Retention and Disposition of Public Records (1.21.2 NMAC).*

[narrative text regarding data entry and management]

# 8.0 Quality Assurance and Quality Control (QAQC)

*Describe the preparation of appropriate QC procedures (self-checks, such as calibrations, recounting, reidentification) and QC material (such as blanks (trip, field, or method); replicates; splits; fortifications; spikes; and performance evaluation samples) that are required to demonstrate successful performance of the method. Specific criteria for each should be included. Describe the frequency of required calibration and QC checks and discuss the rationale for decisions. Describe the limits/criteria for QC data/results and actions required when QC data exceed normal range. Describe the data verification or validation process or reference the SOP for data verification and validation.*

[narrative text regarding QA/QC]

The SWQB controls the quality of field data by using standardized methods that are documented SOPs. All personnel who collect monitoring data must be familiar with these protocols, sign acknowledgment form associated with this specific SOP and collect data in accordance with the procedures as they are defined in this SOP and all other applicable SOPs. In addition to standardized methods, proper training of field personnel represents a critical aspect of meeting the data quality objectives in order to fulfill the goals of the SWQB’s QAPP (NMED/SWQB. 2018).

Assurance of field data collection for probabilistic monitoring are done through adherence to the process outlined in this and other applicable SOPs and oversight of the process by the QAO. If at any time the QAO determines this process is not being adhered to, the QAO has the authority to cease activities specific to this SOP with prior support and approval by the SWQB Bureau Chief and MASS Program Manager, until such a time that the issue can be resolved.

# 9.0 Related Forms

*List the forms or supporting documents that are needed to complete the task. Ensure that the forms are available through the SWQB’s secured server and the NMED publicly accessible website.*

*Field Equipment Checklist for Habitat*

*SOP and field forms*

* [list forms]

# 10.0 Revision History

*Describe the changes to the current revision, the date and whether the revision was technical or editorial. Format should be as follows:*

• Revision 0. [Effective YYYY.MM.DD.] Original SOP.

[NAME] of QAO, QAO; [NAME] of SME, SME; [NAME] of Program Manager

• Revision 0. February 15, 2020. Original.

Miguel Montoya, QAO; Meredith Campbell, SME; Kristopher Barrios, Program Manager.

# 11.0 References

*Include all references used to establish the technical merits of the procedure. Format should be in a name-year scientific style citation format. This section should always include the QA/QC Guidance for SOPs*

Environmental Protection Agency (EPA). April 2007. Guidance for Preparing Standard Operating Procedures (SOPs) QA/G-6. <https://www.epa.gov/quality/agency-wide-quality-system-documents>

New Mexico Environment Department / Surface Water Quality Bureau (NMED/SWQB). State of Mexico Surface Water Quality Bureau Standard Operating Procedure. Available at: <https://www.env.nm.gov/surface-water-quality/sop/>

New Mexico Environment Department / Surface Water Quality Bureau (NMED/SWQB). 2020.

Quality Management Plan for Environmental Data Operations [QMP], Planning Process for

Environmental *Data Collection Activities*. Available at:

<https://www.env.nm.gov/surface-water-quality/protocols-and-planning>

New Mexico Environment Department / Surface Water Quality Bureau (NMED/SWQB). 2018.

Quality Assurance Project Plan for Water Quality Management Programs. Available at:

<https://www.env.nm.gov/surface-water-quality/protocols-and-planning>

New Mexico Environment Department / Surface Water Quality Bureau (NMED/SWQB). 2016. State of New Mexico Water Quality 10-Year Monitoring and Assessment Strategy. Available at: <https://www.env.nm.gov/surface-water-quality/protocols-and-planning>