

Annual Review Certification
for
TEXAS STREAM TEAM PROGRAM
Volunteer Surface Water Quality Monitoring Project
Quality Assurance Project Plan (QAPP)
Federal ID #9961423, 99614624, 9961425
QTRAK #20-090
Original QAPP Effective Period – 12-17-2019 to 12-17-2022
Year – 2 of 3

Signatures below document certification of the annual review of Nonpoint Source Program Clean Water Act §319(h) Texas Stream Team Program Volunteer Surface Water Quality Monitoring Project QAPP by The Meadows Center for Water and the Environment, Texas State University and the TCEQ Project Manager. The original QAPP was approved by the Texas Commission on Environmental Quality on December 17, 2019. No annual reviews have been conducted to date and expedited amendment #1 (attached) was submitted on September 16, 2020, and approved on October 2, 2020.

The Meadows Center for Water and the Environment, Texas State University, and TCEQ Project Managers have verified that the original QAPP accurately reflects current project requirements. One QAPP amendment that was approved in the last year is provided in attachments to this certification. Organizational changes and QAPP amendments that were approved in the last year are provided in attachments to this certification. The QAPP is now approved until December 17, 2022.

The next annual review will be initiated on September 17, 2021. Amendments that are necessary in the interim must be fully approved before their provisions are implemented.

<u>Jenna Walker</u> 10/5/2020	_____
Jenna Walker, Project Manager Texas Stream Team Program	Date Emily Sanchez, TCEQ Project Manager Nonpoint Source Program

Enclosures: Organizational Changes

QAPP Amendment No. 1

cc: Anthony Suttice, Project Officer, EPA
Sharon Coleman, TCEQ Quality Assurance Manager and Acting Lead Nonpoint Source (NPS) Program Quality Assurance Specialist

Organizational Changes

Section/Page#	Change
A1/3	Nicole Hall to Emily Sanchez, NPS Project Manager, NPS Program
A4/7	Nicole Hall to Emily Sanchez, TCEQ NPS Project Manager
A4.1/9	Nicole Hall to Emily Sanchez, TCEQ NPS Project Manager

From: Sharon Coleman <sharon.coleman@tceq.texas.gov>
Sent: Friday, October 2, 2020 4:45 PM
To: Emily Sanchez <Emily.Sanchez@tceq.texas.gov>
Cc: Jessica Uramkin <Jessica.Uramkin@tceq.texas.gov>; Mark Mathis <Mark.Mathis@tceq.texas.gov>
Subject: Approval: Texas Stream Team Program Monitoring QAPP - Expedited Amendment No. 1

Hi, Emily—

Amendment #1 (expedited) to the Texas Stream Team Program Monitoring QAPP is approved effective today.

Please ensure that the Amendment is sent to all on the distribution list, and cc me when you send to EPA.

Thanks, and have a great weekend—

Sharon

From: Emily Sanchez <Emily.Sanchez@tceq.texas.gov>
Sent: Thursday, September 17, 2020 2:49 PM
To: Sharon Coleman <sharon.coleman@tceq.texas.gov>
Subject: Texas Stream Team Program Monitoring QAPP - Expedited Amendment No. 1

Hello Sharon,

Please see below a draft expedited amendment for the “Texas Stream Team Program” for your review. We are requesting changes to two appendices. I also attached the original QAPP for your convenience. Please let me know if you have questions.

Thank you,
Emily

Expedited Amendment # 1
to the
TEXAS STREAM TEAM PROGRAM
Volunteer Surface Water Quality Monitoring Project
Quality Assurance Project Plan
(QAPP)

Texas Stream Team Program

The Meadows Center for Water and the Environment
Texas State University
601 University Dr.
San Marcos, Texas 78666

Funding Source:

Nonpoint Source Program CWA §319(h)
Prepared in cooperation with the Texas Commission on Environmental
Quality
and the U.S. Environmental Protection Agency
Federal ID #99614621, 99614622, 9961423, 99614624, 99614625
QTRAK#20-090

Effective Date: Upon date of approval email from Lead NPS QA Specialist

Questions concerning this QAPP should be directed to:

Jenna Walker
Program Manager
The Meadows Center for Water and the Environment, Texas State University
601 University Drive, San Marcos, Texas 78666
(512) 245-9148
jjwalker@txstate.edu

Justification:

The Texas Stream Team Program Quality Assurance Project Plan will be amended to include the following:

- Replace the SOW in Appendix A with the new Texas Stream Team SOW so that monitoring activities may continue, and add its associated federal ID number to the cover page.
- The Texas Stream Team staff identified a discrepancy within the QAPP with respect to the time allowed for Texas Stream Team data to be submitted to the Dataviewer. Task 3 under A6 Project/Task Description states “Populate the database within 60 days of data submission by volunteer citizen scientists.” But Appendix D, TST Data Management Plan states “All information is entered into TST database within 45 business days of receipt.”

Summary of Changes:

- Add federal ID number associated with new TST SOW.

- Appendix A. Replaced in its entirety.
- Appendix D. TST Data Management Plan will be updated to reflect Task 3 of the contract SOW for consistency. The second sentence of the second paragraph under **Procedures for processing field data** will be changed from “All information is entered into TST database within 45 business days of receipt.” To “All information is entered into TST database within 60 business days of receipt.”

Detail of Changes:

Below is a copy of the changed sections (Appendix A and D) in their entirety with changes underlined and highlighted, and removed language struck out and highlighted.

Appendix A. Contract Scope of Work and Schedule of Deliverables

Scope of Work

This project will support the Performing Party’s statewide water quality monitoring program by providing supplies and training for volunteer citizen monitors. Watershed services and nonpoint source pollution education focused on impaired waters will also be provided in watersheds where Watershed Protection Plans (WPPs) are being developed or implemented.

Task 1: Project Administration

Objective: To effectively administer, coordinate, and monitor all work performed under this project including technical and financial supervision and preparation of status reports.

Subtask 1.1: Project Oversight — The Performing Party will provide technical and fiscal oversight of the staff and/or subgrantee(s)/subcontractor(s) to ensure Tasks and Deliverables are acceptable and completed as scheduled and within budget. With the TCEQ Project Manager’s authorization, the Performing Party may secure the services of subgrantee(s)/subcontractor(s). Project oversight status will be provided to the TCEQ Project Manager with the quarterly Progress Reports (PRs).

Subtask 1.2: PRs — The Performing Party will submit PRs to the TCEQ Project Manager by the 15th of the month following the end of each state fiscal quarter. PRs will include reporting on the status of Deliverables and proposed revisions to due dates, narrative description of progress by Task, and status of nonconformances/corrective actions. The TCEQ Project Manager may provide a template for the PR to the Performing Party.

Subtask 1.3: Reimbursement Forms — See Special Terms and Conditions.

Subtask 1.4: Contract Communication — The Performing Party will maintain regular communication with the TCEQ Project Manager regarding the status and progress of the project and any matters that require attention between PRs. Communications will include a quarterly conference call to discuss items such as project Tasks, financial status, Quality Assurance Project Plans, corrective actions and any other matters that require attention. The TCEQ Project Manager may request additional information from the Performing Party prior to the call. The Performing Party will provide meeting notes, identifying action items, for the telephone calls within five days of the call.

The first conference call held each fiscal year of the project, will cover, as applicable, any staff changes, the previous year's performance, budget estimates, invoicing issues, quality assurance issues, and overall project progress.

Matters that will be communicated to the TCEQ Project Manager include, but are not limited to:

- Notification a minimum of 14 days before the Performing Party has scheduled public meetings or events, or other major Task activities.
- Notification within 48 hours following events or circumstances that may require changes to the Budget, Scope of Work, or Schedule of Deliverables.
- Requests for prior approval of activities or expenditures for which the Contract requires advance approval or that are not specifically included in the Scope of Work.

Subtask 1.5: Contractor Evaluation — The Performing Party will participate in an annual Contractor Evaluation at the end of each state fiscal year.

Subtask 1.6: Coordination Call with EPA — Upon request by TCEQ and EPA, the Performing Party will participate in a call with EPA to share progress on goals, measures of success, challenges, and draft documents.

Subtask 1.7: Project Article — The Performing Party, upon request by TCEQ, will provide a project article. The article will state the project's purpose, and describe the activities of the past fiscal year, and include photographs of the project. The Performing Party will address TCEQ comments on the article and provide a final article.

Subtask 1.8: Contract Budget Updates — The Performing Party will discuss annual fiscal year budgets with the TCEQ Project Manager on a quarterly basis at a minimum. Starting in the second year of the project, the Performing Party will provide an Annual Budget Update that details state fiscal year spending projections associated with planned project activities. These updates will be revised when fiscal year spending projections change by ten percent or more, or upon request by the TCEQ Project Manager. The update in the final year of the project will include a budget for all remaining project activities. The TCEQ Project Manager may provide a template for the Annual Budget Update.

Deliverables:

- 1.2 PRs (by the 15th of the month following the end of each state fiscal quarter).
- 1.2 Reimbursement forms (see Special Terms and Conditions).
- 1.3 Conference calls with meeting notes and action items (calls within 30 days of the end of each quarter, notes within five days of call).
- 1.4 Contractor Evaluation (at the end of each state fiscal year).
- 1.5 Coordination call with EPA (upon request).
- 1.6 Project Report Article and pictures (upon request).
- 1.7 Contract Budget updates (by the 15th of the month following the end of each state fiscal quarter).
- 1.8 Annual Budget Updates (upon request).

Task 2: Quality Assurance

Objective: To refine, document, and implement data quality objectives (DQOs) and quality assurance/quality control (QA/QC) activities that ensure data of known and acceptable quality are generated by this project.

Subtask 2.1: QAPP Planning Meetings — The Performing Party will schedule a QAPP planning meeting with the TCEQ Project Manager, and QA staff, technical staff, and contractors within 30 days of Contract execution, to implement a systematic planning process based on the elements in the applicable QAPP shell. A QAPP shell/examples may be provided by the TCEQ Project Manager.

The information developed during this meeting will be incorporated into a QAPP by the Performing Party. The Performing Party may conduct additional meetings to determine whether changes to an existing QAPP are needed.

Subtask 2.2: Quality Assurance Project Plan (QAPP) — The Performing Party will develop and submit to TCEQ a QAPP with project specific DQOs and other components consistent with the following documents:

- TCEQ QAPP Shell(s)/example(s)
- EPA Requirements for QAPPs (QA/R5)
- EPA Guidance for QAPP for Modeling QA/G-5M
- EPA Guidance for Geospatial Data QAPPs (QA/G-5G)
- EPA QAPP Requirements for Secondary Data Research Projects
- TCEQ Surface Water Quality Monitoring (SWQM) Procedures

The Performing Party will develop the QAPP in consultation with the TCEQ Project Manager, QA staff, and contractors. The Performing Party will address comments and submit a Final QAPP for review. The QAPP must be signed/fully approved by TCEQ and, if necessary, EPA, before any environmental data operations begin.

Subtask 2.3: QAPP Annual Reviews, Revisions, and Updates — The Performing Party will submit documentation certifying its annual review of the QAPP no less than 90 days prior to the QAPP anniversary date. Amendments approved since the initial QAPP approval or a subsequent certified annual review (if applicable) must be submitted along with the certification. If extensive changes to a QAPP are necessary, a full revision/update is required. Once TCEQ certifies the annual review or approves the full revision/update, the QAPP effective period is extended an additional year. No work described in a QAPP will be conducted outside the effective period for the QAPP.

Subtask 2.4: Amendments — The Performing Party will submit Draft QAPP Amendments for TCEQ review when changes to the QAPP are necessary. Draft QAPP Amendments should be submitted no less than 90 days prior to the scheduled initiation of changes and must be accompanied by a justification, summary of changes, and detail of changes. The Performing Party will submit Final QAPP Amendments within 30 days of receipt of any comments provided by TCEQ. Final QAPP Amendments will be submitted to TCEQ with the Performing Party's signatures and responses to comments and circulated for appropriate TCEQ signatures. The QAPP Amendments must be signed/fully approved by TCEQ and, if necessary, EPA, before any changes conveyed within Amendments are implemented.

Subtask 2.5: Corrective Action Reports (CARs) — The Performing Party will provide CARs, as needed, to document deviations from sampling method requirements or sample design, failures associated with chain-of-custody procedures or in field and laboratory measurement systems. The Performing Party will submit CARs with PRs.

Deliverables:

- 2.1 QAPP Planning Meeting notes (within 30 days of Contract execution).
- 2.2 Draft QAPP (at least 120 days prior to the scheduled initiation of environmental data operations).
- 2.2 Final QAPP (30 days prior to the scheduled initiation of environmental data operations).
- 2.3 QAPP Annual Reviews and Revisions (no less than 90 days prior to the QAPP approval anniversary).
- 2.4 Draft and Final QAPP Amendments (Draft QAPP Amendment due no less than 90 days prior to the scheduled initiation of changes or additions to activities listed in the current QAPP. Final QAPP Amendment due within 30 days of receipt of comments).

2.5 CARs (as needed with PRs).

Task 3: Water Quality Data Reporting and Dataviewer Management

Objective: To maintain and update the Database and Dataviewer, and to generate reports. All submitted data collected under the QAPP is entered into the Database and is included in the Dataviewer.

Subtask 3.1: Data Submittals — The Performing Party will enter all data collected under the QAPP into their Database within 60 days of data submission by citizen scientists. The Performing Party will submit quarterly Data Activity Reports that will communicate the number of citizen scientists trained, number of citizen scientists monitoring, and number of monitoring events. The Performing Party will also submit data to EPA Water Quality Exchange (WQX) semi-annually. The Performing Party will email the TCEQ Project Manager a confirmation of each data submittal to WQX.

Subtask 3.2: Data Summary Reports — The Performing Party will compile and distribute selected citizen science Data Summary Reports. The reports will use the data collected under the QAPP for sites/segments/basins agreed upon by the Performing Party, TCEQ, citizen scientist stakeholders, partners, and Clean Rivers Planning agencies. The Data Summary Reports will also contain maps that illustrate the citizen scientist water quality data collected for each respective watershed. The Performing Party will submit Draft Data Summary Reports and presentations to the TCEQ Project Manager for review and approval at least two weeks prior to the scheduled public release.

Subtask 3.3: Water Quality Monitoring Technique Study — The Performing Party will conduct a study to evaluate water quality testing tools currently on the market for efficiency and cost effectiveness. The Performing Party will submit a report summarizing the results of the water quality monitoring technique study.

Deliverables:

- 3.1 Data Activity Reports (quarterly with PRs).
- 3.1 Data Submittals to EPA (Twice per year, documented in PRs and proof of submission emailed to TCEQ Project Manager).
- 3.2 Draft Data Summary Reports with watershed maps (quarterly, at least two weeks prior to the scheduled public release).
- 3.2 Final Data Summary Reports and watershed maps with response to TCEQ comments (quarterly, with PRs).
- 3.3 Draft Water Quality Monitoring Technique Study Report (final quarter, month 1).
- 3.3 Final Water Quality Monitoring Technique Study Report (final quarter, month 3).

Task 4: Citizen Science Activities

Objective: To engage, manage, expand, and strengthen a minimum of 400 statewide water quality citizen scientists and associated partner networks in activities related to water quality. The Performing Party will provide water quality monitoring training to support existing and new groups performing volunteer monitoring.

Subtask 4.1: Support Existing and New Citizen Scientists — The Performing Party will maintain a stock of water quality monitoring kits and supplies for use by the Performing Party staff for special monitoring events, trainings, and quality control sessions. The Performing Party will engage a minimum of 400 citizen scientists annually in activities related to water quality. The Performing Party will maintain a limited supply of kits and replacement reagents to equip citizen scientists who do not currently have partner support or where partner funding is unavailable.

Subtask 4.2: Establish New Partnerships and Groups — The Performing Party will create at least three new partnerships and three new citizen science groups that engage an audience in a geographic area approved by the TCEQ Project Manager.

Subtask 4.3: Partner Meeting — The Performing Party will hold one Statewide Partner Meeting with the primary objective of gathering input and feedback toward the Performing Party's advancement of program objectives and improvement of volunteer and support efforts. The Partner Meeting will include NPS water quality educational programming for citizen scientists and the public. The Performing Party will submit the educational programming to the TCEQ Project Manager for review and approval at least two weeks prior to the meeting.

Subtask 4.4: Core Citizen Scientist Water Quality Monitoring Trainings — The Performing Party will support water quality monitoring trainings which cover core parameters (dissolved oxygen, pH, conductivity, salinity, Secchi disk, transparency tube, field observations/comments) and methods addressed in the latest TCEQ approved QAPP. Trainings will emphasize watershed awareness through discussion and demonstration of the relationship between monitoring tests and field observations to corresponding nonpoint source pollution issues. The Performing Party's staff or certified trainers will conduct at least ten Core Trainings in watersheds approved by the TCEQ Project Manager.

Subtask 4.5: Advanced Citizen Scientist Water Quality Monitoring Trainings — The Performing Party will support water quality monitoring trainings which cover the nonpoint source pollution suite (*E. coli*, nitrates, orthophosphates, flow, turbidity) parameters and methods addressed in the latest TCEQ approved QAPP. Trainings will emphasize watershed awareness through discussion and demonstration of the relationship between monitoring tests and field observations to corresponding nonpoint source pollution issues. The Performing Party's staff or certified trainers will conduct at least two Advanced Trainings in watersheds approved by the TCEQ Project Manager.

Subtask 4.6: Certify Citizen Scientists as a Trainer — The Performing Party will train and certify an individual to provide water quality monitoring trainings, including watershed and nonpoint source pollution education. The Performing Party's staff or certified trainers will train at least three certified citizen scientists to become trainers in one or more Texas Stream Team trainings. These trainings will be in watersheds approved by the TCEQ Project Manager.

Subtask 4.7: Bioassessment and Riparian Evaluation Program — The Performing Party will develop and support new citizen scientists and groups/partners in the adoption of Bioassessment and Riparian Evaluation activities. The Performing Party will provide training including video, protocol, and data storage/analysis to at least four citizen scientist groups or partners.

Subtask 4.8: Regional Citizen Scientists/Stakeholder Outreach Meetings — The Performing Party will coordinate at least two regional citizen scientists/stakeholder meetings. These events will directly support citizen scientists, partners, and WPP collaborators and will enhance attendees' water quality knowledge and ability to better understand watershed functions. Topics for the meetings will include priority issues for the WPP areas. Networking and other open sessions will generate discussion between WPP projects.

Subtask 4.9: Citizen Science Tasks Report — The Performing Party will produce a Draft and Final Citizen Scientist Tasks Report that describes project activities in watersheds developing and implementing WPPs and identifies and discusses the extent to which goals and purposes have been achieved. The report will emphasize successes, failures, and lessons learned. The Draft Citizen Scientist Tasks Report will be submitted to the TCEQ Project Manager for review. The Final Citizen Scientist Tasks Report will address TCEQ comments.

Deliverables:

- 4.1 Documentation of progress toward the goal of engaging 400 citizen scientists (quarterly in PRs).
- 4.2 Documentation of new citizen scientist groups and new partnerships established (quarterly in PRs, minimum of 3 new groups and 3 new partnerships).
- 4.3 Draft education programming materials (at least two weeks prior to Partner Meeting).
- 4.3 Documentation of Statewide Partner Meeting, including educational programming (quarter 4).
- 4.4 Documentation of core citizen scientist water quality monitoring trainings (quarterly in PRs, minimum of 10).
- 4.5 Documentation of advanced citizen scientist water quality monitoring trainings (quarterly in PRs, minimum of 2).
- 4.6 Documentation of trainer certifications (quarter 3, minimum of 3).
- 4.7 Documentation of trainings for Bioassessment/Riparian program (quarters 2 and 4, minimum of 4).
- 4.8 Documentation of regional citizen scientists/stakeholder outreach meetings (quarters 2 and 4, minimum of 2).
- 4.9 Draft Citizen Science Tasks Report (final quarter, month 1).
- 4.9 Final Citizen Science Tasks Report (final quarter, month 3).

Task 5: Watershed Services

Objective: To offer and provide services that contribute to the successful implementation of accepted WPPs across Texas. The Performing Party will achieve this by working with Watershed Coordinators to engage stakeholders in watersheds approved by the TCEQ Project Manager and assess the alignment of watershed/WPP needs with capabilities of the Performing Party.

Subtask 5.1: Outreach to Watershed Coordinators — The Performing Party will correspond with a minimum of 8 Watershed Coordinators or project leads and offer services to support implementation of WPPs. Services may include:

- Providing information regarding matching/in-kind funds.
- Assisting with water quality and data collection.
- Assisting with analyses of monitoring data.
- Citizen science programming and curricula.

Subtask 5.2: Watershed Services Report — The Performing Party will provide a Draft and Final Watershed Services Report summarizing all activities covered by this task. The Draft Watershed Services Report will be submitted to the TCEQ Project Manager for review. The Final Watershed Services Report will address TCEQ comments.

Deliverables:

- 5.1 Documentation of correspondence with Watershed Coordinators or project leads (quarterly in PRs, minimum of 8).
- 5.2 Draft Watershed Services Report (final quarter, month 1).
- 5.2 Final Watershed Services Report (final quarter, month 3).

Task 6: Watershed Education and Outreach

Objective: To provide watershed education to 5,500 people annually on nonpoint source pollution and activities that support water conservation and management.

Subtask 6.1: TST Curriculum, Spring Lake Education Program — The Performing Party will incorporate TST activities into the Meadows Center's existing Spring Lake outdoor education program to reach a targeted portion of the 125,000 annual visitors.

TST will use the Spring Lake program to:

- Promote/hold one teacher workshop.
- Conduct four Enviroscope watershed model demonstrations.
- Provide four water quality monitoring certifications for all grade levels.

Subtask 6.2: TST Resources and Website — The Performing Party will maintain and update the TST website quarterly. The website includes watershed planning information and resources such as water quality monitoring information, data, maps, metrics, volunteer monitoring activities, WPP development /implementation activities, and lessons learned.

Subtask 6.3: Newsletters — The Performing Party will produce and distribute three online Newsletters to citizen scientists, partners and other interested parties. Information in the newsletters will be targeted toward potential new partners and users of the Performing Party's data and services. Draft Newsletters will be submitted to the TCEQ Project Manager for review and approval at least two weeks prior to distribution or release. The Final Newsletters will address TCEQ comments.

Subtask 6.4: Education — The Performing Party will incorporate educational activities and/or nonpoint source pollution water quality curriculum into two existing partner programs in watersheds approved by the TCEQ Project Manager. Examples include water quality monitoring, adoption of interpretive and educational materials/signage, use of the stream table, watershed demonstrations, nonpoint source pollution reduction/water quality protection activities, games or learning modules.

Subtask 6.5: Citizen Science Education Materials — The Performing Party will revise the existing water education curriculum. The draft water education curriculum will be submitted to the TCEQ Project Manager for review. The final water education curriculum will address TCEQ comments.

Subtask 6.6: Watershed Education and Outreach Task Report — The Performing Party will produce a Draft and Final Watershed Education and Outreach Task Report that describes project activities under this task and identifies and discusses the extent to which goals and purposes have been achieved. The report will emphasize successes, failures, and lessons learned. The Draft Watershed Education and Outreach Task Report will be submitted to the TCEQ Project Manager for review. The Final Watershed Education and Outreach Task Report will address TCEQ comments.

Deliverables:

- 6.1 Documentation of teacher workshop, including agenda, sign-in sheets, and presentation materials (quarter 4, minimum of 1).
- 6.1 Documentation of Enviroscope watershed model demonstrations (quarter 4, minimum of 4).
- 6.1 Documentation of providing water quality monitoring certifications (quarter 4, minimum of 4).
- 6.2 Documentation of website maintenance and updates (quarterly, in PRs).
- 6.3 Draft online Newsletters (at least two weeks prior to distribution or release).
- 6.3 Final online Newsletters (quarterly updates, minimum of 3).
- 6.4 Documentation of incorporation of Program activities/curriculum into partner education programs (quarterly updates, minimum of 2 existing partner programs).
- 6.5 Draft Revised water education curriculum (quarter 4, month 1).
- 6.5 Final Revised water education curriculum (quarter 4, month 2).

- 6.6 Draft Watershed Education and Outreach Task Report (final quarter, month 1).
- 6.6 Final Watershed Education and Outreach Task Report (final quarter, month 3).

Task 7: Final Report

Objective: To produce a Final Report that summarizes all completed activities and conclusions reached during the project. The Final Report will discuss the extent to which project goals and purposes have been achieved and state the amount of funds spent on the project. The Final Report should emphasize successes, failures, lessons learned, and should include analyses estimating the project's water quality improvements and/or load reductions, if applicable. The Final Report will summarize all the Task Reports either in the text or as appendices.

Subtask 7.1: Draft Final Report — At least 30 days prior to submitting the Final Report, the Performing Party will provide a Draft Report. This comprehensive report should document all Deliverables under this Scope of Work. The Draft Report will be structured per the following outline:

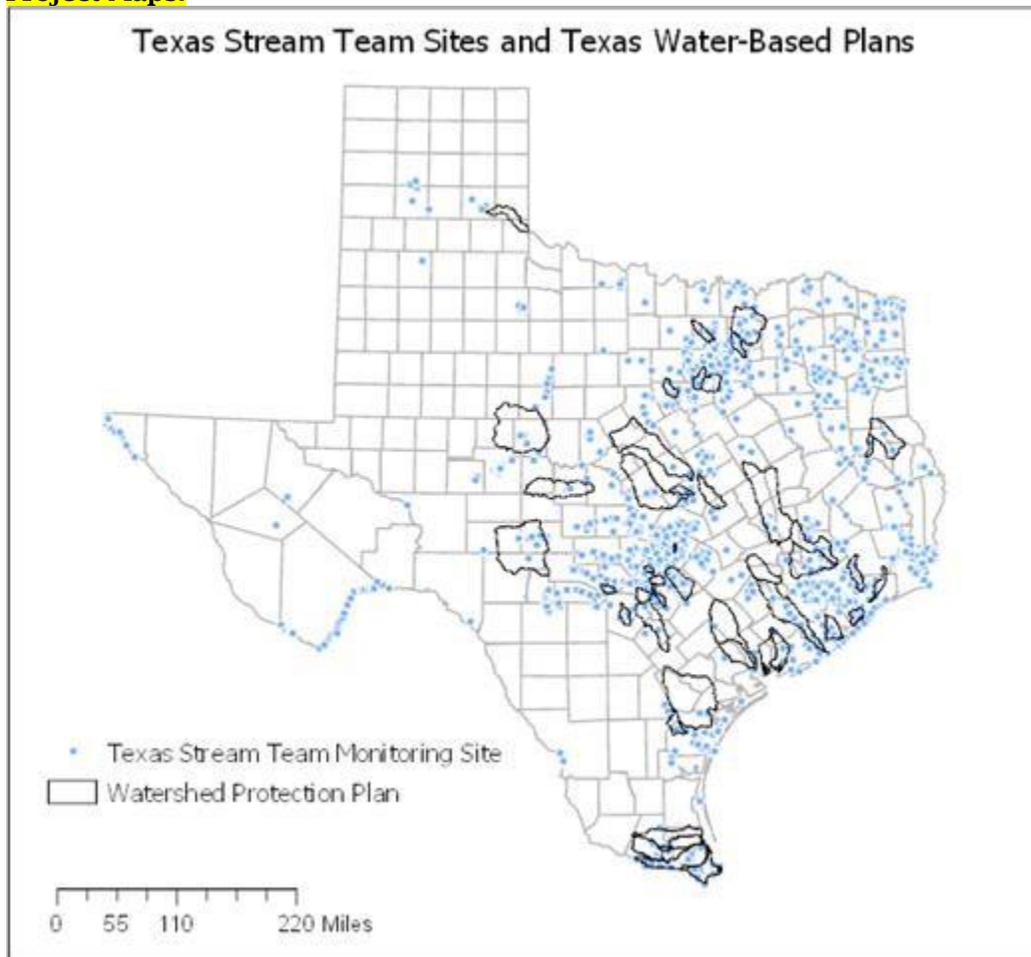
- Title
- Table of Contents
- Project Significance and Background
- Study Area
- Summary of all Task Reports
- Amount of project funding and amount spent
- Discussion; include deliverables not completed, lessons learned and recommendations for future work
- Water quality results achieved/estimated load reductions (if applicable to project)
- Appendices (if needed)

Subtask 7.2: Final Report — The Performing Party will revise the Draft Final Report to address comments provided by the TCEQ Project Manager. At least two weeks before the expiration of the Contract, the Performing Party will submit the Final Report to the TCEQ Project Manager.

Deliverables:

- 7.1 Draft Final Report (final quarter, month 1).
- 7.2 Address TCEQ (within 15 days of comments).
- 7.2 Final Report (final quarter, month 3).

Project Maps:



Map of watersheds in Texas with a developed or developing WPP outlined in black, and locations where TST citizen scientists currently collect water quality data are represented by blue dots.

Appendix D. TST Data Management Plan

Personnel

Jenna Walker, TxState TST Project Manager - Establishes data management objectives and ensures Quality Assurance system conforms to TCEQ requirements. Makes recommendations for improving current data management system and works to provide resources to the Data Manager and Quality Assurance Officer to execute and improve upon the data management system.

Laura Parchman, TxState TST Data Manager - Receives and reviews data sheets. Validates information using the data validation checklist. Maintains and updates TST database to eliminate duplication, data entry errors, and information gaps. Submits recommendations to improve the TST database. Communicates with TST QA Officer and the Program Manager regarding the status of database problems and progress in completing data entry.

Sandra Arismendez, TxState TST Quality Assurance Officer - Reviews data validation checklist and error log to ensure data are properly validated and that errors have been corrected or flagged in the database.

Volunteer Citizen Scientists- Documents field data on approved data sheet and/or online TST Waterways Dataviewer. Enters data into online entry form for submission to TST database or sends physical datasheet to TST or Partner/Group for online entry into TST database.

Systems Design

Data are stored and managed on a hosting database and data-viewer. Minimum Requirements:

- Web server to host database and data-viewer
- Remote SQL Server back end database
- Google Maps

TST local access database & data-viewer-Minimum Requirements

- MS Access to run local queries on SQL Server data
- Database Visualizer to edit and run advanced queries on SQL Server
- MS Excel to accept batch submission of partner/group data
- Web browser with internet connection
- Email client

TST GIS applications - Minimum Requirements

- ESRI ArcView IMS
- MS Access

Partner/Group access to database & data-viewer - Minimum Requirements

- Web browser with internet connection to validate monitor submissions
- Web browser with internet connection to enter monitor submissions

Data Dictionary - Terminology and field descriptions associated with TST data base are included in TST Data Dictionary located at the TxState TST offices.

Data Management Plan Implementation

TST data management system receives electronic and physical data from Partners and volunteer citizen scientists. Physical data is entered into the database TST staff or Partner/Group data-managers and is then validated by a Group Leader, Partner or TST staff member. Electronic data is entered by the monitor or group leader and then is validated by a Group Leader, Partner or TST staff member. TST will make validated data available to the public through internet-based TST data viewer.

Data Validation and Entry

TST certified Data Managers (TST staff and certified volunteer citizen scientists) enter Phase III Certification Trainings once a monitor account has been created. Data managers validate data entered by volunteer citizen scientists into electronic database. If volunteer citizen scientists cannot

enter data into the online system, data managers enter monitoring data from their copy of the physical datasheet.

Procedures for processing field data

The volunteer citizen scientist collects field data and reports the measurement results on TST approved physical or electronic datasheet. The electronic datasheet is accessible in the online Dataviewer.

When TST Quality Assurance Officer receives the physical data sheets, they are date stamped and validated using the data validation checklist (attached). Any errors are noted in an error log and the errors are flagged in TST database. All information is entered into TST database within 4560 business days of receipt. All physical data sheets are stored in a hard copy filing system at the TxState TST offices or Partner facility for seven years.

When a monitor enters data electronically, the system will automatically flag data outside of the data limits and the monitor will be prompted to correct the mistake or the error will be logged in the database records. The certified Data Manager will further review any flagged errors before selecting to validate the data. Only after validation will the data formally enter the database and can be accessible through the online Dataviewer.

Errors, which may compromise the programs ability to fulfill the completeness criteria prescribed in the QAPP, will be reported to the TST Program Manager. If repeated errors occur, the monitor and/or the group leader will be notified via e-mail or telephone.

Procedures for processing certification training records

Monitor Certification is documented on a certification training packet which includes training date, time, location, and test water quality values. Upon successfully completing the training, the training packet is returned to the TST for review and entry into the database. The data validation checklist includes verification that the monitor is certified.

Document Control System

All data sheets and other documents associated with this data collection and quality control system are stored electronically on two separate hard drives at TxState TST offices in San Marcos, TX for a period of time identified in Section A9 of this QAPP. All physically submitted datasheets are at the TxState TST offices in San Marcos, TX for a period of time identified in Section A9 of this QAPP.

Data Reporting

Data are analyzed with Microsoft Excel, Minitab, SPSS, and SYSTAT and other similar statistical software packages. The data are presented in data summary reports, which cover data for monitoring sites, water bodies, watersheds, or regions. These reports will include information such as tables showing the number of sampling events, percentage complete, minimum, mean, maximum, and standard deviation. Data are compared to the Texas Surface Water Quality Standards or screening levels, and the number and percentage of exceeded values are displayed. Data are displayed on graphs created in Microsoft Excel on which water quality standards are displayed as a reference. The resulting reports are reviewed by the Texas Commission on Environmental Quality and the relevant TCEQ Clean Rivers Program Partner prior to being posted on the TxState TST website and distributed to the public via e-mail.

Quality Assurance/Control - See Section D of this QAPP.

Migration/Transfer/Conversion

The TxState TST Data Manager will receive all data transfers. All electronic data received for submission to TST database will conform to the format describe above (see Data Dictionary).

Backup/Disaster Recovery

The TST database will be hosted by the Texas State University's SQL cluster and is backed up nightly. Monthly backups are retained for one year.

In the event of a catastrophic system failure, which renders the electronic database unusable, TST will utilize other campus computers to access the database and keep data entry and QC records updated. All electronic files beyond the database will be stored on a TST shared drive located in the center of Texas State Campus and backed up on external hard drives located at the TST Office.

Archives/Data Retention - Complete original data sets (physically and electronically submitted) are archived on by the TxState TST for a period of time identified in Section A9 of this QAPP.

Information Dissemination - Data viewer users will be able to access the information by accessing the data viewer through TST web site or a direct link. The user selects either the site identification number or the county in which the site is located. The data viewer presents the user with a Google map showing the selected site or the county in which the sampling sites are located. To access the data, the user selects the icon indicating the location of the site on the Google map. The data viewer presents the water quality data in tabular format, providing options to view numeric or graphed data summaries. Data summaries can be printed or downloaded by the user.

Distribution: QAPP Amendments will be distributed to all personnel on the original QAPP by the Contractor Project Manager. Records of distribution will be maintained by the Texas Stream Team Program.

Approval: The changes are effective upon final approval of the amendment. These changes will be incorporated into the full QAPP document when the QAPP is updated. The TCEQ, The Meadows Center for Water and the Environment, Texas State University acknowledge and accept these changes by approval through e-mail.