

**State General Revenue Nonpoint Source Grant Program**

***Recreational Use Attainability Analysis  
for San Miguel Creek***

**TSSWCB Project # 14-51  
Revision 1**

**Quality Assurance Project Plan**

**Texas State Soil and Water Conservation Board**

**Prepared by  
Nueces River Authority  
Corpus Christi, Texas**

**Effective Period: From (Approval Date) through October 31, 2015  
with annual updates required**

**Questions concerning this quality assurance project plan should be directed to:**

**Sam Sugarek  
Nueces River Authority  
400 Mann Street, Suite 1002  
Corpus Christi, TX 78401  
(361) 653-2110  
ssugarek@nueces-ra.org**

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**A1 Approval Sheet**

Quality Assurance Project Plan (QAPP) for TSSWCB Project 14-51, Recreational Use Attainability Analysis for San Miguel Creek.

**Texas State Soil and Water Conservation Board (TSSWCB)**

Name: Wesley Gibson  
Title: TSSWCB Project Manager (PM)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name: Mitch Conine  
Title: TSSWCB Quality Assurance Officer (QAO)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Nueces River Authority**

Name: Rocky Freund  
Title: Deputy Executive Director (PM/QAO)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name: Sam Sugarek  
Title: Director of Water Quality Programs

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name: Kevin Reese  
Title: Director of Information Technology

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name: Shellie McCumber  
Title: Aquatic Resource Specialist

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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## List of Acronyms

BMP	Best Management Practice
CAFO	Confined Animal Feeding Operation
CAR	Corrective Action Report
CBD	Coastal Bend Division
COC	Chain of Custody
CRP	Texas Clean Rivers Program
CWA	federal Clean Water Act
DMRG	TCEQ Data Management Reference Guide
EPA	United States Environmental Protection Agency
GIS	Geographic Information System
GPS	Global Positioning System
NRA	Nueces River Authority
PM	Project Manager
QA	Quality Assurance
QAM	Quality Assurance Manual
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	Quality Control
QMP	Quality Management Plan
QPR	Quarterly Progress Report
RUAA	Recreational Use Attainability Analysis
SOP	Standard Operating Procedure
SWQM	Surface Water Quality Monitoring
TCEQ	Texas Commission on Environmental Quality
TMDL	Total Maximum Daily Load
TSSWCB	Texas State Soil and Water Conservation Board
TSWQS	Texas Surface Water Quality Standards
WPP	Watershed Protection Plan
WWTF	Wastewater Treatment Facility

### **A3 Distribution List**

Organizations, and individuals within, which will receive copies of the approved QAPP and any subsequent revisions include:

#### **Texas State Soil and Water Conservation Board (TSSWCB)**

PO Box 658  
Temple, TX 76503

Name: Wesley Gibson  
Title: TSSWCB PM

Name: Mitch Conine  
Title: TSSWCB QAO

#### **Nueces River Authority (NRA)**

400 Mann Street, Suite 1002  
Corpus Christi, TX 78401

Name: Rocky Freund  
Title: Deputy Executive Director

Name: Sam Sugarek  
Title: Director of Water Quality Programs

Name: Kevin Reese  
Title: Director of Information Technology

Name: Shellie McCumber  
Title: Aquatic Resource Specialist

## **A4 Project/Task Organization**

The following is a list of individuals and organizations participating in the project with their specific roles and responsibilities:

### **TSSWCB**

#### **Wesley Gibson**

##### **TSSWCB PM**

Maintains a thorough knowledge of work activities, commitments, deliverables, and time frames associated with project. Develops lines of communication and working relationships between NRA and TSSWCB. Tracks deliverables to ensure that tasks are completed as specified in the contract. Responsible for ensuring that the project deliverables are submitted on time and are of acceptable quality and quantity to achieve project objectives. Participates in the development, approval, implementation, and maintenance of the QAPP. Assists the TSSWCB QAO in technical review of the QAPP. Responsible for verifying that the QAPP is followed by project participants. Notifies the TSSWCB QAO of particular circumstances that may adversely affect the quality of data derived from the collection and analysis of samples. Enforces corrective action.

#### **Mitch Conine**

##### **TSSWCB QAO**

Reviews and approves QAPP and any amendments or revisions and ensures distribution of approved/revised QAPPs to TSSWCB and project participants. Responsible for verifying that the QAPP is followed by project participants. Determines that the project meets the requirements for planning, quality assurance (QA), quality control (QC), and reporting under the TSSWCB Texas Nonpoint Source Grant Program. Monitors implementation of corrective actions. Coordinates or conducts audits of field and laboratory systems and procedures.

### **NRA**

#### **Rocky Freund**

##### **NRA PM/QAO**

Responsible for all project activities and tasks. Responsible for project administration. Ensures tasks and other requirements in the contract are executed on time and are of acceptable quality. Monitors and assesses the quality of work. Responsible for verifying the QAPP is followed and the project is producing data of known and acceptable quality. Complies with corrective action requirements. Responsible for coordinating development and implementation of the QA program. Responsible for coordinating with the TSSWCB QAO to resolve QA related issues. Responsible for conducting the historical data review for the study area.

**Sam Sugarek**  
**NRA Field Operations Supervisor**

Responsible for writing and maintaining the QAPP. Coordinates attendance at conference calls, training, meetings, and related project activities with the TSSWCB. Responsible for maintaining records of QAPP distribution, including appendices and amendments. Develops and maintains relationships with landowners and stakeholders. Responsible for supervising all aspects of the measurements and data collection for surface water and other RUAA information in the field. Responsible for the acquisition of field data measurements in a timely manner that meet the quality objectives specified in Section A7 (Table A7.1), as well as the requirements of Sections B1 through B8. Responsible for field scheduling, staffing, and ensuring that staff is appropriately trained as specified in Sections A6 and A8.

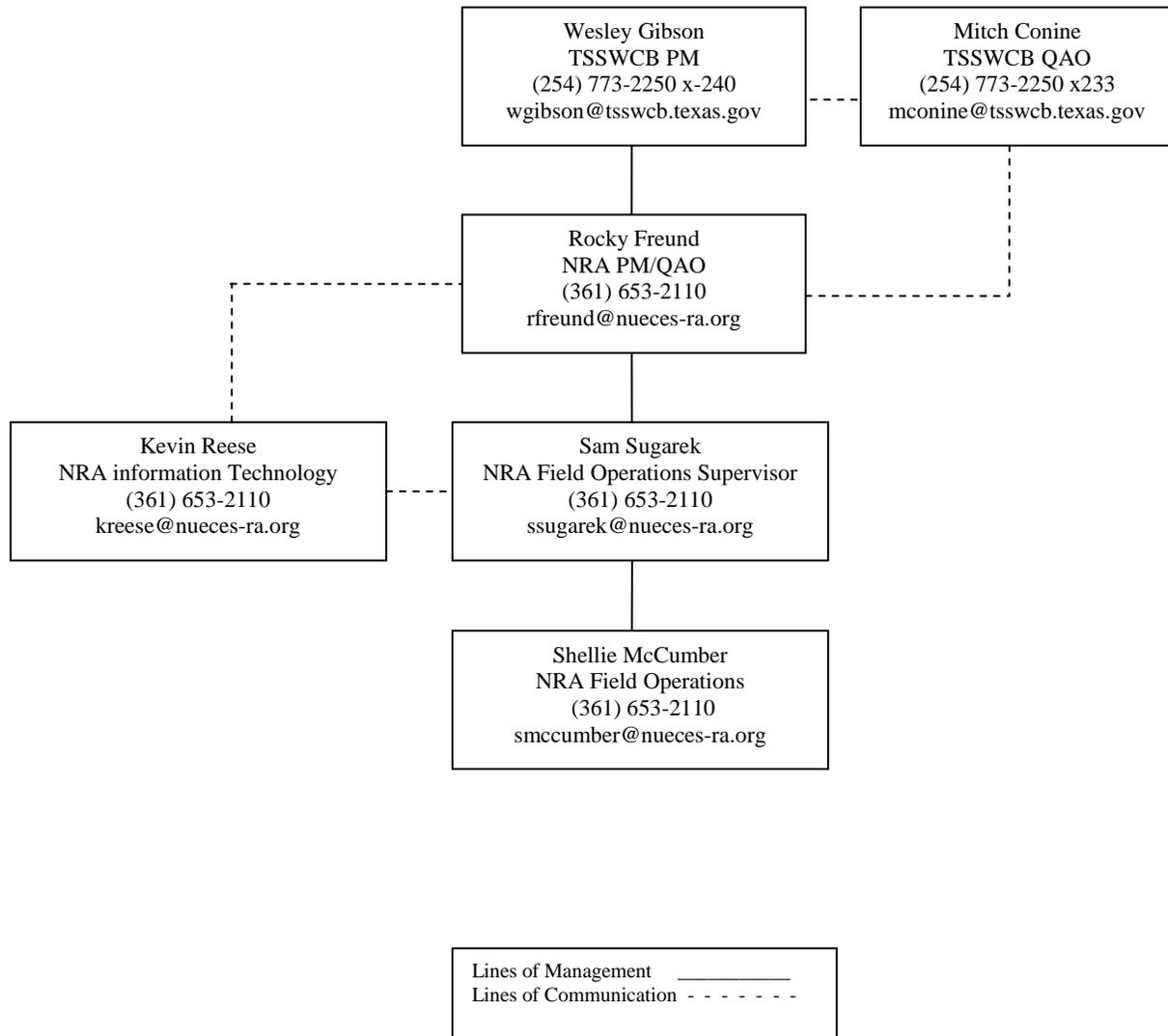
**Kevin Reese**  
**NRA Information Technology**

Responsible for hosting and maintaining a webpage to serve as a public clearing house for all project related information to disseminate information to stakeholders and the general public.

**Shellie McCumber**  
**NRA Field Operations**

Responsible for assisting in coordination of the measurements and data collection for surface water and other RUAA information in the field. Responsible for assisting in the acquisition of field data measurements in a timely manner that meet the quality objectives specified in Section A7 (Table A7.1), as well as the requirements of Sections B1 through B8. Responsible for the development of a Comprehensive GIS inventory for the study area.

**Figure A4.1 Organization Chart – Lines of Communication**



## A5 Problem Definition/Background

San Miguel Creek runs approximately 69 miles from Choke Canyon Reservoir in McMullen County through a portion of Atascosa County to the confluence of Perez and Chacon Creeks in Frio County. The San Miguel Creek watershed is largely rural and privately owned with shrub/scrub, cultivated crops, and pasture land historically dominating the land use. Oil and gas operations related to the Eagle Ford Shale formation have become increasingly common in the lower half of the watershed in recent years. Tributaries to San Miguel Creek are numerous and include Chacon Creek, Live Oak Creek, Lagunillas Creek, and Bacerro Creek. There are 12 publically accessible road crossings include TX 85, TX 97, CR 343, State Hwy 16, and FM 140.

The TCEQ and the TSSWCB established a joint, technical Task Force on Bacteria Total Maximum Daily Loads (TMDL) in September 2006 charged with making recommendations on cost-effective and time-efficient bacteria TMDL development methodologies. The Task Force recommended the use of a three-tier approach that is designed to be scientifically credible and accountable to watershed stakeholders. The tiers move through increasingly aggressive levels of data collection and analysis in order to achieve stakeholder consensus on needed load reductions and strategies to achieve those reductions. In June 2007, the TCEQ and the TSSWCB adopted the principles and general process recommended by the Task Force. Fundamental in the three-tier approach is ensuring that the appropriate water quality standard (i.e., designated use) is applied to the waterbody before initiating any watershed planning activity (e.g., TMDL or watershed protection plan).

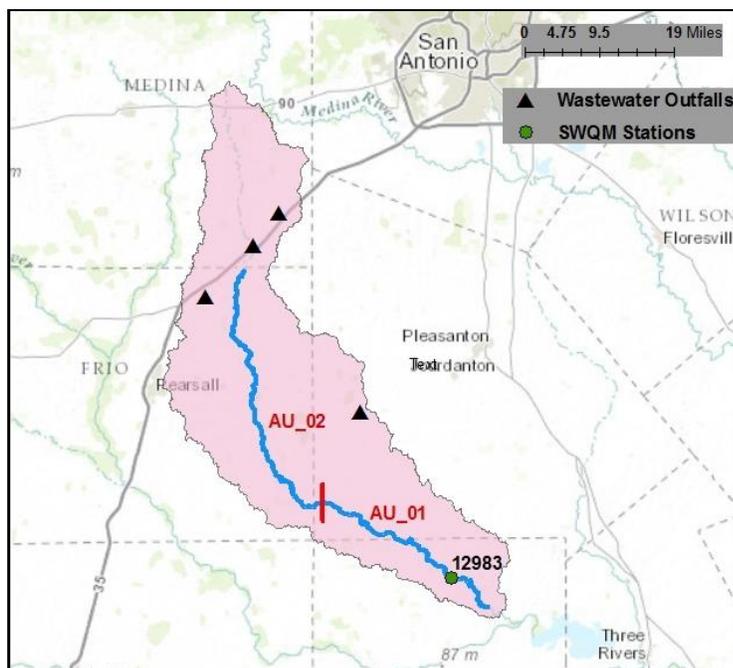
Major revisions to the Texas Surface Water Quality Standards (TSWQS) have been adopted by TCEQ, including modifications to contact recreation use and bacteria criteria. As part of this process, TCEQ developed procedures for conducting RUAA's. In order for a new category of recreational use or a different bacteria water quality criterion to be applied to a waterbody, an RUAA will need to be conducted. TCEQ and TSSWCB have collaborated on developing a list of priority waterbodies for collecting information needed for RUAA's.

In 2006, San Miguel Creek was listed as being impaired for bacteria based on fecal coliform and *E. coli* analyses. It was assessed as having a geometric mean for fecal coliform of 259 cfu/100ml and was declared impaired for *E. coli* but no concentrations were reported in the assessment. In 2012, it was assessed as having a geometric mean for *E. coli* of 165 cfu/100ml. Since it is not known with certainty that recreational use in San Miguel Creek occurs, the findings from an RUAA will provide additional information regarding the level of recreational use occurring in Segment 2108.

In accordance with the *Memorandum of Agreement Between the TCEQ and the TSSWCB Regarding TMDLs, Implementation Plans, and Watershed Protection Plans*, the TSSWCB has agreed to take the lead role in conducting an RUAA in the study area. Through this project, the TSSWCB and NRA will work with local stakeholders to progress through the data collection components of an RUAA and at the end of this project have adequate data that either supports the existing designated use (primary contact recreation) or supports a change in designated use.

## A6 Project/Task Description

This project consists of performing a Comprehensive RUAA on San Miguel Creek (Segment 2108) for the purpose of ascertaining the level of recreational use occurring in the creek. This project will adhere to the procedures provided in the *TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014).



This Comprehensive RUAA of San Miguel Creek consists of 4 main tasks: a) conducting the required two surveys of San Miguel Creek, b) public participation and stakeholder interaction c) evaluation of historical bacterial water quality data and d) compilation of GIS data pertaining to the San Miguel Creek watershed.

RUAA survey site selection is predicated on reconnaissance trips, public participation, and stakeholder interaction. An initial reconnaissance trip will be completed prior to meeting with stakeholders, and follow up trips when interaction with local landowners provides opportunities for additional sites.

Two surveys will be conducted at each of the selected sites by NRA. Each survey will be conducted per the most recently applicable TCEQ RUAA guidance and will include the collection of transect information along a stretch of the creek at each site, numerous physical observations, and collection of survey information from individuals either actively recreating at each site or knowledgeable of the site and San Miguel Creek in general. Each survey will be performed at a time of year under weather and hydrologic conditions that are conducive to observing recreational use on San Miguel Creek, which means when air temperatures are warm to hot (>70° F). Field surveys will be conducted during the period people would most likely be using the waterbody for contact recreation. A historical information review will be conducted on recreation use that occurred on San Miguel Creek on and after November 28, 1975.

The public education and stakeholder interaction task is critical to the success of the project. This task will be performed by NRA to accomplish two complimentary goals – obtaining landowner permission for access to sites along San Miguel Creek and ensuring that decision-making regarding the RUAA is founded on local input. A public meeting will be held where the RUAA process is described and solicitation is made for access to the waterbody. Direct interaction with affected city councils, county commissioners courts, and soil and water conservation districts (SWCD)s will occur. Any necessary follow-up meetings will be conducted to further

communicate the RUAA process and to obtain landowner permission for access to the creek. A final public meeting will be conducted to present findings of the RUAA surveys.

Each survey will be conducted per the TCEQ RUAA guidance (March 2014) and will include collection of transect information along a stretch of the creek at each site, numerous physical observations, bank access, stream substrate, and collection of survey information from individuals either actively recreating at each site or knowledgeable of the site and San Miguel Creek, in general. Information to be collected shall at least satisfy those questions found on the Field Data Sheet in Appendix C.

NRA shall document and describe the antecedent rainfall conditions (approximately 30 days prior to fieldwork) at each selected site.

NRA will collect a digital photographic record of each selected site during the field surveys. Photographs should clearly depict the entire channel. A photograph will be taken at each measured transect. Evidence of observed uses or indications of human use as well as evidence of non-use will be chronicled. Photographs will include upstream, left and right bank, and downstream views at the top (300m), middle (150m), and bottom (30m) transect of each reach. Obstructions, stream color, water surface characteristics, stream trash and observed evidence of wildlife (tracks or fecal material) will be included in the photographic record of each site.

In the interest of generating complete descriptions of all project waterbodies, it is the intent of TSSWCB to fully complete RUAA surveys on waterbodies where obvious primary contact recreation occurs or that may be at other than baseflow conditions. This protocol deviates from the guidance in the TCEQ *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014) which suggests terminating the survey when such conditions are encountered.

NRA will facilitate public education and stakeholder interaction. Stakeholder interaction will help in obtaining landowner permission for access to sites along San Miguel Creek and ensuring that decision-making regarding the RUAA is founded on local input. A public meeting will be held where the RUAA process is described and solicitation is made for access to the waterbody. Direct interaction with affected city councils, county commissioner's courts, and SWCDs will occur. Any necessary follow-up meetings will be conducted to further communicate the RUAA process and to obtain landowner permission for access to the creek. A final public meeting will be conducted to present findings of the RUAA surveys.

Pertinent tasks from the project contract are provided below.

**Table A6.1 Project Milestones**

<b>Task</b>	<b>Project Milestones</b>	<b>Agency</b>	<b>Start Month</b>	<b>End Month</b>
3.1	Conduct at least one reconnaissance trip to assess potential survey sites. The reconnaissance trip(s) will be a follow-up on the interaction with landowners under Task 4. The goal will be to have approximately 3 sites per 5 miles of river, for a maximum of 39 sites dependent on accessibility.	NRA	1	4
3.2	Utilizing information from subtask 5.1 (comprehensive GIS inventory), subtask 3.1 (reconnaissance trip), Task 4 (public input), and other relevant information, NRA will identify sites for RUAA data collection. Proposed sites should be located in areas where the waterbody is accessible to the public and has the highest potential for	NRA	1	5

	recreational use (primary contact). Because public access is limited along this waterbody, other sites will also be selected for the purpose of characterizing the physical characteristics of the stream to assist in determining the potential level of recreation use that can be supported. The sites should be well-spaced and, in general, distributed such that there are 3 sites for every 5 miles of stream.			
3.3	Conduct a thorough historical information review of the recreational uses of the waterbody back to November 28, 1975. Historical resources that should be examined include, but are not limited to, photographic evidence, local newspapers, museum collections, published reports, historical society records, and long-term landowners/residents. Texas Parks and Wildlife Department and commercial providers of outdoor recreation goods and services should be consulted for historical information.	NRA	1	24
3.4	Conduct 2 field surveys at each site during a normal warm season (air temperature $\geq 70^{\circ}\text{F}$ ) and baseflow conditions (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather), when people would most likely be using the waterbody for contact recreation, typically March to October (e.g., spring break, summer, holidays or weekends). To ascertain the suitability of the streams for contact recreation use, field surveys shall document hydrological characteristics of the stream, such as width and depth of channel and substantial pools, flow/discharge, air/stream temperature, bank access, and stream substrate. Information to be collected shall at least satisfy those questions found on the Field Data Sheet from the latest version of the <i>TCEQ Procedures for a Comprehensive Recreational UAA and a Basic UAA Survey</i> . Document and describe antecedent (prior to fieldwork) rainfall conditions (approximately the previous 30 days) at each selected site.	NRA	4	24
3.5	Collect a digital photographic record of each selected site during the field surveys. Photographs shall include upstream, left and right bank, and downstream views. Any evidence of observed uses or indications of human use shall be photographed. Photographs should clearly depict the entire channel and each transect measured.	NRA	4	24
3.6	In order to obtain information on existing and historical uses and stream characteristics, NRA shall conduct interviews of 1) users present during the field surveys, 2) streamside landowners along the field survey transects, 3) local residents, and 4) commercial providers of outdoor recreation goods and services. Surveys shall include at least those questions found on the Interview Form in the latest version of the <i>TCEQ Procedures for a Comprehensive Recreational UAA and a Basic UAA Survey</i> .	NRA	1	24
3.7	Combine findings from historical information review, field surveys, and user interviews into a Technical Report that shall at least include those contents described for a Comprehensive RUAA in the latest version of the <i>TCEQ Procedures for a Comprehensive Recreational UAA and a Basic UAA Survey</i> .	NRA	14	24
4.1	Facilitate public participation activities and coordinate stakeholder involvement in the project. NRA will develop (Months 1-2) and maintain (Months 3-24) a list of stakeholders likely to be affected by this project.	NRA	1	24
4.2	Provide logistical support for public meetings, including, but not limited to, securing meeting facilities, preparing/disseminating meeting notices and agendas, and preparing meeting summaries. At a minimum, public stakeholder meetings shall consist of an initial public meeting (Month 3), a project update meeting (Month 10), and a meeting presenting final Technical Reports (Month 16). A primary objective of the public meetings is to solicit landowner permission for private-land access to San Miguel for survey sites.	NRA	1	24
4.3	NRA, as appropriate, will attend and participate in other public meetings, including, but not limited to, city council meetings, county commissioners' court meetings, SWCD meetings, and NRA Clean Rivers Program (CRP) Steering Committee and Coordinated Monitoring meetings, in order to communicate project goals, activities, and accomplishments to affected parties.	NRA	1	24
4.4	NRA will develop and disseminate educational materials to watershed stakeholders, including, but not limited to, flyers, brochures, letters, and news releases. NRA will include project updates in the CRP Basin Summary Report and/or Basin Highlights Report. NRA will host and maintain a webpage to serve as a public clearinghouse for all project-related information. The website will serve as a means to disseminate information to stakeholders and the general public.	NRA	1	24
5.1	NRA will develop a comprehensive GIS inventory for the study area. Data should include the most recent information available on land use/land cover classification, elevation, soils, stream networks, reservoirs, roads, public parklands, municipalities and satellite imagery or aerial photography. Locations of TCEQ surface water quality monitoring stations, United States Geological Survey (USGS) gages, public access points to the waterbodies, floodwater-retarding structures, wetlands, Texas Pollutant Discharge Elimination System (TPDES) permittees (including WWTFs, Concentrated Animal Feeding Operations (CAFOs) and Municipal Separate Storm Sewer Systems (MS4)), and subdivisions should also be included. Sites permitted for land application of sewage sludge and septage should be included.	NRA	1	12
5.2	NRA will conduct a historical data review for the waterbody in order to assess and characterize trends and variability in water quality, specifically bacteria. Historical data collection activities should concentrate on 1) ambient water quality data; 2) streamflow and water level data; 3) precipitation records; and 4) permitted facilities, discharges, and effluent quality. At a minimum, USGS, National Weather Service, Texas Parks and Wildlife Department (TPWD), Texas Water Development Board (TWDB), NRA, TCEQ, and the U.S. Environmental Protection Agency (EPA) should be queried for data related to the study area.	NRA	1	18

## A7 Quality Objectives and Criteria

The project objective is to collect data that may be used to support decisions related to recreational use designation. Data to be collected in the RUAA surveys at each site are listed in *Procedures for a Comprehensive Recreational UAA and a Basic UAA Survey* (March 2014). A copy of the field data sheet is located in Appendix B. Most of the data to be collected is based on observations, such as channel flow status, stream type and recreational activities, or experience of individuals interviewed and not directly measured with an instrument. Direct measurements and quality objectives are indicated below.

Measurements under wadeable conditions include depth of the thalweg; depth, length and width of substantial pools; and stream width. Thalweg depth should be reported in meters to 2 significant figures. If depths are too deep at a particular transect to measure then thalweg should be reported as >1.5 meters. Stream width should be noted to represent 1) the typical average width of the 300 meter reach; 2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach. Stream width values should be reported in meters to 2 significant figures.

For substantial pools, the width (at the widest point) and deepest depth of each pool should be reported. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a RUAA Survey. Report pool measurements to 2 significant figures in meters. If depths are too deep to measure then report >1.5 meters.

Measurements on non-wadeable streams, if accessible, should represent typical widths along the 300 meter reach with measurements reported in meters to 2 significant figures.

A photographic record will be made of each site during each survey. Photographs will include an upstream view, left and right bank views, downstream view (as described in the Field Data Sheets), any evidence of recreational uses or indications of human use, hydrologic modifications, etc. Photograph should clearly depict the entire channel and, if feasible, the depth of water in the channel and pools or the absence of water, if dry. Photos should document evidence of recreational use (e.g., rope swings) and actual recreation. No identifiable photographs should be taken of minor children without the permission of an accompanying adult. Efforts should be made not to show the faces of any child (person considered a minor) photographed. Photos may also show a lack of use, such as dry creek beds. Photos need an obvious scale. Photographs must be cataloged in a manner that indicates the site location, date, view orientation and what is being shown.

The types of measurement data to be collected for this project are listed in Table A7.1.

**Table A7.1 Measurement Performance Specifications for Instream and Effluent Monitoring.**

Parameter	Units	Matrix	Method <sup>1</sup>	Parameter Code	AWRL	(LOQ)	Rec. at LOQ (%)	Precision LCS/LCSD (%RPD) <sup>2</sup>	Rec. of LCS	Responsible Entity
Temperature, Water	°C	Water	EPA 170.1 & TCEQ SOP	00010	NA	NA	NA	NA	NA	NRA Field
Temperature, Air	°C	Air	EPA 170.1 & TCEQ SOP	00020	NA	NA	NA	NA	NA	NRA Field

1. *Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods*, most current version.

### Precision

Precision is the degree to which a set of observations or measurements of the same property, obtained under similar conditions, conform to themselves. It is a measure of agreement among replicate measurements of the same property, under prescribed similar conditions, and is an indication of random error. The precision of the information gathered for this project, because it is largely observations, will be dependent on training of field crew personnel for consistency.

### Bias

Bias is a statistical measurement of correctness and includes components of systemic error. A measurement is considered unbiased when the value reported does not differ from the true value. Bias in measurements (both direct and observational) will be addressed through training on obtaining the information required on the RUAA field data sheets to assure consistency within and between field teams.

### Representativeness

Representativeness is a measure of how accurately a monitoring program reflects actual water quality conditions and recreational uses. The representativeness of the data is dependent on the sampling locations, the conditions under which surveys are performed, and the survey procedures.

The RUAA surveys will ideally be performed at a frequency of three sites per five stream miles to assure maximum capture of stream recreational uses. Additionally, sites will be surveyed preferentially during high recreational use potential, both temporally and hydrologically. Representativeness will be measured with the completion of data collected in accordance with the approved QAPP.

### Comparability

Confidence in the comparability of data sets from this project and those for similar uses is based on the commitment of NRA to use only the methods and QA/QC protocols prescribed in the most current *Procedures for a Comprehensive Recreational UAA and a Basic UAA Survey* (March 2014) in accordance with quality system requirements and as described in this QAPP.

## **Completeness**

The completeness of the data is basically a function of weather, site access, and the availability and willingness of individual responders. Ideally, 100% of the data should be available. Unavailable data due to weather and the inability to access the sites and interview individuals are to be expected. Therefore, it will be a general goal of the project that 90% data completion is achieved. Interviewing the required contacts, completing the field data sheets and interview forms for each site, and providing the required photographic evidence, maps, and final report will guarantee the completeness of the each data set.

## **A8 SPECIAL TRAINING/CERTIFICATION**

Field personnel will receive training in proper field analysis. Before actual field measurements occur, field personnel will demonstrate to the NRA QAO or designee their ability to properly calibrate field equipment and perform field analysis procedures required on the RUAA field data sheet (see Appendix B). Training will be documented and retained in the NRA Monitoring Staff Training file and be available during a monitoring systems audit.

Personnel collecting Global Positioning System (GPS) data have training and certification obtained by 1) completing an agency training class, 2) completing a suitable training class offered by an outside vendor, or 3) by providing documentation of sufficient GPS expertise and experience.

**A9 Documents and Records**

Quarterly progress reports (QPRs) will note activities conducted in connection with the RUAA, items or areas identified as potential problems, and any variations or supplements to the QAPP. Corrective Action Reports (CARs) will be utilized when necessary. CARs that result in any changes or variations from the QAPP will be made known to pertinent project personnel and documented in an update or amendment to the QAPP. All QPR and QAPP revisions will be distributed to personnel listed in Section A3.

The TSSWCB may elect to take possession of records at the conclusion of the specified retention period.

**RUAA Reports and Forms**

- Information to be collected shall at least satisfy those questions found on Contact Information Form (Appendix C)
- Field Data Sheets, Interview Forms, and RUAA Summary in electronic format
- Digital photographic record, cataloged in an appropriate manner

**Records and Documents Retention Requirements**

<u>Document/Record</u>	<u>Location at NRA</u>	<u>Retention</u>	<u>Form</u>
QAPP, amendments, and appendices	CBD	5 years	Paper
QAPP distribution documentation	CBD	5 years	Paper/Electronic
Training records	CBD	5 years	Paper
Field notebooks or field data sheets	CBD	5 years	Paper/Electronic
Field equipment calibration/maintenance logs	CBD	5 years	Paper
RUAA Contact Information, Field Data, And Interview Forms	CBD	5 years	Paper/Electronic
Field SOPs	CBD	5 years	Paper/Electronic
Corrective action documentation	CBD	5 years	Paper/Electronic

**QAPP Revision and Amendments**

Until the work described is completed, this QAPP shall be revised as necessary and reissued annually on the anniversary date, or revised and reissued within 120 days of significant changes, whichever is sooner. The last approved versions of QAPPs shall remain in effect until revised versions have been fully approved; the revision must be submitted to the TSSWCB for approval at least 30 days before the last approved version expires. If the entire QAPP is current, valid, and accurately reflects the project goals and the organization’s policy, the annual re-issuance may be done by a certification that the plan is current. This can be accomplished by submitting a cover letter stating the status of the QAPP and a copy of new, signed approval pages for the QAPP.

Amendments to the QAPP may be necessary to reflect changes in project organization, tasks, schedules, objectives and methods; address deficiencies and non-conformances; improve operational efficiency; and/or accommodate unique or unanticipated circumstances. Requests or amendments are directed from the NRA PM to the TSSWCB PM in writing. The changes are effective immediately upon approval by the TSSWCB PM and QAO, or their designees.

Amendments to the QAPP and the reasons for the changes will be documented, and copies of the approved QAPP Expedited Amendment form will be distributed to all individuals on the QAPP distribution list by the NRA PM. Amendments shall be reviewed, approved, and incorporated into a revised QAPP during the next revision of the QAPP.

## **B1 Sampling Process Design (Experimental Design)**

NRA will collect information that can be used to evaluate recreational uses in the study area. Methods used and sampling process design shall be consistent with the TCEQ *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014). NRA will conduct field surveys at selected sites during periods people would most likely use the waterbody for contact recreation; surveys shall ascertain the suitability of the streams for contact recreation use and shall document the hydrological characteristics of the stream.

Field data will be collected following procedures detailed in *TCEQ SWQM Procedures, Volume I: Physical and Chemical Monitoring Methods, 2008* (RG-415).

San Miguel Creek (Segment 2108), located in Frio, Atascosa and McMullen Counties, is approximately 69 miles (111.04 river kilometers) long and is comprised of two assessment units (2108\_01 and 2108\_02), indicating a goal of 41 sites (3 sites per 5 miles of stream). Twenty seven stations are proposed for the RUAA; twelve sites are publically accessible via road crossings and 15 are located on private property. On average, there is one site for every 2.56 miles (4.11 km) of stream. Public access to San Miguel Creek is limited to 12 bridge crossings located at SH-16, CR-343 (Yeager Road), TX-97, CR-3871 (Hindes Road), TX-85, FM-3314 (Goldfinch Road), FM-140, FM-2500 (Sadler Road), CR-2400 (Bush Road), CR-2515 (Biedigger Road), CR-2410 (San Miguel Road), and TX-462.

Public access to the creek at the road crossings is generally limited to the area adjacent to the bridge due to high game fences, barbed wire, and in some cases, corrugated metal fences. The site at CR-343 is not bordered by fencing and is accessible upstream and downstream. The site at SH-16 does not have a fence on the downstream portion at the time this report was completed. However, all 12 publically accessible locations are bordered by private property and require landowner permission to go beyond the easement of the roadway.

Much of the access to San Miguel Creek is only via private property, the majority of which is held in large land holdings that include 1000+ acre ranches and oil lease operations. San Miguel Creek does not flow through any large communities and has a very low population density compared with other waterways in Texas.

Landowners throughout the watershed with river front property were contacted via letter and e-mail regarding access to San Miguel Creek for potential RUAA sites. A public meeting was held on April 10th, 2014 in Pearsall to discuss the upcoming RUAA and to solicit participation from landowners that would be willing to provide access to the creek for the field surveys. Although many landowners granted permission to access the creek from their property for the RUAA field surveys, there are several large gaps between survey stations where access was denied. Crossings in which access was verbally denied include: CR-2410 (San Miguel Road), CR-2400 (Bush Road), FM-2500 (Sadler Road), I-85, CR-3871 (Hindes Road) and TX-97. Landowners at the following crossing simply did not respond to e-mails and letters seeking permission: FM-2500 (Sadler Road). Attempts were made to contact landowners located in the gap areas but permission was either not granted, or the landowner declined to respond.

Due to the number of miles that San Miguel creek covers and the desire to acquire a spatial representation, Nueces River Authority seeks to conduct partial RUAA surveys at public road crossing where the adjacent land owner has denied access to a 300 meter section of creek. These crossings include: CR-2410 (San Miguel Road), CR-2400 (Bush Road), FM-2500 (Sadler Road), I-85, CR-3871(Hindes Road) and TX-97 located in Atascosa and Frio Counties.

Table B1.1 provides the sites selected for use in the project. Sites are identified according to map legend and, where applicable, TCEQ Station ID.

Sites are listed in upstream to downstream order.

TCEQ ID	Map Legend	Site Description	Latitude	Longitude	Distance to Previous Station (km)	Distance from Lower Segment Boundary (km)	Private or Public Access	Private Access Landowner Approved
	SM27	San Miguel Creek upstream of FM 462	29.0583	-98.9448	1.0	115.68	Private	Yes
	SM26	San Miguel Creek @ FM 462	29.0523	-98.9433	6.22	114.68	Public/Private	Yes
	SM25	San Miguel Creek @ CR 2410 (San Miguel Road)	29.0092	-98.9470	3.20	108.46	Public	No
	SM24	San Miguel Creek @FM 2515 (Biedigger Road)	28.9865	-98.9514	1.79	105.26	Private	Yes
	SM23	San Miguel Creek between FM 2515 and CR 2400	28.9763	-98.9481	1.87	103.47	Private	Yes
	SM22	San Miguel Creek between FM 2515 and CR 2400	28.9657	-98.9380	2.01	101.60	Private	Yes
	SM21	San Miguel Creek @ CR 2400 (Bush Road)	28.9572	-98.9265	1.58	99.59	Public/Private	No
	SM20	San Miguel Creek @ CR 2500 (Sadler Road)	28.9497	-98.9183	6.96	98.01	Public/Private	No
	SM19	San Miguel Creek @ FM 140	28.9042	-98.9095	2.43	91.05	Public/Private	Yes
	SM18	San Miguel Creek (between FM 140 and CR 3314)	28.8906	-98.9123	1.91	88.62	Private	Yes
	SM17	San Miguel Creek between FM 140 and CR 3314	28.8795	-98.9157	2.71	86.71	Private	Yes
	SM16	San Miguel Creek @ CR 3314 (Goldfinch Road)	28.8609	-98.9118	8.90	84.00	Private	Yes
	SM15	San Miguel Creek @ I-85	28.8011	-98.8952	13.40	75.10	Public	No
	SM14	San Miguel Creek (between I-85 and TX-97)	28.7322	-98.8407	1.44	61.70	Private	Yes
	SM13	San Miguel Creek (between I-85 and TX-97)	28.7228	-98.8401	0.61	60.26	Private	Yes
	SM12	San Miguel Creek (between I-85 and TX-97)	28.7202	-98.8366	0.30	59.65	Private	Yes

<b>TCEQ ID</b>	<b>Map Legend</b>	<b>Site Description</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Distance to Previous Station (km)</b>	<b>Distance from Lower Segment Boundary (km)</b>	<b>Private or Public Access</b>	<b>Private Access Landowner Approved</b>
	SM11	San Miguel Creek (between I-85 and TX-97)	28.7188	-98.8346	2.75	59.35	Private	Yes
	SM10	San Miguel Creek @ CR 3871 (Hindes Road)	28.7029	-98.8198	4.46	56.60	Public/Private	No
	SM09	San Miguel Creek @ FM 97	28.7078	-98.7877	13.67	52.14	Public/Private	No
	SM08	San Miguel Creek (between I-97 and CR-343)	28.6690	-98.7005	0.30	38.47	Private	Yes
	SM07	San Miguel Creek between I-97 and CR 343	28.6681	-98.6980	4.76	38.17	Private	Yes
	SM06	San Miguel Creek @ CR 343	28.6606	-98.6615	13.00	33.63	Private	Yes
12983	SM05	San Miguel Creek @ SH -16	28.5870	-98.5465	2.17	13.33	Public/Private	Yes
	SM04	San Miguel Creek Downstream of SH-16	28.5867	-98.5275	1.77	11.16	Private	Yes
	SM03	San Miguel Creek Downstream of SH-16	28.5816	-98.5153	2.30	9.39	Private	Yes
	SM02	San Miguel Creek Downstream of SH-16	28.5731	-98.5095	3.96	7.09	Private	Yes
	SM01	San Miguel Creek Downstream of SH-16	28.5487	-98.4961	0.00	3.13	Private	Yes
---	---	[SEGMENT & AU01 lower boundary at Choke Canyon Reservoir]	---	----	----	0.00	---	---

## **B2 Sampling Methods**

### **Field Sampling Procedures**

The sampling process design will be based on the most recent *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014). Water temperature will be measured using calibrated YSI 600 XLM multiprobes. Air temperature will be measured using hand-held field thermometers.

For the RUAA field surveys, information to be collected shall at least satisfy those questions found on the Field Data Sheet from the TCEQ *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014) in Appendix B. The RUAA surveys shall be conducted during a normal warm season (air temperature greater than or equal to 70°F) during dry weather flows that are not storm influence and performed during the period when people would be most likely to use the water body for contact recreational purposes (examples: Saturdays & Sundays, holidays, and summer). In Texas, this period is typically May to September.

The RUAA survey field data sheets must be completed for each site. All field data gathered must be recorded in the appropriate locations on the field data sheets. Field data sheets may be recorded in indelible ink (preferred) or pencil with no erasures, modifications, write-overs or multi-line crossouts.

### **Documentation of Field Sampling Activities**

Field sampling activities will be documented on the Field Data Sheets (see Appendix B). For all visits, stream name, site, date, time, and sample name of collector(s) shall be recorded. Values for all required field parameters will be recorded including detailed observational data as required on the RUAA Field Data Sheets. Data may be transferred to electronic Field Data Sheets from the hard copies for storage and improved legibility, but the original maintained.

### **Recording Data**

For the purposes of this section and subsequent sections, all personnel follow the basic rules for recording information as documented below:

1. Legible writing in indelible, waterproof ink with no modifications, write-over's or cross-outs;
2. Changes should be made by crossing out original entries with a single line, entering the changes, and initialing and dating the corrections.
3. Close-outs on incomplete pages with an initialed and dated diagonal line.

### **Deficiencies, Nonconformances and Corrective Action Related to Sampling Requirements**

Deficiencies are defined as unauthorized deviation from procedures documented in the QAPP. Nonconformances are deficiencies which affect quality and render the data unacceptable or indeterminate. Deficiencies related to sampling method requirements include, but are not limited to, such things as sonde calibration and sample site adjustments.

Deficiencies are documented in logbooks, field data sheets, etc. by field staff and reported to the NRA Field Operations Manager who will notify the NRA PM/QAO within 24 hours. The NRA staff member identifying the deficiency will initiate a record on the Deficiency Worksheet to document the deficiency.

The NRA PM/QAO (and other affected individuals/organizations), will determine if the deficiency constitutes a nonconformance. If it is determined the activity or item in question does not affect data quality and therefore is not a valid nonconformance, the deficiency worksheet will be completed accordingly. If it is determined a nonconformance does exist, the NRA PM/QAO will determine the disposition of the nonconforming activity or item and necessary corrective action(s); results will be documented by the NRA PM/QAO by completion of a Corrective Action Report (CAR).

CARs document: root cause(s); programmatic impact(s); specific corrective action(s) to address the deficiency; action(s) to prevent recurrence; individual(s) responsible for each action; the timetable for completion of each action; and, the means by which completion of each corrective action will be documented. CARs will be included with quarterly progress reports. In addition, significant conditions (i.e., situations which, if uncorrected, could have a serious effect on safety or on the validity or integrity of data) will be reported to the TSSWCB immediately both verbally and in writing.

## **B3 SAMPLE HANDLING AND CUSTODY**

### **Sample Handling**

Sample parameters for this project are recorded *in situ*. No physical samples are collected, so this section is not applicable.

## **B4 ANALYTICAL METHODS**

### **Failures in Measurement Systems and Corrective Actions**

Failures in field measurement systems involve, but are not limited to, such things as instrument malfunctions, failures in calibration, etc. In many cases, the field technician will be able to correct the problem. If the problem is resolvable by the field technician, then they will document the problem on the field data sheet and complete the measurement. If the problem is not resolvable, then it is conveyed to the NRA PM/QAO through initiation of a CAR. The nature and disposition of the problem is reported to the NRA PM/QAO, who will include this information in the CAR and submit with the QPR to the TSSWCB PM.

## **B5 QUALITY CONTROL**

Sample parameters for this project are recorded *in situ*. No physical samples are collected, so this section is not applicable.

## **B6 INSTRUMENT/EQUIPMENT TESTING, INSPECTION AND MAINTENANCE**

Field equipment is inspected and tested by NRA upon receipt to assure it is appropriate for use. No specific equipment is required by this project to conduct the RUAA field surveys.

## **B7 INSTRUMENT/EQUIPMENT CALIBRATION AND FREQUENCY**

Sample data collected for this project do not require any instruments or equipment requiring calibration, so this section is not applicable.

## **B8 INSPECTION/ACCEPTANCE OF SUPPLIES AND CONSUMABLES**

All new batches of field supplies are inspected before use to ensure that they are adequate for the intended purpose. Extra supplies, such as camera for taking pictures during the RUAA field surveys, will be kept and made available to the project by the Field Supervisors.

## **B9 Non-direct Measurements**

In addition to the data generated from the RUAA associated with this project, non-direct measurements will be acquired from the following tasks:

- A comprehensive GIS inventory of the study area.
- Reconnaissance trip(s) to assess potential survey sites.
- Public meetings for solicitation of landowner permission for access to survey sites.
- Historical information review of recreational uses of the waterbody since November 1975.

### **Comprehensive GIS Inventory**

As part of the project for site selection and source identification, a comprehensive GIS survey will be compiled for the study area. All data to be used in the GIS survey for this project have been collected in accordance with approved QA measures under the TCEQ, Texas Water Development Board, USDA, and USGS. GIS data to be used include, but are not limited to, SSURGO and CBMS soils data, USGS NLCD and NHD, Census data (2000), Census of Agriculture data from USDA NASS (2007), and the United States Geological Survey (USGS) 30-meter resolution DEM (Table B9.1). Depending on the accessibility to the GIS layers from different data sources, efforts will be made to update the spatial data to the most recently available data. Also, as other relevant data sources become known, they may be added to the GIS Inventory.

As part of the project, NRA will conduct a historical data review for each waterbody in order to assess and characterize trends and variability specifically of bacteria, but may also include other water quality parameters. The historical data collection activities will focus on ambient water quality data and may include streamflow and water level data, precipitation records, and data from permitted facilities including discharges and effluent quality. Data sources may include the USGS, National Weather Service, Texas Parks and Wildlife Department, Texas Water Development Board, Groundwater Conservation Districts, relevant River Authorities, TCEQ, and the EPA.

As part of the field RUAA surveys, historical weather data, specifically weather day for the 30 days prior to each field RUAA survey, will be obtained from the National Weather Service or other reliable source.

Because most non-direct data are of known and acceptable quality and were collected and analyzed in a manner comparable and consistent with needs for this project, no limitations will be placed on their use, except where known deviations have occurred.

**Table B9.1 Non-Direct (Acquired) Data Required for Site Selection and of each Segment Watershed**

<b>Data Type</b>	<b>Data Source</b>	<b>Applicable Date or Other Attributes</b>	<b>Use/Relevance</b>
Aerial photography	USDA Farm Service Agency NAIP	2004-2010	Site Selection and landscape characteristics
Routine ambient water quality data: primarily bacteria, but also other parameters deemed relevant to a particular segment	TCEQ website in SWQMIS and/or associated River Authority	Full historical data range (1970s – present)	Background information on water quality and trends
DEMs 10-m resolution; GIS data	EPA-BASINS website preferred; webGIS, USGS National Seamless Server and GeoCommunity websites as alternatives. [Large data volume.]	N/A	Delineation of watershed boundaries and boundaries of assessment units
Agricultural census data	USDA NASS website	County level agricultural statistics (2007 data)	Potential sources
Soils data; GIS data (SSURGO)	NRCS website; SSURGO databases [Large data volume]	SSURGO is the most detailed soil maps developed by NRCS	Landscape characteristics
Daily streamflow, if available	USGS web site. [Large data volume.]	Streamflow 1970s to present	Flow characteristics
Municipal & Industrial WWTF permits	TCEQ	TPDES/NPDES permit	Location and type of discharges to each segment
Municipal & Industrial WWTF data (monthly discharged flow and any pertinent quality data associated with discharges)	TCEQ Information Resources Division data and EPA ECHO website (EPA ICIS-NPDES). [Small data volume. DMR provided by permit holders.]	Limited DMR data available from EPA website; more complete records from TCEQ; preferred data range 1970s to present	Flow characteristics and potential sources
Miscellaneous geographic data (roads, streams,	TNRIS; North Carolina State Univ. Libraries geospatial data services	N/A	Location of potential recreational areas

<b>Data Type</b>	<b>Data Source</b>	<b>Applicable Date or Other Attributes</b>	<b>Use/Relevance</b>
boundaries, etc.) [Required for physical presentation of maps in reports, largely not needed for modeling.]	website; USGS NHD; U.S. Census Bureau website; Montana State University Geographic Locater website. [Large data volume.]		along each segment (road crossings, parks, etc) and general watershed characteristics
Precipitation and air temperature data	National Weather Service	Historical for evaluation of normal conditions and for RUAA surveys daily data 30 days prior and during each field survey	Characterization of historical conditions and antecedent and current conditions associated with RUAA field surveys

## **B10 Data Management**

NRA will collect, store electronically, and make all collected project data available to the TSSWCB PM. NRA will also be responsible for maintaining backup files to protect the data. Data will be stored, managed and submitted to TSSWCB through NRA's PM. RUAA data will not go into TCEQ's Surface Water Quality Monitoring Information System (SWQMIS) database. The data will be accompanied by other deliverables, such as a final RUAA report. Deliverables will be submitted to the TSSWCB as described in the contract.

NRA's recordkeeping and document control procedures are contained in the NRA QAM. Original field data sheets are stored in the main office of the NRA Field Staff.

NRA will complete Field Data Sheets for the Basic RUAA, Contact Information Forms, and Comprehensive RUAA Interview Forms by hand on hard copies or as electronic forms on a computer. Information on the forms will be entered into electronic versions at the NRA office in a directory specifically designated for the project that is backed up incrementally every evening and completely once a week. A NRA staff member other than the person who electronically entered the data will review at least 10 percent of the survey information in the database against the original hard copies. NRA staff members will enter data electronically onto the RUAA Summary Sheet into the project directory. Photographs will be taken according to guidelines in the Procedures for a Comprehensive RUAA and a Basic RUAA Survey. The photographs will be taken by an electronic camera and stored in a jpg format in the project directory.

### **Hardware and Software Requirements**

Hardware configurations are sufficient to run Microsoft Access under the Windows Server operating system in a networked environment. Information resources staff is responsible for assuring hardware configurations meet the requirements for running current and future data management/database software as well as providing technical support. Software development and database administration are also the responsibility of the information resources department. Information resources develop applications based on user requests and assure full system compatibility prior to implementation.

## C1 Assessments and Response Actions

**Table C1.1 Assessments and Response Actions**

Assessment Activity	Approximate Schedule	Responsible Party	Scope	Response Requirements
Status Monitoring Oversight, etc.	Continuous	NRA Project Manager	Monitoring of the project status and records to ensure requirements are being fulfilled.	Report to TSSWCB in Quarterly Progress Reports
Monitoring Systems Audit	At least once per life of the project; dates to be determined by TSSWCB	TSSWCB QAO	The assessment will be tailored in accordance with objectives needed to assure compliance with the QAPP. Field measurement; facility review; and data management as they relate to the project	30 days to respond in writing to the TSSWCB to address corrective actions
Monitoring Systems Audit	Based on work plan and/or discretion of NRA	NRA QAO	The assessment will be tailored in accordance with objectives needed to assure compliance with the QAPP. Field measurement; facility review; and data management as they relate to the project	30 days to respond in writing to the NRA QAO to address corrective actions
Site Visit	At least once per fiscal year; dates to be determined by TSSWCB	TSSWCB PM	Status of activities. Overall compliance with work plan and QAPP	As needed

### Corrective Action

The NRA PM/QAO is responsible for implementing and tracking corrective action procedures as a result of audit findings. Records of audit findings and corrective actions are maintained by both the TSSWCB PM and the NRA PM/QAO. Audit reports and corrective action documentation will be submitted to the TSSWCB with the Quarterly Progress Report.

If audit findings and corrective actions cannot be resolved, then the authority and responsibility for terminating work is specified in the TSSWCB QMP and in agreements or contracts between participating organizations.

## **C2 Reports to Management**

### **Reports to TSSWCB Project Management**

All reports detailed in this section are contract deliverables that will be transferred from NRA and to TSSWCB in accordance with contract requirements. NRA will have final responsibility for all reports and any draft reports.

QPR – Summarizes the NRA activities for each task; reports problems, delays, and corrective actions; and outlines the status of each task’s deliverables.

Technical Report – Summarizes NRA activities for the entire project period including a description and documentation of major project activities; evaluation of the project results and environmental benefits Technical Report shall at least include those contents described for a Comprehensive RUAA in the TCEQ *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014):

- Electronic copies of completed interview forms, field data sheets, flow sheets, and RUAA summary sheet;
- Digital photographic record, cataloged for appropriate identification; and Technical Report summarizing historical information review, field surveys, and user interviews.

## **D1 Data Review, Verification, and Validation**

The NRA PM will review the data collected during each RUAA survey for completeness and accuracy as described in Section D2.

## **D2 Verification and Validation Methods**

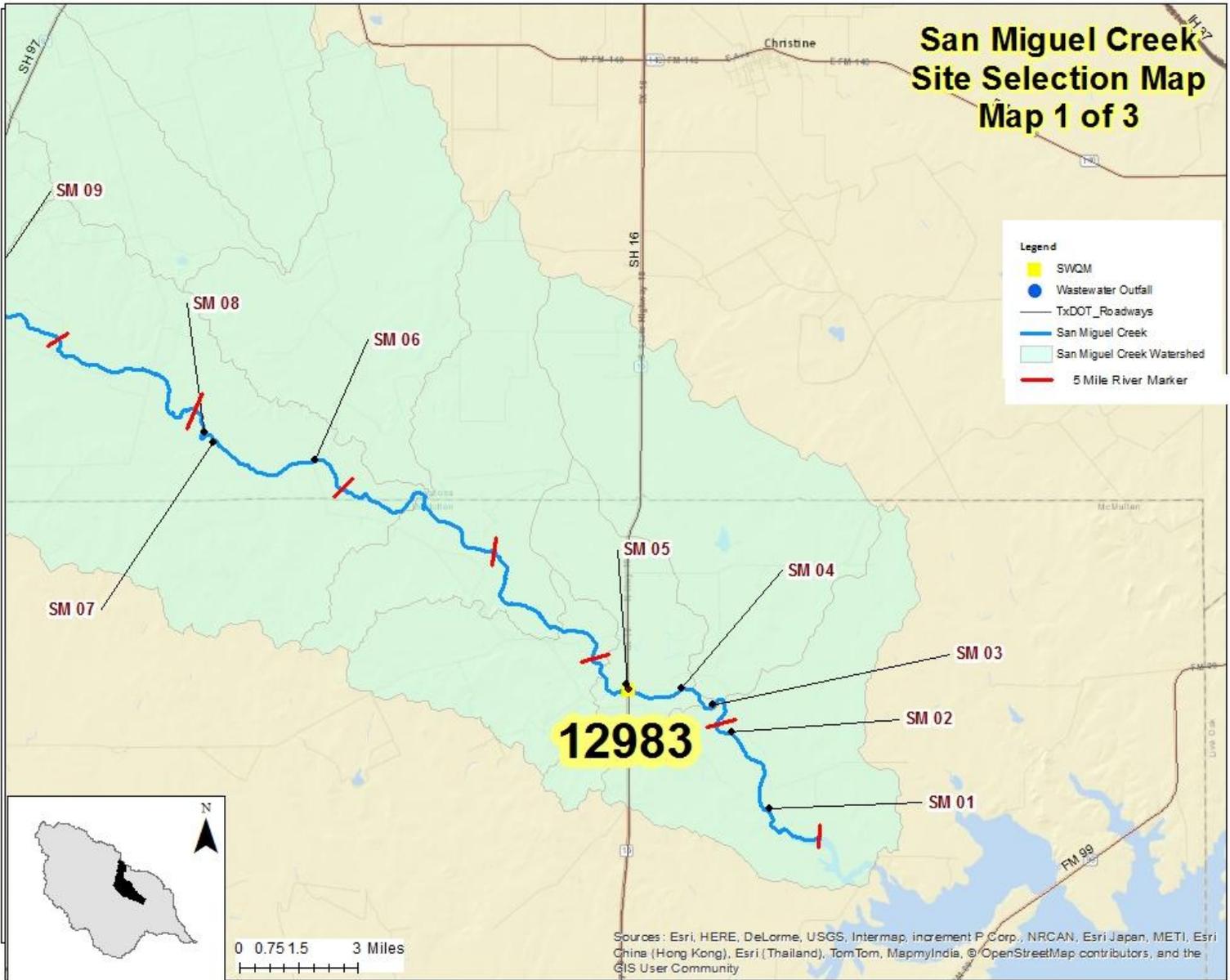
The NRA PM is responsible for reviewing surveys for completeness and accuracy. At least 10% of measurement data in the final, electronic RUAA field data sheets and interview forms should be verified for accuracy against the original handwritten values in field notebooks, field data sheets and interview forms.

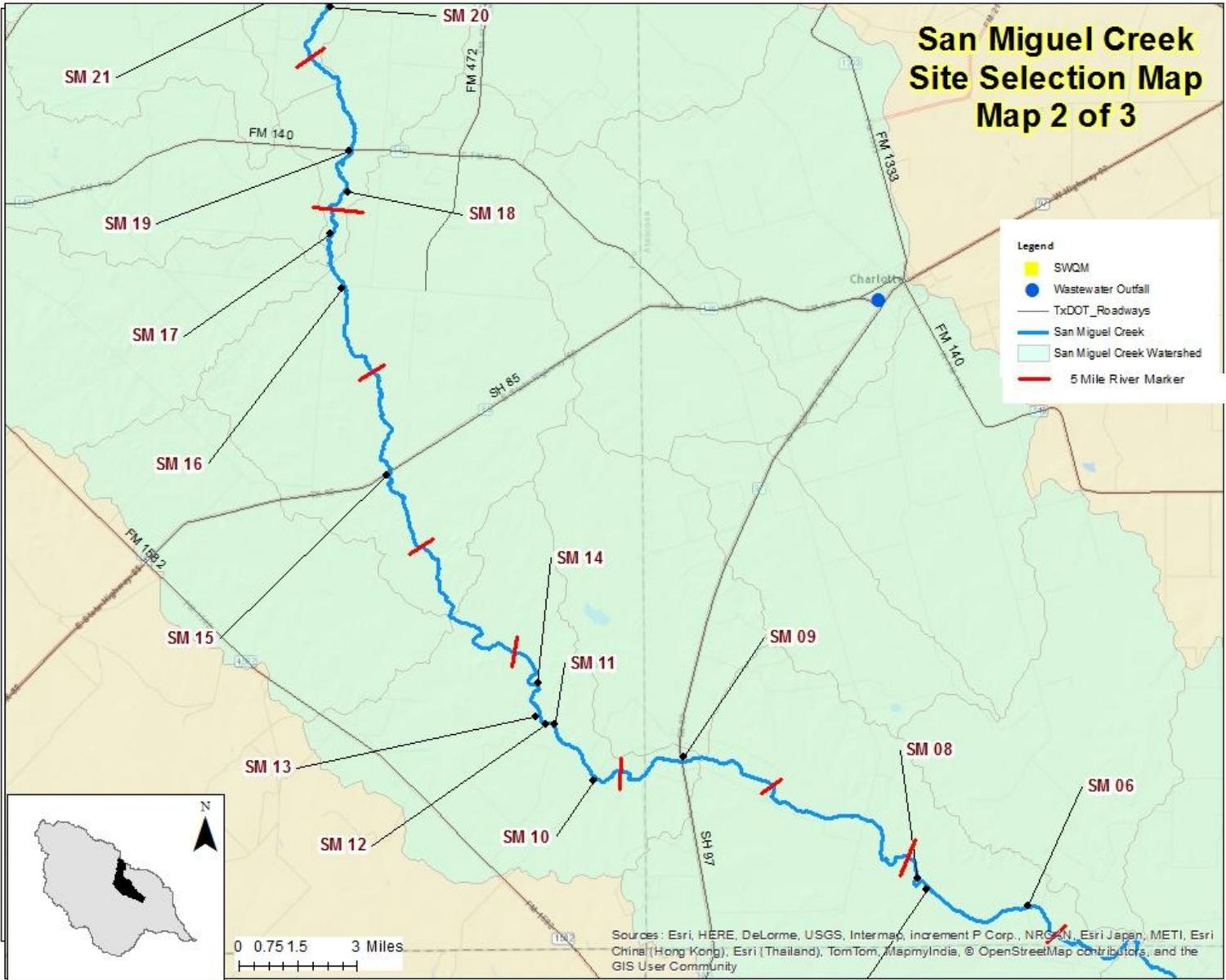
### **D3 Reconciliation with User Requirements**

The overall goal of the project is to collect data that provide stakeholders and agencies with sufficient information to determine recreational use status throughout San Miguel Creek.

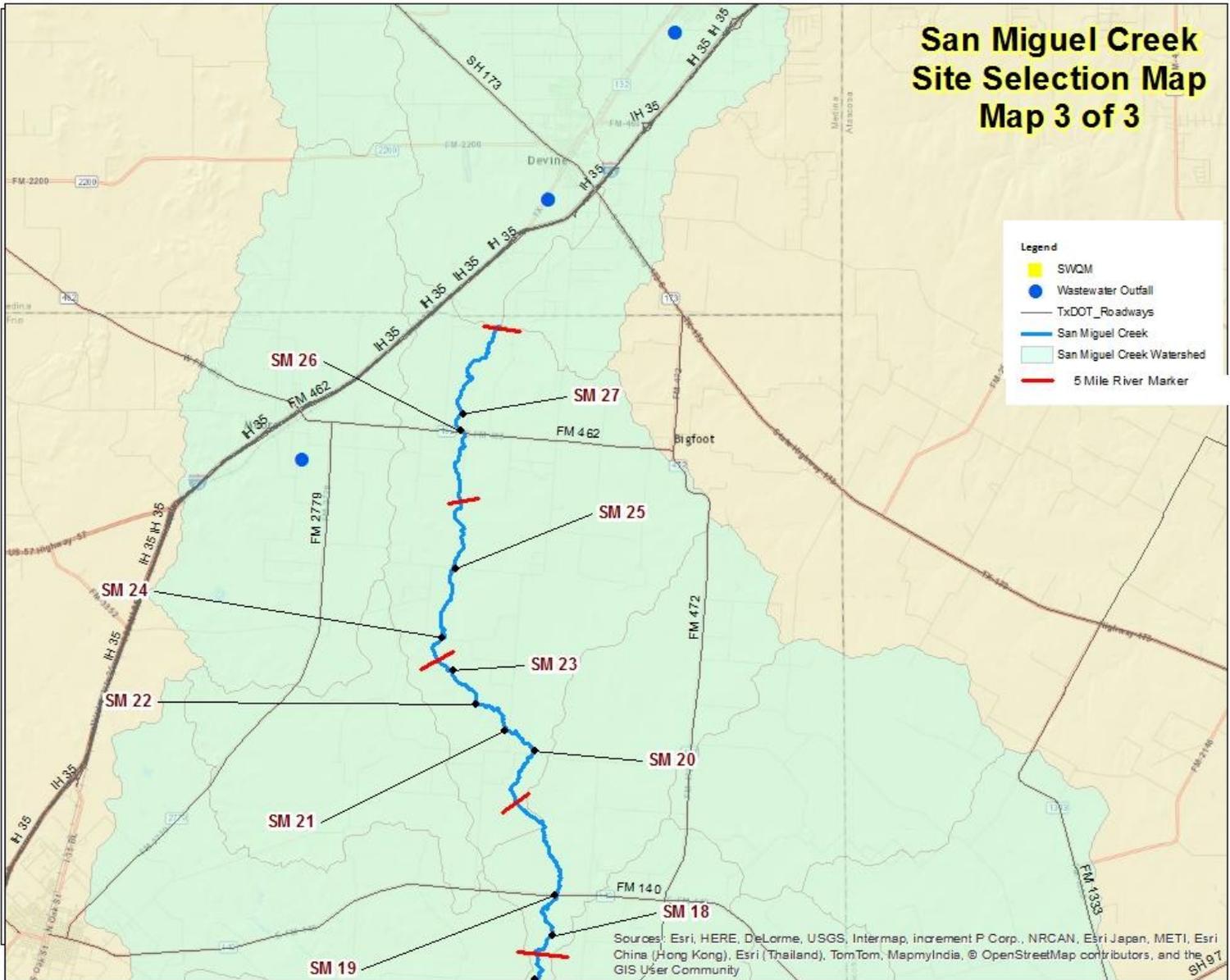
**Appendix A: Area Locations and RUAA Station Maps**







# San Miguel Creek Site Selection Map Map 3 of 3



**Appendix B: RUAA Contact Information, Field Data, Interview and Summary Forms**

**Contact Information Form**

(This form must be completed prior to conducting a Basic RUAA Survey and/or Comprehensive RUAA.)

*The TCEQ Water Quality Standards Group will not consider or review a RUAA unless the appropriate entities listed below have been notified prior to the beginning of a RUAA. A RUAA should not be conducted until you have received a Notice to Proceed from the TCEQ Water Quality Standards Group.*

River or stream name: San Miguel Creek (Segment 2108)

**Required Local Contacts:**

*Ask the contacts if a recreational use-attainability analysis is appropriate for the river or stream and check Yes or No below. Document the name of the person contacted and the date they were notified about the proposed RUAA project.*

Clean Rivers Program Partner (River Authority and other local partners)	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date Notified:
	Name: _____	
Texas Parks and Wildlife Department region staff	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date Notified:
	Name: _____	
TCEQ region staff	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date Notified:
	Name: _____	
Texas State Soil and Water Conservation Board Statewide Resource Management Group <a href="mailto:srm-team@tsswcb.state.tx.us">srm-team@tsswcb.state.tx.us</a>	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date Notified:
	Name: _____	

**Suggested Additional Local Contacts:**

*If contacted, ask the contacts if a recreational use-attainability analysis is appropriate for the river or stream and check Yes or No below. If contacted, include information regarding notification date and person contacted on a separate page and attach it to this form.*

Local Parks and Recreation Departments	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Municipal Government/Jurisdiction	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
County Government/Jurisdiction	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Local Recreation Groups	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Conservation Groups	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Local Soil and Water Conservation Districts	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Texas AgriLife Extension Service (local County Extension Agent)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
USDA Natural Resources Conservation Service (local field staff)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Watershed Groups	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Long-term Landowners/Adjacent Landowners	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Texas Stream Team (formerly Texas Watch)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Canoe Clubs	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
City Commissioners Office	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Real estate agents	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Local non-profits	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
City/county offices (Engineer, Health, Law Enforcement)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Flood control districts	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Councils of Governments	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Texas Parks and Wildlife Department Game Warden	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area
Other: _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Entity Not Contacted	<input type="checkbox"/> Entity Not in Project Area

Draft Definitions (2010 TSWQS Revision)

- Primary contact recreation: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.
- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.
- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the waterbody and/or (2) limited public access.
- Noncontact recreation: Activities, such as ship and barge traffic, birding, and using hike and bike trails near a waterbody, not involving a significant risk of water ingestion, and where primary and secondary contact recreation should not occur because of unsafe conditions.

Information from Local Contacts:

1. If any entity answered no, please list the reason(s) why:

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2. Did the local entities confirm that primary contact recreation activities frequently occur?  Yes  No  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

If no, explain: \_\_\_\_\_

3. Did the local entities confirm that secondary contact recreation 1 activities frequently occur?  Yes  No  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

If no, explain: \_\_\_\_\_

4. Did the local entities confirm that secondary contact recreation 2 activities frequently occur?  Yes  No  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

If no, explain: \_\_\_\_\_

5. Did the local entities confirm that noncontact recreation activities frequently occur?  Yes  No  
Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

If no, explain: \_\_\_\_\_

6. Do the local entities know if this waterbody provides substantial flow to a waterbody with primary contact recreation activities (e.g., swimming in a state/local park) or a bathing beach that is located immediately downstream?  Yes  No  Unknown

If yes, have the local entities provide the name of the waterbody and a description of the location of the primary contact recreation uses or bathing beach.

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Notify TCEQ Water Quality Standards Group (required):

Send an e-mail notification to the TCEQ Water Quality Standards Group at [standards@tceq.state.tx.us](mailto:standards@tceq.state.tx.us).

Notified:  Yes  No

Date Notified by e-mail: \_\_\_\_\_

Date TCEQ WQS e-mail Response Received: \_\_\_\_\_

WQS Group Contact Person Providing Response: \_\_\_\_\_

Did the WQS Group provide a Notice to Proceed with the RUAA?  Yes  No

Additional Contacts Made:

Name:

Entity:

Date Notified:

**Field Data Sheets –RUA Survey**  
(complete for each site)

Site:

Data Collectors & Contact Information:	
Date & Time:	County Name:
Stream Name:	
Segment No. or nearest downstream Segment No.:	
Description of Site:	

**A. Stream Characteristics:**

1. Check the following channel flow status that applies.

- dry    no flow    low    normal    high    flooded

2. Check the following stream type that applies on the day of the survey:

Ephemeral: A stream which flows only during or immediately after a rainfall event, and contains no refuge pools capable of sustaining a viable community of aquatic organisms.

Intermittent: A stream which has a period of zero flow for at least one week during most years. Where flow records are available, a stream with a seven-day, two-year low-flow (7Q2) flow of less than 0.1 cubic feet per second is considered intermittent.

Intermittent w/ perennial pools: An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second.

Perennial: A stream which flows continuously throughout the year. Perennial streams have a 7Q2 equal to or greater than 0.1 cubic feet per second.

Designated or unclassified tidal stream: A stream that is tidally influenced. If you checked this box, you will need to contact the TCEQ Water Quality Standards Group and evaluate whether or not a bathing beach is located along the tidal stream and whether or not a bathing beach is located along the estuary, bay or Gulf water that the tidal stream flows into.

3. Riparian Zone (Mark dominant categories with L (Left Bank) and R (Right Bank). Bank orientation is determined by the investigator facing downstream.)

- |                                 |                           |                        |
|---------------------------------|---------------------------|------------------------|
| _____ Forest                    | _____ Urban               | _____ Rip rap          |
| _____ Shrub dominated corridor  | _____ Pasture             | _____ Concrete         |
| _____ Herbaceous marsh          | _____ Row crops           | Other (specify): _____ |
| _____ Mowed/maintained corridor | _____ Denuded/Eroded bank |                        |

4. Ease of bank access to the water body:  Easy    Moderately easy    Moderately difficult    Difficult

5. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation):

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6. Dominant Primary Substrate

- Cobble    Sand    Silt    Mud/Clay    Gravel    Bedrock    Rip rap    Concrete

### Field Data Sheets –RUAA Survey

Stream Name \_\_\_\_\_ Site: \_\_\_\_\_  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

#### B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation definition: Activities that are presumed to involve a significant risk of ingestion of water (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, and the following whitewater activities: kayaking, canoeing, and rafting).

1. Were water recreation activities that involve a significant risk of ingestion (full body immersion) observed at this site?

Yes  No primary contact recreation activities were observed

a. Check the following boxes of primary contact recreation activities observed at the time of the sampling event at the site (Attach photos of the activities or lack of activities).

- |  |   |
|--|---|
| <input type="checkbox"/> Wading-Children | <input type="checkbox"/> Tubing   |
| <input type="checkbox"/> Wading-Adults   | <input type="checkbox"/> Surfing  |
| <input type="checkbox"/> Swimming        | <input type="checkbox"/> Whitewater-kayaking, canoeing, rafting   |
| <input type="checkbox"/> Water skiing    | <input type="checkbox"/> Other : _____  |
| <input type="checkbox"/> Diving          | <input type="checkbox"/> frequent public swimming-created by publicly owned land or commercial operations |

b. Check the number of individuals observed at the site:  None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Water in mouth or nose of the individual  Primary touch: Individual's body (or portion) immersed in water  
 Secondary touch: fishing, pets and related contact with water  Individual is in a boat touching water  
 Individual is on shore near water within 8 meters (25ft) of water  Individual is well away from water between 8 and 30 meters (100 ft)  Not applicable

2. If primary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of primary contact (depth, etc.) (Attach photos, etc. for documentation).

\_\_\_\_\_

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).

\_\_\_\_\_

4. Is an area with primary contact recreation activities or a bathing beach (e.g. state/local parks with swimming, etc.) located near (e.g. within 5 miles upstream and downstream) this site?

\_\_\_\_\_

#### C. Secondary Contact Water Recreation Evaluation:

- Secondary contact recreation 1: Activities that commonly occur but have limited body contact incidental to shoreline activity (e.g. fishing, canoeing, kayaking, rafting and motor boating). These activities are presumed to pose a less significant risk of water ingestion than primary contact recreation but more than secondary contact recreation 2.

- Secondary contact recreation 2: Activities with limited body contact incidental to shoreline activity (e.g. fishing, canoeing, kayaking, rafting and motor boating) that are presumed to pose a less significant risk of water ingestion than secondary contact recreation 1. These activities occur less frequently than secondary contact recreation 1 due to physical characteristics of the water body or limited public access.

### Field Data Sheets –RUAA Survey

Stream Name: \_\_\_\_\_ Site: \_\_\_\_\_  
Date: \_\_\_\_\_ Time: \_\_\_\_\_

1. Were water recreation activities observed at the site, but the nature of the recreation does not involve a significant risk of ingestion (e.g. secondary contact recreation activities)?  Yes  No secondary contact recreation activities were observed

a. Check the following boxes of secondary contact recreation activities that were observed at the time of the sampling event at the site (Attach photos of activities or lack of activities).

- Fishing
- Boating-commercial, recreational
- Non-whitewater-kayaking, rafting, canoeing
- No secondary contact recreation activities were observed
- Other secondary contact activities: \_\_\_\_\_

b. Check the number of individuals observed at the site.

- None  1-10  11-20  20-50  greater than 50

c. Check the following that apply regarding the individuals proximity to the water body.

- Secondary touch: fishing, pets and related contact with water  In a boat touching water
- Body on shore near water within 8 meters (25ft) of water  Body well away from water between 8 and 30 meters (100 ft)

2. If secondary contact recreation activities are not observed, describe the physical characteristics of the water body that may hinder the frequency of secondary contact (Attach photos, etc. for documentation).

\_\_\_\_\_

3. If secondary contact recreation activities are observed, how often do water recreational activities occur that do not involve a significant risk of water ingestion?  frequently  infrequently

Please describe how often the activities occur?  Unknown  Never  Daily  Monthly  Yearly

4. If infrequently, what is the reason?  physical characteristics of the water body  limited public access  other

If other, list reasons: \_\_\_\_\_

5. Describe the physical characteristics of the water body that hinders the frequency of secondary contact recreation (depth, etc.) (Attach photos or depth measurements, etc. for documentation).

\_\_\_\_\_

\_\_\_\_\_

6. Describe why there is limited public access (e.g. lack of roads, river or stream banks overgrown, etc.) (Attach photos, maps, etc. for documentation).

\_\_\_\_\_

\_\_\_\_\_

#### D. Noncontact Recreation Evaluation

*Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion (e.g. activities with limited body contact incidental to shoreline activity, including birding, hiking, and biking), and where primary and secondary contact recreation uses do not occur because of unsafe conditions, such as barge traffic.*

1. Provide site-specific information and documentation (including photographs) regarding unsafe conditions, recreation activities, and presence or absence of water recreation activities.

\_\_\_\_\_

### Field Data Sheets –RUAA Survey

Stream Name \_\_\_\_\_ Site: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

**E. Stream Channel and Substantial Pools Measurements**

Please check the following which best describes the river or stream (A non-wadeable stream is one that is too deep to wade. Dry streams are considered wadeable.):  Wadeable  Non-wadeable

1. Wadeable Streams

Determine whether or not the average depth at the thalweg is greater than 0.5 meters and if there are substantial pools with a depth of 1 meter or greater. Walk an approximately 300 meter reach (total) at the site and take the following measurements within the 300 meter reach. Measurements should be taken during dry weather flows (sustained or typical dry, warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather

Also, take photos facing upstream, downstream, left bank, and right bank at 0 meters, 150 meters, and 300 meters.

Photos #s (0 meters) Upstream \_\_\_\_\_ Downstream \_\_\_\_\_ Left Bank \_\_\_\_\_ Right Bank \_\_\_\_\_  
 Photos #s (150 meters) Upstream \_\_\_\_\_ Downstream \_\_\_\_\_ Left Bank \_\_\_\_\_ Right Bank \_\_\_\_\_  
 Photos #s (300 meters) Upstream \_\_\_\_\_ Downstream \_\_\_\_\_ Left Bank \_\_\_\_\_ Right Bank \_\_\_\_\_

a) Substantial pools - Measure the length of each pool within the 300 meter reach (if > 10 pools only measure 10 pools). Also measure the width (at the widest point) and deepest depth of each pool. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a RUAA Survey. Report measurements to two significant figures. If depths are too deep to measure then report >1.5 meters.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1			
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

b) Average depth at the thalweg –Take depth measurements every 30 meters within the 300 meter reach to calculate an average depth at the thalweg (at least 11 measurements needed). Report measurements to two significant figures. If depths are too deep at a particular transect to measure then report >1.5 meters. Use 1.5 when calculating the mean.

Distance	Depth (meters)
0 meters	
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
<b>Average</b>	

### Field Data Sheets –RUA Survey

Stream Name \_\_\_\_\_ Site: \_\_\_\_\_  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

c) Stream width - Measure (1) the width at one point which represents the typical average width of the 300 meter reach; (2) the width at the narrowest point of the stream within the 300 meter reach; and (3) the width at the widest point of the stream within the 300 meter reach. Report measurements to two significant figures.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	
Width at narrowest point of the stream within 300 meter reach	
Width at the widest point of the stream within 300 meter reach	

2. Non-wadeable Streams

If accessible, take 11 width measurements which represent typical widths of the 300 meter reach. If the water is too deep the entire 300 meter reach then record the estimated average width of the water body. Report measurements to two significant figures.

Also, take photos facing upstream, downstream, left bank, and right bank at 0 meters, 150 meters, and 300 meters.

Photos #s (0 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (150 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_  
 Photos #s (300 meters) Upstream \_\_\_ Downstream \_\_\_ Left Bank \_\_\_ Right Bank \_\_\_

# Measurements	Width (meters)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	

### Field Data Sheets –RUAA Survey

Stream Name \_\_\_\_\_ Site: \_\_\_\_\_  
 Date: \_\_\_\_\_ Time: \_\_\_\_\_

**F. Additional RUAA Information. Summarize your observations for the entire 300 meter reach.**

1. Check the following activities observed over the site reach.

- |   |   |
|---|---|
| <input type="checkbox"/> Drinking or water in mouth | <input type="checkbox"/> Playing on shoreline |
| <input type="checkbox"/> Bathing                    | <input type="checkbox"/> Picnicking           |
| <input type="checkbox"/> Walking                    | <input type="checkbox"/> Motorcycle/ATV       |
| <input type="checkbox"/> Jogging/running            | <input type="checkbox"/> Hunting/Trapping     |
| <input type="checkbox"/> Bicycling                  | <input type="checkbox"/> Wildlife watching    |
| <input type="checkbox"/> Standing                   | <input type="checkbox"/> None                 |
| <input type="checkbox"/> Sitting                    | <input type="checkbox"/> Other: _____         |
| <input type="checkbox"/> Lying down/sleeping        |   |

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses?  Yes  No (If yes, please provide supporting documentation and photos.)

Comments: \_\_\_\_\_  
 \_\_\_\_\_

3. Check any channel obstructions that apply (Attach photos).

- |                                       |   |   |                                      |  |
|---------------------------------------|---|---|--------------------------------------|--|
| <input type="checkbox"/> Culverts     | <input type="checkbox"/> Fences                 | <input type="checkbox"/> Log jams         | <input type="checkbox"/> Rip rap     | <input type="checkbox"/> Water control structure |
| <input type="checkbox"/> Barbed wire  | <input type="checkbox"/> Dams                   | <input type="checkbox"/> Thick vegetation | <input type="checkbox"/> Low bridges | <input type="checkbox"/> None                    |
| <input type="checkbox"/> Utility pipe | <input type="checkbox"/> Other (specify): _____ |   |                                      |  |

4. Check all surrounding conditions that promote recreational activities (Attach photos of evidence or unusual items of interest).

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Campgrounds             | <input type="checkbox"/> Stairs/walkway         | <input type="checkbox"/> Roads (paved/unpaved)              | <input type="checkbox"/> Other: _____      |
| <input type="checkbox"/> Playgrounds             | <input type="checkbox"/> Boating access (ramps) | <input type="checkbox"/> Populated area                     | <input type="checkbox"/> None of the Above |
| <input type="checkbox"/> Rural area              | <input type="checkbox"/> Beach                  | <input type="checkbox"/> Docks or rafts                     |  |
| <input type="checkbox"/> Residential             | <input type="checkbox"/> Bridge crossing        | <input type="checkbox"/> Commercial outfitter               |  |
| <input type="checkbox"/> National forests        | <input type="checkbox"/> Commercial boating     | <input type="checkbox"/> Trails/paths (hiking/biking)       |  |
| <input type="checkbox"/> Urban/suburban location | <input type="checkbox"/> Nearby school          | <input type="checkbox"/> Power Line Corridor                |  |
| <input type="checkbox"/> Golf Course             | <input type="checkbox"/> Paved parking lot      | <input type="checkbox"/> Parks (national/city/county/state) |  |
| <input type="checkbox"/> Sports Field            | <input type="checkbox"/> Unimproved parking lot | <input type="checkbox"/> Public Property                    |  |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

5. Check all surrounding conditions that impede recreational activities (Attach photos of evidence or unusual items of interest).

- |   |   |
|---|---|
| <input type="checkbox"/> Private Property | <input type="checkbox"/> Fence              |
| <input type="checkbox"/> No trespass sign | <input type="checkbox"/> Barge/ship traffic |
| <input type="checkbox"/> Wildlife         | <input type="checkbox"/> Industrial         |
| <input type="checkbox"/> Steep slopes     | <input type="checkbox"/> None of the Above  |
| <input type="checkbox"/> No public access | <input type="checkbox"/> Other: _____       |
| <input type="checkbox"/> No roads         |   |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

6. Check any indications of human use (Attach photos).

- |  |   |   |  |
|--|---|---|--|
| <input type="checkbox"/> Roads             | <input type="checkbox"/> RV/ATV Tracks  | <input type="checkbox"/> NPDES Discharge        | <input type="checkbox"/> Organized event   |
| <input type="checkbox"/> Rope swings       | <input type="checkbox"/> Camping Sites  | <input type="checkbox"/> Gates on corridor      | <input type="checkbox"/> No Human Presence |
| <input type="checkbox"/> Dock/platform     | <input type="checkbox"/> Fire pit/ring  | <input type="checkbox"/> Children's toys        |  |
| <input type="checkbox"/> Foot paths/prints | <input type="checkbox"/> Fishing Tackle | <input type="checkbox"/> Remnants of kids' play |  |
| <input type="checkbox"/> Other: _____      |   |   |  |

Comments: \_\_\_\_\_  
 \_\_\_\_\_

### Field Data Sheets –RUAA Survey

Stream Name \_\_\_\_\_ Site: \_\_\_\_\_

Date: \_\_\_\_\_ Time: \_\_\_\_\_

7. Please list any additional items that may impede recreation, such as excessive aquatic vegetation or algae, excessive debris, garbage, snakes, alligators, abundant wildlife, etc.? (Attach photos).

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**8. Please list any evidence of sustained aquatic habitat such as clam shells, aquatic or marsh vegetation, turtle shells, etc. (Attach photos)**

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9. Is the site located in a wildlife preserve with large wildlife (i.e waterfowl) population?  Yes  No

10. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).

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<b><u>Severity Value</u></b>	<b><u>Description</u></b>
<input type="checkbox"/> <b>1 No Flow</b>	When a flow severity of 1 is recorded for a sampling visit, record a flow value of 0 ft <sup>3</sup> /s (using parameter code 00061) for that sampling visit. A flow severity of 1 describes situations where the stream has water visible in isolated pools. There should be no obvious shallow subsurface flow in sand or gravel beds between isolated pools. “No flow” not only applies to streams with pools but also to long reaches of streams that have water from bank to bank but no detectable flow.
<input type="checkbox"/> <b>2 Low Flow</b>	When streamflow is considered low, record a flow-severity value of 2 for the visit, along with the corresponding flow measurement (parameter code 00061). In streams too shallow for a flow measurement where water movement is detected, record a value of < 0.10 ft <sup>3</sup> /s. <b>Note:</b> Use a stick or other light object to verify the direction of water movement. Make sure the movement is downstream and not the effect of wind. What is low for one stream could be high for another.
<input type="checkbox"/> <b>3 Normal Flow</b>	When streamflow is considered normal, record a flow severity value of 3 for the visit, along with the corresponding flow measurement (parameter code 00061). “Normal” is highly dependent on the stream. Like low flow, what is normal for one could be high or low for another.
<input type="checkbox"/> <b>4 Flood Flow</b>	Flow-severity values for high and flood flows have long been established by the EPA and are not sequential. Flood flow is reported as a flow severity of 4. Flood flows are those which leave the confines of the normal stream channel and move out onto the floodplain (either side of the stream).
<input type="checkbox"/> <b>5 High Flow</b>	High flows are reported as a flow severity of 5. High flow would be characterized by flows that leave the normal stream channel but stay within the stream banks.
<input type="checkbox"/> <b>6 Dry</b>	When the stream is dry, record a flow-severity value of 6 for the sampling visit. In this case the flow (parameter code 00061) is not reported. This will indicate that the stream is completely dry with no visible pools.

**RUA Interview Form**

### RUAA Interview Form

Stream Name: \_\_\_\_\_ Segment #: \_\_\_\_\_ Site: \_\_\_\_\_

Interviewer's Name: \_\_\_\_\_

Date & Time (include AM or PM): \_\_\_\_\_

Interviewed:     In person     By phone     By mail     By e-mail

No interviews were conducted

If no interviews were conducted, please provide an explanation:

\_\_\_\_\_

\*Are you willing to respond to a short survey about this stream?     Yes     No

**Interviewee selected because** (e.g., resource manager, Gov. official, conservationist, property owner, local resident, standing by stream, etc.)

\_\_\_\_\_

#### **Questions:**

1. Are you familiar with this stream?     Yes     No    If yes, how many years? \_\_\_\_\_  
If yes, proceed to #2. If no, stop here and do not conduct an interview.

2. What location(s) along the stream are you familiar with:

\_\_\_\_\_

3. Have the interviewer characterize the stream flow. Since the interviewer may not be familiar with TCEQ's definitions or distinction between the different water bodies, please refer to the definitions listed below when asking this question.

**Ephemeral:** A stream which flows only during or immediately after a rainfall event

**Intermittent:** A stream which has a period of zero flow for at least one week during most years. (Channel contains flowing water for only a portion of the year and surface water may be absent at times.)

**Intermittent w/ perennial pools:** An intermittent stream which maintains persistent pools even when flow in the stream is less than 0.1 cubic feet per second. (When not flowing, the water may remain in isolated pools.)

**Perennial:** A stream which flows continuously throughout the year.

4. Have you or your family personally used the stream for recreation?     Yes     No  
If yes, proceed to #6. If no, proceed to #5.

5(a). List reasons stream not used. \_\_\_\_\_

\_\_\_\_\_

5(b). Proceed to #7.

### RUA Interview Form

Stream Name: \_\_\_\_\_ Segment #: \_\_\_\_\_ Site: \_\_\_\_\_

- 6.) a) How do you use the stream?  Swimming  Wading-Children  
 Water Skiing  Wind surfing  Tubing  Wading-Adults  
 Hunting  Kayaking  Rafting  Trapping  SCUBA diving  
 Snorkeling  Fishing  Boating  Canoeing  Skin Diving

b) When did these uses occur (e.g. year(s); season) and how often (times/year)?

\_\_\_\_\_

c) What location did these uses occur (get specific location and mark on a map)?

\_\_\_\_\_

7. Have you observed others using this stream for recreation?  Yes  No  
If yes, proceed to #8. If no, proceed to #9.

8. a) What kinds of uses have you witnessed?  Swimming  Wading-Children  
 Water Skiing  Wind surfing  Tubing  Wading-Adults  
 Hunting  Kayaking  Rafting  Trapping  SCUBA diving  
 Snorkeling  Fishing  Boating  Canoeing  Skin Diving

b) When did these uses occur (e.g. year(s); season) and how often (times/year)?

\_\_\_\_\_

c) What location did these uses occur (get specific location and mark on a map)?

\_\_\_\_\_

9. Have you heard about anyone using this stream for recreation?  Yes  No  
If yes, proceed to #10. If no, conclude the interview.

10. a) What kind of uses have you heard about?  Swimming  Wading-Children  
 Water Skiing  Wind surfing  Tubing  Wading-Adults  
 Hunting  Kayaking  Rafting  Trapping  SCUBA diving  
 Snorkeling  Fishing  Boating  Canoeing  Skin Diving

b) When did these uses occur (e.g. year(s); season) and how often (times/year)?

\_\_\_\_\_

c) What location did these uses occur (get specific location and mark on a map)?

\_\_\_\_\_

11. Can you recommend someone else we could contact that knows the stream?  Yes  No  
If yes, list person's contact information: \_\_\_\_\_

\_\_\_\_\_

12. Additional comments (from the interviewee or interviewer):

\_\_\_\_\_

**RUAA Summary Sheet**

**RUAA Summary**  
**(Not part of the Field Data Sheet)**

*This form should be filled out after RUAA data collection is completed. Use the Contact Information Form, Field Data Sheets from all sites, Interview Forms from all interviews conducted, Historical Information Review, and other relevant information to answer the following questions on the water body.*

Name of waterbody: \_\_\_\_\_

Segment # or Nearest Downstream Segment #: \_\_\_\_\_

Classified Segment?: \_\_\_\_\_

County: \_\_\_\_\_

1. Observations on Use

- a. Do primary contact recreation activities occur on the water body?  
 frequently     seldom     not observed or reported     unknown
- b. Do secondary contact recreation 1 activities occur on the water body?  
 frequently     seldom     not observed or reported     unknown
- c. Do secondary contact recreation 2 activities occur on the water body?  
 frequently     seldom     not observed or reported     unknown
- d. Do noncontact recreation activities occur on the water body?  
 frequently     seldom     not observed or reported     unknown

2. Physical Characteristics of waterbody

- a. What is the average thalweg depth? \_\_\_\_\_ meters
- b. Are there substantial pools deeper than 1 meter?     yes     no
- c. What is the general level of public access?  
 easy     moderate     very limited

3. Hydrological Conditions (Based on Palmer Drought Severity Index)

- Mild-Extreme Drought     Incipient dry spell     Near Normal
- Incipient wet spell     Mild-Extreme Wet