Texas Nonpoint Source Grant Program

Recreational Use Attainability Analysis for One Segment in the Red River Basin and One Water Body in the Sabine River Basin

TSSWCB Project # 15-57
Revision 1

Quality Assurance Project Plan

Texas State Soil and Water Conservation Board

Prepared by
Texas Institute for Applied Environmental Research
Stephenville, Texas

Effective Period: Upon TSSWCB Approval through October 2016
with annual updates required

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

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A1 Approval Sheet

Quality Assurance Project Plan (QAPP) for *Recreational Use Attainability Analysis for One Segment in the Red River Basin and One Water Body in the Sabine River Basin.*

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: _____

Texas Institute for Applied Environmental Research (TIAER)

Name: Leah Taylor
Title: TIAER PM

Signature: _____ Date: _____

Name: Jeff Stroebel
Title: TIAER Field Operations Supervisor

Signature: _____ Date: _____

Name: Jimmy Millican
Title: TIAER Field Operations Supervisor

Signature: _____ Date: _____

Name: Anne McFarland
Title: TIAER Project QAO

Signature: _____ Date: _____

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A2 Table of Contents

List of Acronyms

CAFO	Confined Animal Feeding Operation
CAR	Corrective Action Report
CBMS	Computer Based Mapping System
DEM	Digital Elevation Model
DMR	Discharge Monitoring Report
DOQQ	Digital Ortho Quarter Quads
ECHO	Enforcement & Compliance History Online
EPA	United States Environmental Protection Agency
FM	Farm-to-Market
GIS	Geographic Information System
GPS	Global Positioning System
HWY	Highway
ICIS	Integrated Compliance Information System
NAIP	National Agricultural Imagery Program
NASS	National Agricultural Statistics Service
NHD	National Hydrography Dataset
NLCD	National Land Cover Dataset
NPDES	National Pollution Discharge Elimination System
PM	Project Manager
QA	Quality Assurance
QAM	Quality Assurance Manual
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QC	Quality Control
QPR	Quarterly Progress Report
RUAA	Recreational Use Attainability Analysis
SH	State Highway
SOP	Standard Operating Procedure
SSURGO	Soil Survey Geographic database
SWQMIS	Surface Water Quality Monitoring Information System
TCEQ	Texas Commission on Environmental Quality
TIAER	Texas Institute for Applied Environmental Research

TMDL	Total Maximum Daily Load
TPDES	Texas Pollution Discharge Elimination System
TNRIS	Texas Natural Resources Information System
TSSWCB	Texas State Soil and Water Conservation Board
TSWQS	Texas Surface Water Quality Standards
USDA	United States Department of Agriculture
USGS	United States Geological Survey
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

Texas Institute for Applied Environmental Research (TIAER)
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Name: Leah Taylor
Title: TIAER PM

Name: Jeff Stroebel
Title: TIAER Field Operations Supervisor

Name: Jimmy Millican
Title: TIAER Field Operations Supervisor

Name: Anne McFarland
Title: TIAER Project QAO

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 TIAER 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. Coordinates or conducts audits of field and laboratory systems and procedures. Monitors implementation of corrective actions.

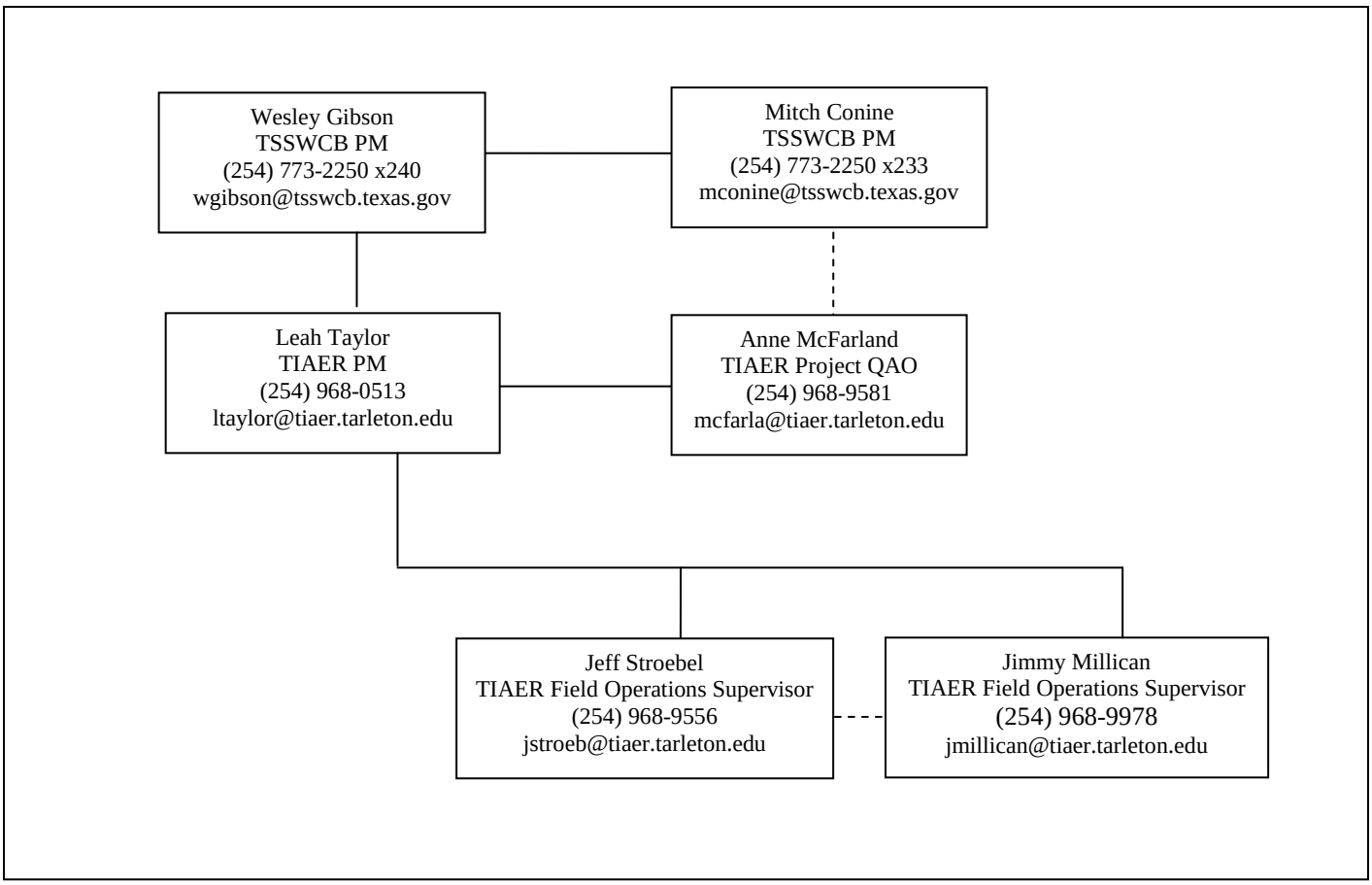
TIAER

Leah Taylor
TIAER PM & Coordinator
Responsible for ensuring tasks and other requirements assigned to TIAER in the contract are executed on time and are of acceptable quality. Coordinates attendance at conference calls, training, meetings, and related project activities with the TSSWCB. Monitors and assesses the quality of work. Responsible for writing and maintaining the QAPP. Responsible for verifying the QAPP is followed and the project produces data of known and acceptable quality. Complies with corrective action requirements. Oversee data management for the study. Responsible for reviewing and formatting data according to workplan specifications for final reporting of the data. Provide the point of contact for resolving issues related to the data. Develop and maintain relationships with landowners and stakeholders. Reports status, issues, and progress of the overall project to TSSWCB PM.

Jeff Stroebel & Jimmy Millican
TIAER Field Operations Supervisors
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 A.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 A8. Responsible for verifying the QAPP is followed and the project produces data of known and acceptable quality. Comply with corrective action requirements.

Anne McFarland
TIAER Project QAO
Responsible for coordinating development and implementation of the project QA program. Responsible for maintaining records of project QAPP distribution, including appendices and amendments. Responsible for maintaining written records of sub-tier commitment to requirements specified in this QAPP. Responsible for identifying, receiving, and maintaining project QA records. Responsible for coordinating with the TSSWCB QAO to resolve QA-related issues. Notifies TIAER PM of particular circumstances that may adversely affect the quality of data. Coordinates the review of technical QA material and data related to water quality monitoring system design and analytical techniques. Supervises monitoring systems audit for the project.

Figure A4.1 Organization Chart – Lines of Communication



A5 Problem Definition/Background

This QAPP addresses ten creeks located in the eastern region of Texas listed for bacterial impairments on the 2012 Texas 303(d) List (see Appendix A for area location map). The Lower Prairie Dog Town Fork Red River (Segment 0207) is located in the Red River Basin. The Little Cypress Bayou (0501B) is located in the Sabine River Basin.

The Lower Prairie Dog Town Fork Red River (Segment 0207) is located in the north western region of Texas. Segment 0207 encompasses portions of Armstrong, Briscoe, Hall, and Childress Counties and flows under U.S. Route 83 near Childress, Texas. The Little Cypress Bayou, located in the Sabine River Basin, is located in the coastal region of Texas within Orange County and flows through the northeast corner of the City of Orange.

The *2012 Texas 303(d) List* included bacterial impairments for water bodies within the Red River Basin is assessment unit 0201A_04 for The Lower Prairie Dog Town Fork Red River.

The *2012 Texas 303(d) List* included bacterial impairments for water bodies within the Sabine River Basin are assessment units 0501B_01, 0501B_02, and 0501B_03 for Little Cypress Bayou.

The Texas Commission on Environmental Quality (TCEQ) and the TSSWCB established a joint, technical Task Force on Bacteria Total Maximum Daily Loads (TMDLs) 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. 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 water body before initiating any watershed planning activity (e.g., TMDL or watershed protection plan).

Major revisions to the Texas Surface Water Quality Standards (TSWQS) were adopted by TCEQ in 2010 and approved by the United States Environmental Protection Agency (EPA) in 2011, including modifications to contact recreation use and bacteria criteria. As part of this process, TCEQ developed formal procedures for conducting Recreational Use Attainability Analysis (RUAAs). In order for a new category of recreational use, and, thus, a different water quality criterion for bacteria to be applied to a water body, a RUAA will need to be conducted. TCEQ and TSSWCB have collaborated on developing a list of priority water bodies for collecting information needed for RUAAs and the water bodies for this project (The Lower Prairie Dog Town Fork Red River and the Little Cypress Bayou) are on that list. Because primary contact recreation use is presumed for the water bodies in the study area and it is not known with certainty that recreational use in these water bodies occurs. The findings from an RUAA will provide information regarding the level of recreational use actually occurring in these water bodies.

In accordance with the Watershed Action Planning process (http://www.tceq.texas.gov/waterquality/planning/wap/) and 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 addressing the bacteria impairments in this project's study area. Through this project, the TSSWCB and TIAER will work with local stakeholders to complete 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 (e.g., secondary contact recreation) for the nine unclassified water bodies and one classified segment in this project.

A6 Project/Task Description

The overall goal of the project is to collect data that provide stakeholders and agencies with sufficient information to determine recreational use status throughout the two watersheds (The Lower Prairie Dog Town Fork Red River and the Little Cypress Bayou). This project consists of performing Comprehensive RUAAs on one unclassified water body (0501B) within the Sabine River Basin and one classified water body (Segment 0207) within the Red River Basin for the purpose of ascertaining the level of recreational use within each water body. This project will follow the March 2014 *TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey*.

These comprehensive RUAAs consist of four main tasks: a) public participation and stakeholder interaction through educational outreach meetings, interviews and historical review of the recreational use of each water body; b) compilation of existing Geographic Information System (GIS) data pertaining to each watershed including spatial identification of potential sources, such as point source dischargers; c) completion of the required two RUAA field surveys of each creek; and d) review of water quality and other data to characterize each watershed. This QAPP focuses specifically on the direct data collection associated with the RUAA field surveys.

Project-related tasks and the schedule of deliverables are defined in Table A6.1.

Table A6.1. Schedule of Milestones

Task	Project Milestones	Start[1]	End[2]
2	**Quality Assurance**		
2.1	QAPP development and approval by the TSSWCB	Month 1	Month 8
2.2	Annual QAPP updates and amendments, as needed	Month 10	Month 24
3	**Assess Attainability of Recreational Use**		
3.1	Conduct RUAA site reconnaissance and coordinate with landowners for access where appropriate	Month 1	Month 6
3.2	Develop comprehensive GIS inventory	Month 1	Month 8
3.3	Identify sites for RUAA data collection	Month 7	Month 8
3.4	Conduct historical information review on recreation uses	Month 1	Month 18
3.5	Conduct RUAA field surveys	Month 9	Month 12
3.6	Collect digital photographic record	Month 9	Month 12
3.7	Conduct interviews	Month 9	Month 18
3.8	Develop technical RUAA report	Month 13	Month 24
4	**Public Participation and Stakeholder Coordination**		
4.1	Facilitate public participation and coordinate stakeholder involvement	Month 1	Month 24
4.2	Contact entities on Contact Information Form	Month 1	Month 3
4.3	Conduct at a minimum two informational meetings, one prior to the first RUAA field survey and the second to present findings. An interim meeting of preliminary findings may be conducted after the first field survey.	Month 2	Month 24
4.4	Participate in other public meetings, as appropriate	Month 1	Month 24
4.5	Develop and disseminate educational material	Month 1	Month 24
5	**GIS Inventory and Water Quality Review**		
5.1	Develop comprehensive GIS inventory	Month 1	Month 18
5.2	Conduct historical data review of each water body to assess and characterize trends in water quality, specifically bacteria	Month 1	Month 18

[1] Month 1 = November 2014
[2] Month 24 = October 2016

Using GIS inventory and other pertinent information, TIAER will identify sites, with the help of stakeholders, for RUAA field data collection. Sites will be located in areas where the water body is accessible to the public and have the highest potential for recreational use (primary contact). Sites will be well-spaced and, where practical, distributed such that there are at least 3 sites for every 5 miles of stream. Due to the significant amount of public input considered during the RUAA, relocation of survey sites may occur without an amendment to the QAPP as noted in the March 2014 *TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey*, but require notification and approval by the TSSWCB PM, who will notify the TCEQ Water Quality Standard Group for their approval. Relocation may include but is not limited to instances when landowner access has changed, new public information regarding survey locations is made

available, or suitability of a previously identified survey location has changed due to lack of access or unsafe conditions.

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 about the project, and follow-up trips will occur when interaction with local landowners provides opportunities for additional sites. Two surveys will be conducted at each of the selected sites by TIAER. Each survey will be conducted per the March 2014 version of the *TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey* and will include the collection of transect information along a stretch of the creek at each site documenting the presence or absence of water recreation activities and characteristics regarding stream flow type and pool depths (see Appendix B for RUAA Field Data Sheets). 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. Interview survey information will also be collected from individuals either actively recreating at each site or knowledgeable of the site and the project creeks in general (see Appendix C). Each survey will be performed at a time of year under weather and hydrologic conditions that are conducive to observing recreational use, 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 water body for contact recreation. A historical information review will be conducted on recreation use that occurred on each creek on and after November 28, 1975.

To ascertain the suitability of the streams for contact recreation use, field surveys shall document hydrological characteristics of the stream, such as flow type, width and depth of channel and substantial pools, bank access, and stream substrate. 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). TIAER shall document antecedent rainfall conditions (approximately 30 days prior to fieldwork) and the source of the data per the RUAA procedures. TIAER shall also collect a digital photographic record of each selected site during the field surveys. Photographs shall include upstream, left and right bank, and downstream views clearly depicting the entire channel and each transect measured. Any evidence of observed uses or indications of human use shall be photographed as well obstructions to use and hydrologic modifications that characterize the water body.

Section B1 contains detailed information on direct data to be collected during the RUAA field surveys. Maps of RUAA site locations are presented in Appendix A.

Information on acquired or non-direct data is addressed in Section B9.

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 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.

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 and conditions. Additionally, sites will be surveyed hydrologically, preferentially during high recreational use potential. 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 TIAER to use only the methods and QA/QC protocols prescribed in the *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 techniques prior to the RUAA field surveys. Before actual field measurements occur, field personnel will demonstrate to the TIAER Project QAO or designee their ability to properly perform field analysis procedures required on the RUAA field data sheet (see Appendix B). Training will be documented and retained in the TIAER Monitoring Staff Training file and be available during a monitoring systems audit. TIAER staff collecting Global Positioning System (GPS) data will be certified TCEQ and will maintain their certification throughout the project.

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 (see example in Appendix D). 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 and Interview Forms in electronic format (Appendix B and C)
- Digital photographic record, cataloged in an appropriate manner

Records and Documents Retention Requirements

Document/Record	Location at TIAER	Retention	Form
QAPP, amendments, and appendices	Central Files	5 years	Paper
QAPP distribution documentation	Central Files	5 years	Paper/Electronic
Training records	Central Files	5 years	Paper
Field notebooks or field data sheets	Central Files	5 years	Paper/Electronic
RUAA Contact Information, Field Data, and Interview Forms	Central Files	5 years	Paper/Electronic
Field SOPs	Central Files	5 years	Paper/Electronic
Corrective action documentation	Central Files	5 years	Paper/Electronic

Revisions to the QAPP

Until the work described is completed, this QAPP shall be revised as necessary and reissued annually or revised and reissued within 120 days of significant changes, whichever is sooner.

Amendments

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

Amendments to the QAPP and the reasons for the changes will be documented, and revised pages will be forwarded to all persons on the QAPP distribution list by the TIAER QAO.

Amendments shall be reviewed, approved, and incorporated into a revised QAPP during the annual revision process or within 120 days of the initial approval in cases of significant changes.

As per the March 2014 *TCEQ Procedures for a Comprehensive RUAA and a Basic RUAA Survey*, site changes may be made to this QAPP without the need for an amendment. If site changes occur, these changes will be incorporated into a revised QAPP during the annual revision for distribution. Prior to the annual revision, all individuals on the QAPP distribution will be notified of any site changes with an updated site list within 120 days of notification and approval by the TSSWCB PM.

B1 Sampling Process Design (Experimental Design)

TIAER 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). TIAER will conduct field surveys at selected sites during periods people would most likely use the water body 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 *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014). Tables B1.1 and B1.2 provide the sites selected for use in the project for each watershed. Maps of the RUAA sites within each watershed are provided in Appendix A showing the location of sites as identified in Tables B1.1 and B1.2 TIAER used respective tax appraisal districts to help identify landowners along each water body and stakeholders within each watershed area.

Lower Prairie Dog Town Fork Red River (0207) Lower Prairie Dog Town Fork Red River (0207) is 113 river miles long which indicates a goal of 68 sites (3 sites per 5 miles of river) for the RUAA survey (Figures Appendix A.2 - A.5). Fifty-one sites are proposed for the RUAA, forty-seven of which are publically accessible via five road crossings (Table B1.1) and four of which are accessible via private property. Access to sites LP01 through LP46 that were not directly at a road crossing is possible via due to an exemption to the general prohibition of operating motor vehicles within Texas streams that was included in Texas Senate Bill 155 and became effective on September 1, 2003. This exemption allows for the use of motor vehicles, such as ATVs, within the "gradient boundary" of rivers with headwaters in a state other than Texas and a mouth or confluence in a state other than Texas. The Lower Prairie Dog Town Fork Red River is only one of two rivers in Texas that this exemption applies. There is a provision within the bill that enables local authorities to permit motor vehicle access to waterways within their jurisdictions if certain criteria are met. TIAER plans to enter the river at road crossings associated with site LP10, LP21, LP34, and LP43, and use ATVs to access through site LP46. Above LP46, four sites have been established with estimated latitude and longitude coordinates. When TIAER field crew performs the first RUAA survey, they will collect and record the actual latitude and longitude coordinates for each site. The estimated coordinates have been referenced in Table 1.1 and seen in Figure 1.3. As noted in Table B1.1, site LP47 is listed as publicly accessible; however private property fencing at the State Highway 207 impedes ATV access to the river from this location. Of the 47 publically accessible sites, three are identified as TCEQ sampling stations. No parks, either public or private, were identified along the Lower Prairie Dog Town Fork Red River.

Access along the Lower Prairie Dog Town Fork Red River is largely publicly accessible. Landowners throughout the watershed with river front property were contacted, regarding access to Lower Prairie Dog Town Fork Red River, for potential RUAA sites. As shown in Figures Appendix A.4 and A.5, there is a forty mile stretch of the Lower Prairie Dog Town Fork Red River where four proposed sites have been identified. This stretch of the segment is private property owned by two landowners who have agreed to grant TIAER access to the four sites on

Segment 0207. These landowners were identified during an introductory public meeting held on March 30, 2015 in Silverton, Texas and are open to completing an RUAA interview form regardless of their decision to allow or deny access to the river. Once RUAA survey sites are finalized and approved, site identifications will be changed to include 2 alpha and 2 digits. Of note, due to the long stretch of the segment, there were three public meetings held to introduce the RUAA to stakeholders. They were held on March 30, 2015 in Silverton, Texas, March 31, 2015 in Memphis, Texas, and April 1, 2015 in Childress, Texas. These meetings were advertised in local newspapers. Mailings went out to 250 individuals within the Lower Prairie Dog Town Fork Red River watershed and of these individuals, 11 attended the March 30 meeting, 12 attended the March 31 meeting, and 11 attended the April 1 meeting. In addition, during site reconnaissance trips, landowners and stakeholders were approached if seen near the river (Of note, TIAER field crew did not enter gated and/or locked entrances).

The average distance between proposed survey sites is 2.16 river miles and ranges from 0.89 to 12.1 miles. The largest gap of 12.1 river miles is between survey sites LP50 and LP51 (Table B1.1), which is private property. There are 5 major road crossings for the 113 mile stretch of the Lower Prairie Dog Town Fork Red River. Each of the 5 major road crossings were selected as RUAA survey sites.

There are two municipal wastewater treatment facilities (WWTFs) within the Lower Prairie Dog Town Fork Red River watershed, one for the City of Estelline and the other for the City of Memphis. The largest permitted discharge is the City of Memphis with a permitted average daily flow of 0.326 MGD. There is one expired general permit for a concentrated animal feeding operation (CAFO) within the Lower Prairie Dog Town Fork Red River watershed. The permit for Whitfield Farms (TXG921064) began on June 2, 2008 and the coverage ended on November 17, 2009. The CAFO was located on the east side of FM 2301, Approximately 2.5 miles north of the intersection of FM 2301 and FM 400, which is approximately 10.5 miles East of Kress. Whitfield Farms was permitted for 7,000 total dairy cattle of which 4,200 were milking dairy cows.

Table B1.1. Lower Prairie Dog Town Fork Red River RUAA Sites. Sites are listed in downstream to upstream order along the segment.

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP01		Lower Prairie Dog Town Fork Red River 13.54 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.572425	-100.013210	2.86	0.00	Public
LP02		Lower Prairie Dog Town Fork Red River 12.65 miles downstream of the US 62, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.570389	-100.028653	3.76	0.89	Public
LP03		Lower Prairie Dog Town Fork Red River 11.66 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.565611	-100.043643	4.75	0.99	Public
LP04		Lower Prairie Dog Town Fork Red River 9.84 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.552140	-100.068593	6.56	1.82	Public
LP05		Lower Prairie Dog Town Fork Red River 8.2 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.558066	-100.092673	8.21	1.64	Public
LP06		Lower Prairie Dog Town Fork Red River 6.56 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.544094	-100.111761	9.85	1.64	Public
LP07		Lower Prairie Dog Town Fork Red River 4.92 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.561528	-100.123727	11.49	1.64	Public
LP08		Lower Prairie Dog Town Fork Red River 3.82 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.571192	-100.147928	13.13	1.64	Public

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP09		Lower Prairie Dog Town Fork Red River 1.64 miles downstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.561294	-100.168659	14.78	1.64	Public
LP10	10136	Lower Prairie Dog Town Fork Red River at US 62, 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.568634	-100.1943	16.42	1.64	Public
LP11		Lower Prairie Dog Town Fork Red River 1.64 miles upstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.577421	-100.216210	18.06	1.64	Public
LP12		Lower Prairie Dog Town Fork Red River 3.28 miles upstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.583316	-100.241334	19.70	1.64	Public
LP13		Lower Prairie Dog Town Fork Red River 4.92 miles upstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.573485	-100.265313	21.35	1.64	Public
LP14		Lower Prairie Dog Town Fork Red River 6.56 miles upstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.571095	-100.293179	22.99	1.64	Public
LP15		Lower Prairie Dog Town Fork Red River 8.2 miles upstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.554886	-100.309617	24.63	1.64	Public
LP16		Lower Prairie Dog Town Fork Red River 9.84 miles upstream of the US 62 crossing, located 83 Km North of US 83/RR 2465 Intersection, 16 Km North of Childress	34.533758	-100.320207	26.27	1.64	Public

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP17		Lower Prairie Dog Town Fork Red River 6.92 miles downstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.520413	-100.341921	27.92	1.64	Public
LP18		Lower Prairie Dog Town Fork Red River 5.28 miles downstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.533376	-100.363006	29.56	1.64	Public
LP19		Lower Prairie Dog Town Fork Red River 3.64 miles downstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.548728	-100.383664	31.20	1.64	Public
LP20		Lower Prairie Dog Town Fork Red River 2.00 miles downstream of the State Highway 287crossing, located approximately 1.5 miles north of Estelline	34.559734	-100.413251	33.20	2.00	Public
LP21		Lower Prairie Dog Town Fork Red River at State Highway 287, approximately 1.5 miles north of Estelline	34.571579	-100.437304	34.85	1.65	Public
LP22		Lower Prairie Dog Town Fork Red River 1.28 miles upstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.577946	-100.455766	36.13	1.28	Public
LP23		Lower Prairie Dog Town Fork Red River 2.92miles upstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.587816	-100.481067	37.77	1.64	Public
LP24		Lower Prairie Dog Town Fork Red River 4.56 miles upstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.587486	-100.503976	39.41	1.64	Public
LP25		Lower Prairie Dog Town Fork Red River 6.2 miles upstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.588042	-100.528970	41.05	1.64	Public

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP26		Lower Prairie Dog Town Fork Red River 7.84 miles upstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.593795	-100.554845	42.70	1.64	Public
LP27		Lower Prairie Dog Town Fork Red River 9.48 miles upstream of the State Highway 287 crossing, located approximately 1.5 miles north of Estelline	34.587473	-100.578751	44.34	1.64	Public
LP28		Lower Prairie Dog Town Fork Red River 9.84 miles downstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.579007	-100.603756	45.98	1.64	Public
LP29		Lower Prairie Dog Town Fork Red River 8.2 miles downstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.563893	-100.620136	47.62	1.64	Public
LP30		Lower Prairie Dog Town Fork Red River 6.56 miles downstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.557817	-100.647491	49.36	1.73	Public
LP31		Lower Prairie Dog Town Fork Red River 4.83 miles downstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.553116	-100.669661	50.91	1.55	Public
LP32		Lower Prairie Dog Town Fork Red River 3.28 miles downstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.561890	-100.694053	52.55	1.64	Public
LP33		Lower Prairie Dog Town Fork Red River 1.64 miles downstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.563565	-100.719955	54.19	1.64	Public
LP34		Lower Prairie Dog Town Fork Red River at Ranch Road 657, approximately 7 miles South of Lakeview	34.571756	-100.746893	56.11	1.92	Public

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP35		Lower Prairie Dog Town Fork Red River 1.37 miles upstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.575715	-100.768071	57.48	1.37	Public
LP36		Lower Prairie Dog Town Fork Red River 3.01 miles upstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.573845	-100.793360	59.12	1.64	Public
LP37		Lower Prairie Dog Town Fork Red River 4.65 miles upstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.586767	-100.811539	60.76	1.64	Public
LP38		Lower Prairie Dog Town Fork Red River 6.3 miles upstream of the Ranch Road 657 crossing, located approximately 7 miles South of Lakeview	34.601361	-100.830873	62.41	1.64	Public
LP39		Lower Prairie Dog Town Fork Red River 6.56 miles downstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.615964	-100.850324	64.05	1.64	Public
LP40		Lower Prairie Dog Town Fork Red River 4.92 miles downstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.613239	-100.875419	65.69	1.64	Public
LP41		Lower Prairie Dog Town Fork Red River 3.28 miles downstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.616418	-100.899655	67.33	1.64	Public
LP42		Lower Prairie Dog Town Fork Red River 1.64 miles downstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.628518	-100.919170	68.97	1.64	Public

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP43	16037	Lower Prairie Dog Town Fork Red River at US 70, 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.629131	-100.942258	70.33	1.36	Public
LP44		Lower Prairie Dog Town Fork Red River 1.92 miles upstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.629244	-100.971929	72.26	1.92	Public
LP45		Lower Prairie Dog Town Fork Red River 3.56 miles upstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.626673	-100.997140	73.90	1.64	Public
LP46		Lower Prairie Dog Town Fork Red River 5.2 miles upstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.617582	-101.021537	75.54	1.64	Public
LP47		Lower Prairie Dog Town Fork Red River approximately 9.6 miles upstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.61761	-101.083767	34	4.4	Private
LP48		Lower Prairie Dog Town Fork Red River approximately 19.9 miles upstream of the US 70 crossing, located 70 Km Southwest of the Northern tip of Southbound US 70 Bridge, 26.4 Km North of Turkey	34.60672	-101.21563	23.7	10.3	Private
LP49		Lower Prairie Dog Town Fork Red River approximately 19.4 miles downstream of the SH 207 crossing, located 10 Km Southwest of FM 2272/SH 207 Intersection, 30.45 Km South of Claude	34.739488	-101.277949	16.4	7.3	Private

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi)	Access
LP50		Lower Prairie Dog Town Fork Red River approximately 12.1 miles downstream of the SH 207 crossing, located 10 Km Southwest of FM 2272/SH 07 Intersection, 30.45 Km South of Claude	34.80602	-101.377599	4.3	12.1	Private
LP51	13637	Lower Prairie Dog Town fork Red River at SH 207, 10 Km Southwest of FM 2272/SH 207 Intersection, 30.45 Km South of Claude	34.837009	-101.416078	112.53	3.5	Public

[1] Distances were digitally estimated using the measuring tool in ArcGIS 9.3 with the 2010 NAIP 1m DOQQs and the NHD stream layer as reference guides.

Little Cypress Bayou (0501B)

Little Cypress Bayou (0501B) is 8.5 river miles long indicating a goal of five sites (3 sites per 5 miles of river) for the RUAA survey (Figure Appendix A.6). TIAER currently has six proposed survey sites which exceeds the goal of five sites. Five of the six sites are located at public road crossings and one site is located within the Blue Elbow Swamp – Tony Houseman State Park and Wildlife Management Area (Table B1.2). A concerted effort was made to contact landowners within the downstream region of Little Cypress Bayou in order to provide a more accurate representation of the entire stream. Of the six proposed sites, three are associated with TCEQ sampling stations. The only park within the watershed area is the Tony Houseman State Park and Wildlife Management Area (Figure A.6).a.

Landowners throughout the watershed with creek front property were contacted regarding access to Little Cypress Bayou (0501B) for potential RUAA sites. During site reconnaissance trips, TIAER was able to contact a landowner within the downstream region of the stream by directly stopping by houses that appeared to be near the river and accessible (not behind a locked gate). The landowner agreed to allow TIAER river access to complete two RUAA surveys. This site (LC01) is the only proposed private access RUAA survey site.

Public participation was also solicited at a public meeting held on April 14, 2015 in Orange, Texas to discuss the upcoming RUAA survey. Mailings went out to 133 individuals within the watershed area and of these, 12 people attended the April 14th meeting. The public meeting was also advertised in local newspapers. To determine individuals within the Little Cypress Bayou watershed, TIAER utilized county records for Orange County.

The average distance between survey sites is 1 river mile and ranges from 0.42 to 3.11 miles. The largest gap of 3.11 miles is between sites LC05 and LC06. The second largest gap of 0.62 river miles is between sites LC03 and LC04 at TCEQ Station 15520. These gaps seemed reasonable given the RUAA goal of 5 sites (3 sites per 5 miles of river) was obtained. Thus, additional efforts were not made to procure RUAA sites between these locations. Additionally, the Little Cypress Bayou is a tidal stream. TIAER was informed by landowners that Little Cypress Bayou is heavily influenced by high and low tides. TIAER field personnel will note whether the stream is experiencing high or low tide when conducting RUAA surveys.

There are three active waste water treatment facilities (WWTFs) within the Little Cypress Bayou watershed. Of the three WWTFs, only one, Longford Place Waste Water Treatment Facility, discharges directly into the Little Cypress Bayou with a permitted average daily flow of 0.0315 (MGD). The largest discharge is associated with the Mauriceville WWTF with a permitted flow of 1.7 MGD. While in the watershed, the discharge from the Mauriceville WWTF does not flow into Little Cypress Creek, but flows via ditches to the east into the Sabine River. The final permitted discharge facility within the Little Cypress Bayou watershed belongs to the County Squire Wastewater Treatment Facility with an allowable discharge of 0.153 MGD.

Table B1.2. Little Cypress Bayou (0501B) RUAA Sites. Sites are listed in downstream to upstream order along the water body

Site ID	TCEQ Station	Site Description	Latitude	Longitude	Distance from Confluence (mi) [1]	Distance from Previous Site (mi) [1]	Access
LC01		Little Cypress Bayou 1.95 miles from confluence with Sabine River within the Tony Houseman State Park and Wildlife Management Area	30.146880	-93.724341	1.95	N/A	Public
LC02	14503	Little Cypress Bayou at FM 3247	30.152068	-93.746679	3.47	1.52	Public
LC03		Little Cypress Bayou at State Highway 87	30.155780	-93.753350	3.97	0.50	Public
LC04	15520	Little Cypress Bayou at Bear Path	30.160528	-93.76083	4.59	0.62	Public
LC05	16690	Little Cypress Bayou at Little Cypress Drive	30.165249	-93.7645	5.01	0.42	Public
LC06		Little Cypress Bayou at Teal Street	30.199465	-93.778609	8.12	3.11	Public

[1] Distances were digitally estimated using the measuring tool in ArcGIS 9.3 with the 2010 NAIP 1m DOQQs and the NHD stream layer as reference guides.

B2 Sampling Methods

Field Sampling Procedures

The sampling process design will be based on the *Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (March 2014). 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 sample site adjustments.

Deficiencies are documented in logbooks, field data sheets, etc. by field staff and reported to the TIAER Field Operations Manager who will notify the appropriate TIAER Project Coordinator. The TIAER Project Coordinator in consultation with the TIAER Project QAO and TIAER PM

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 TIAER Project QAO in consultation with TIAER PM will determine the disposition of the nonconforming activity or item and necessary corrective action(s); results will be documented by completion of a CAR (Appendix D).

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. 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 TIAER Project QAO through initiation of a CAR. The nature and disposition of the problem is reported to the TIAER PM, who will include this information in the CAR and submit with the QPR which is sent to the TSSWCB PM.

B5 Quality Control

Sample data 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 TIAER 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

Information generated from the following tasks, which are included in the overall project contract, may be used to identify sites for RUAA data collection:

- 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 water body 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, TIAER will conduct a historical data review for each water body 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 Characterization of each Watershed

Data Type	Data Source	Applicable Date or Other Attributes	Use/Relevance
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 water body	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 (2012 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 water body
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	TNRIS; North Carolina	N/A	Location of

Data Type	Data Source	Applicable Date or Other Attributes	Use/Relevance
geographic data (roads, streams, boundaries, etc.) [Required for physical presentation of maps in reports, largely not needed for modeling.]	State Univ. Libraries geospatial data services website; USGS NHD; U.S. Census Bureau website; Montana State University Geographic Locater website. [Large data volume.]		potential recreational areas along each water body (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

TIAER will collect, store electronically, and make all collected project data available to the TSSWCB PM. TIAER will also be responsible for maintaining backup files to protect the data. Data will be stored, managed and submitted to TSSWCB through the TIAER PM. RUAA data will not go into TCEQ's 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.

TIAER recordkeeping and document control procedures are contained in the TIAER Standard Operating Procedures (SOPs) for monitoring staff. Original field data sheets are stored in the main office of the TIAER Field Staff.

TIAER will complete Field Data Sheets for the Basic RUAA, Contact Information Forms, and Comprehensive RUAA Interview Forms by hand on hard copies. Information on the forms will be entered into electronic versions at the TIAER office in a directory specifically designated for the project that is backed up incrementally every evening and completely once a week. A TIAER 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. TIAER 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	TIAER PM and Coordinators	Monitoring of the project status and records to ensure requirements are being fulfilled.	Report to TSSWCB in QPRs
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 TIAER	TIAER Project 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 TIAER Project QAO to address corrective actions
Site Visit	At least once per fiscal year; dates to be determined by TSSWCB	TSSWCB PM and Coordinators	Status of activities. Overall compliance with work plan and QAPP	As needed

Corrective Action

The TIAER Project 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 TIAER Project QAO.

Corrective action documentation will be submitted to the TSSWCB PM with the QPR. If audit findings and corrective actions cannot be resolved, then the authority and responsibility for terminating work is specified 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 TIAER and to TSSWCB in accordance with contract requirements.

Quarterly Progress Report – Summarizes TIAER activities for each task; reports problems, delays, and corrective actions; and outlines the status of each task's deliverables.

Technical Report – Summarizes TIAER 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
- Individual Technical Reports summarizing historical information review, field surveys, and user interviews with water bodies grouped by Basin.

Reports to TIAER Project Management

Progress on project deliverables and any problems or issues concerning project activities are noted in routine staff meetings conducted by the TIAER PM with the Project Coordinators. CARs are the primary mechanism for communicating significant QA issues to management.

D1 Data Review, Verification, and Validation

The TIAER Project Coordinators will review data collected during each RUAA survey for completeness and accuracy as described in Section D2.

D2 Verification and Validation Methods

The TIAER Project Coordinators are responsible for reviewing surveys for completeness and accuracy. At least 10% of survey data in 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 for the two creeks addressed in this project.

Appendix A: Area Location and RUAA Station Maps by Watershed

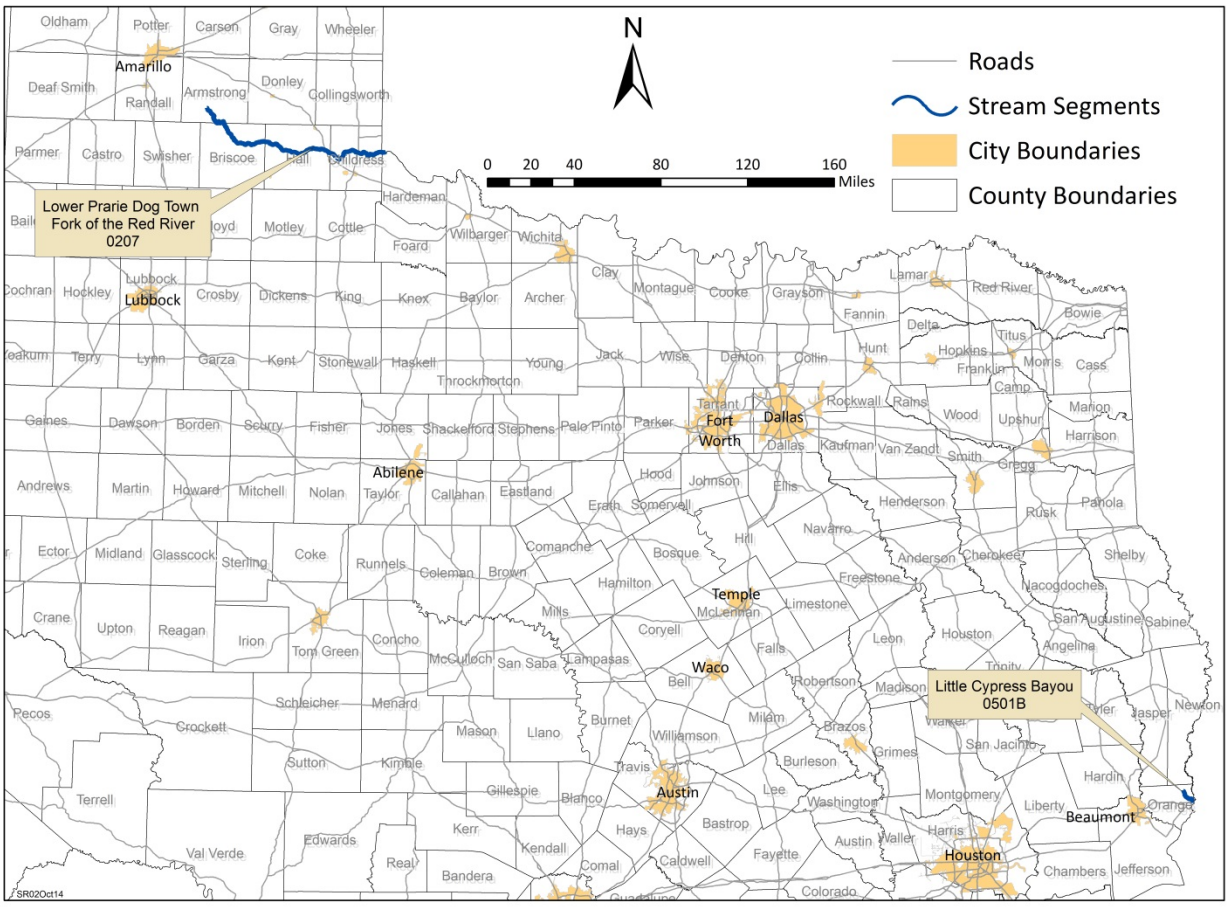


Figure Appendix A.1. Area location map for RUAA watersheds

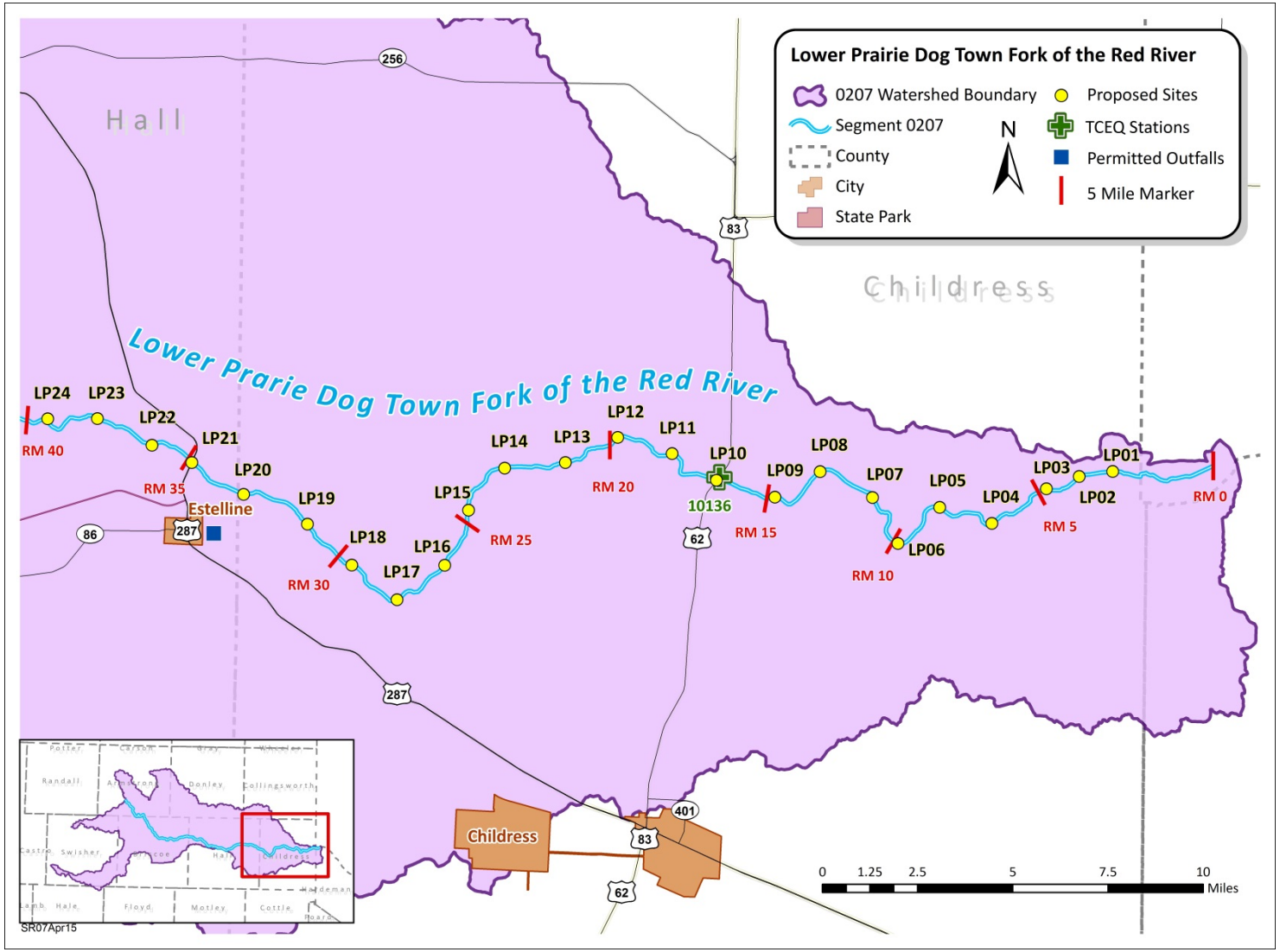


Figure Appendix A.2. RUAA survey sites for Lower Prairie Dog Town Fork Red River (0207). RUAA sites correspond to site descriptions in Table B1.1.

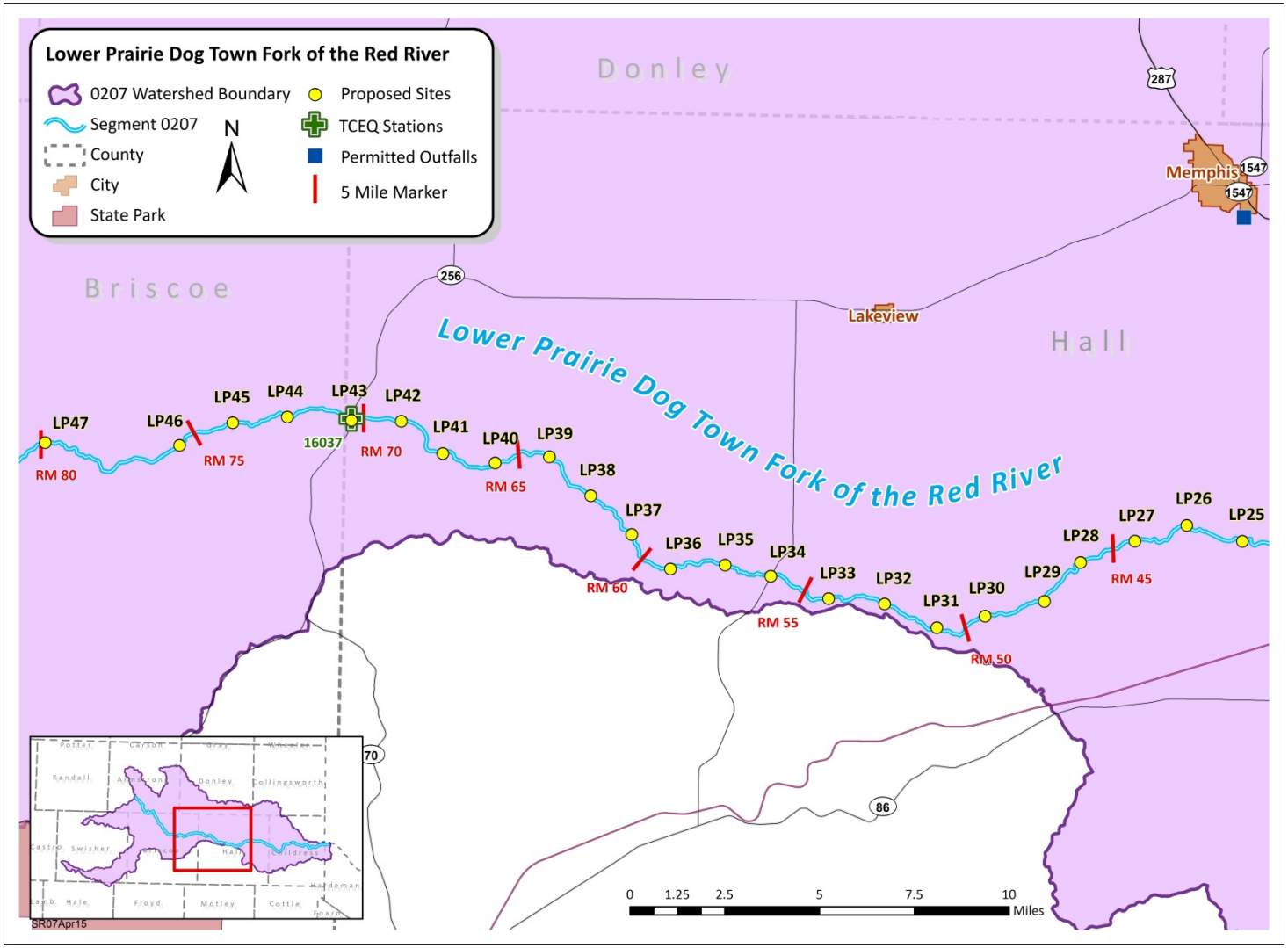


Figure Appendix A.3. RUAA survey sites for Lower Prairie Dog Town Fork Red River (0207). RUAA sites correspond to site descriptions in Table B1.1.

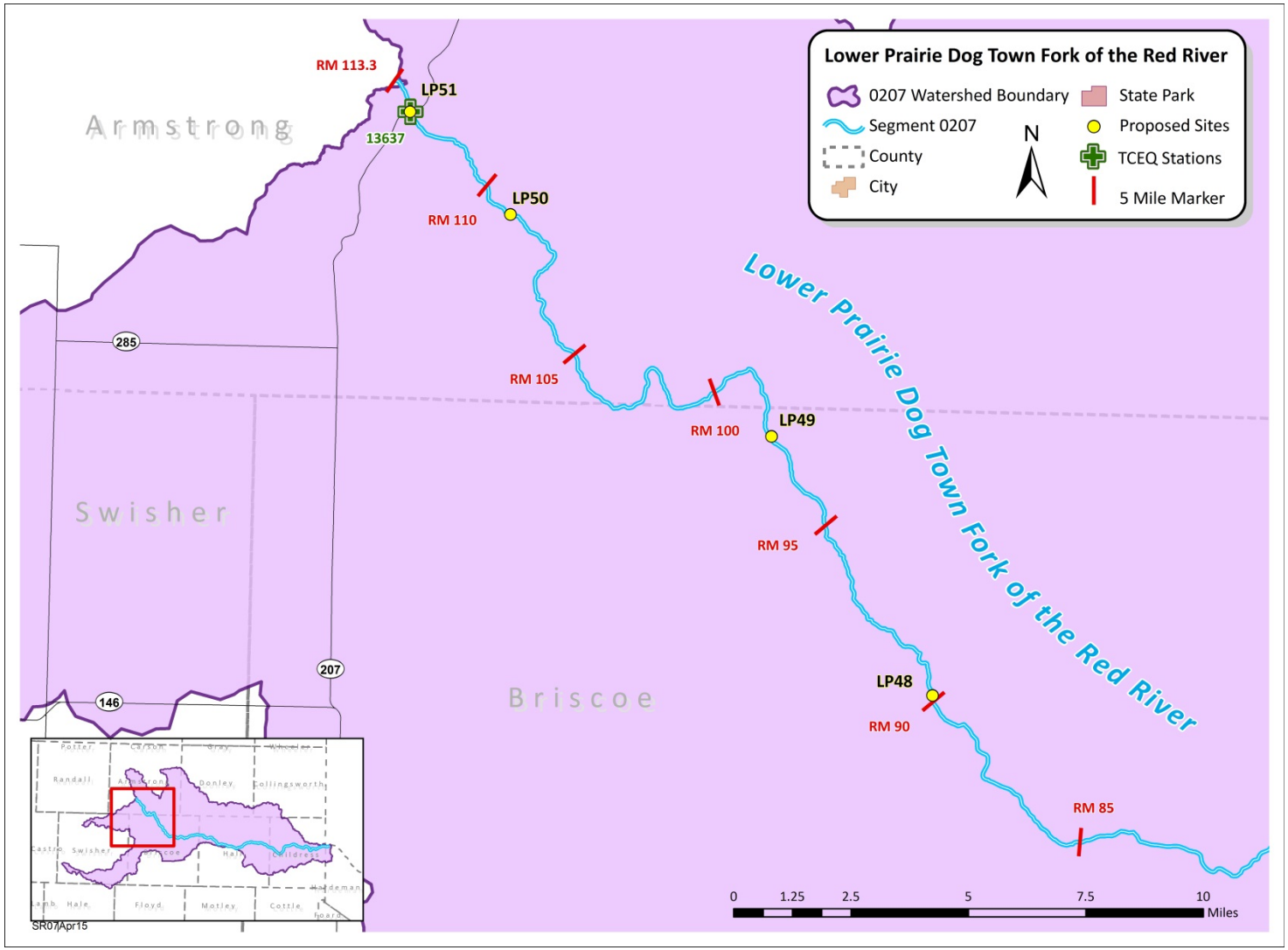


Figure Appendix A.4. RUAA survey sites for Lower Prairie Dog Town Fork Red River (0207). RUAA sites correspond to site descriptions in Table B1.1.

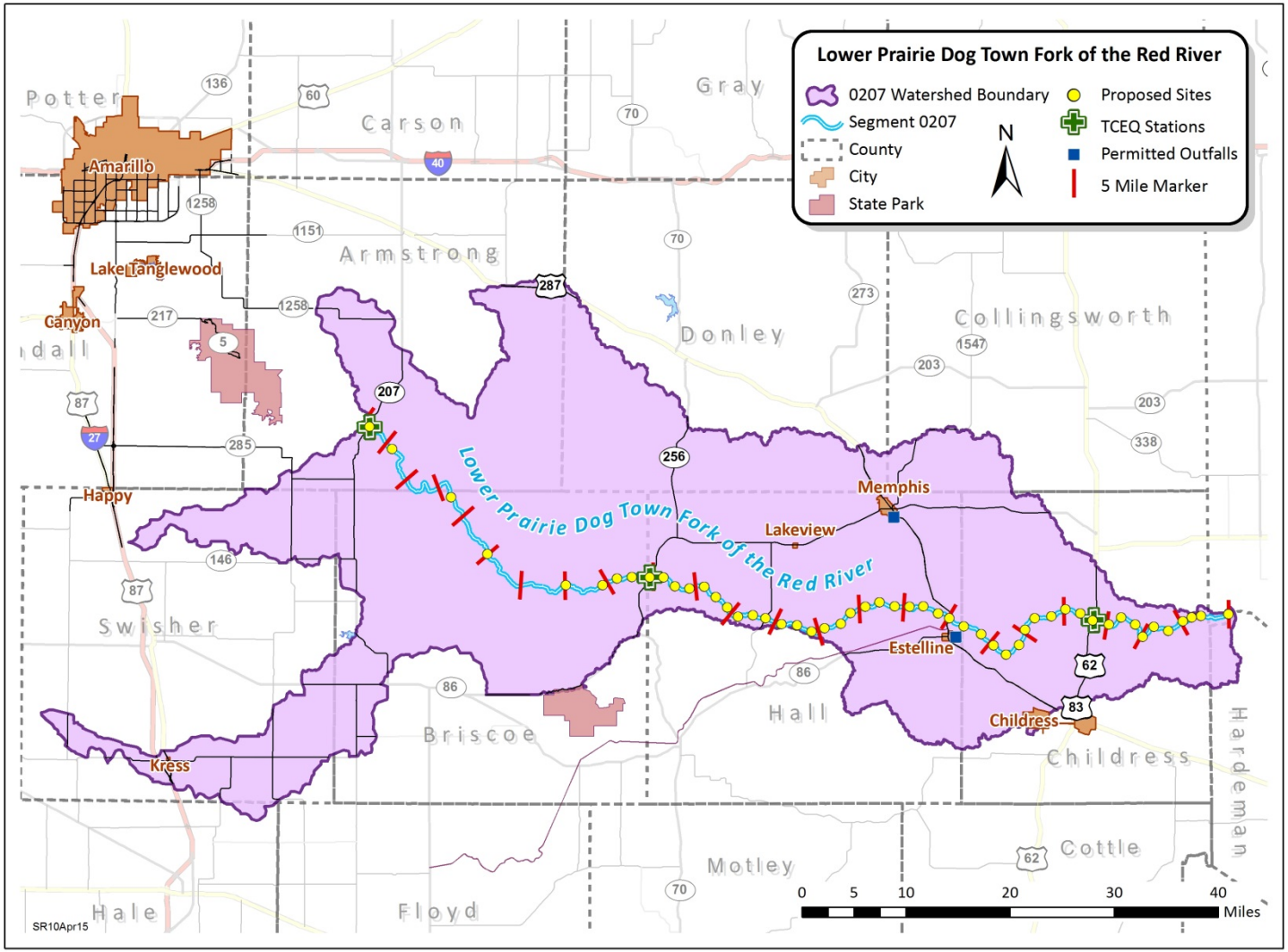


Figure Appendix A.5. Overview of RUAA survey sites for Lower Prairie Dog Town Fork Red River (0207). RUAA sites correspond to site descriptions in Table B1.1.

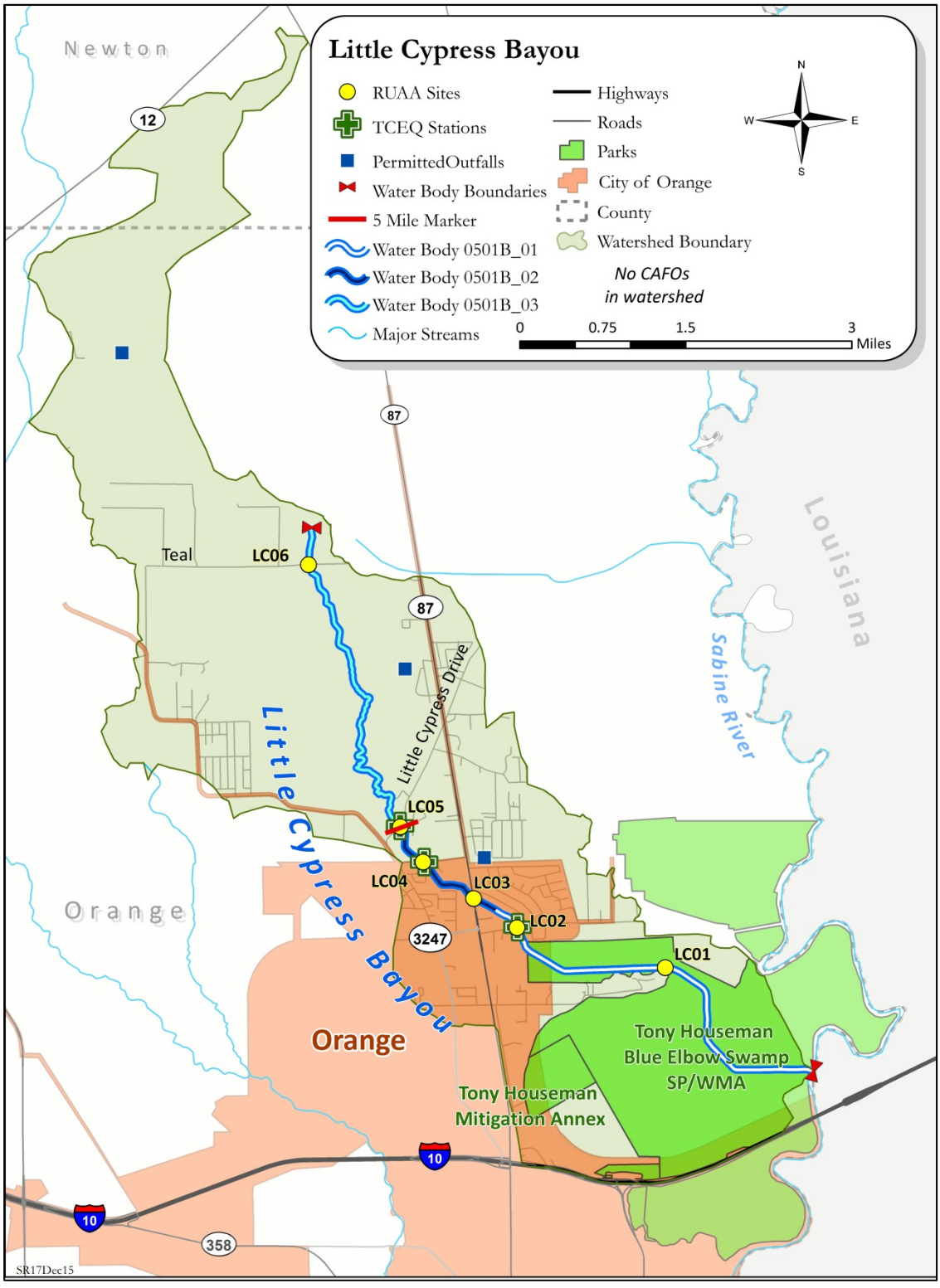


Figure Appendix A.6. RUAA survey sites for Little Cypress Bayou (0501B). RUAA sites corresponds to site descriptions in Table B1.2.

Appendix B: RUAA Field Data Sheets

Field Data Sheets –RUAA 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):

_____
_____
_____
_____

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).

☐ Wading-Children	☐ Tubing
☐ Wading-Adults	☐ Surfing
☐ Swimming	☐ Whitewater-kayaking, canoeing, rafting
☐ Water skiing	☐ Other : _____
☐ Diving	☐ 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	
Average	

Field Data Sheets –RUAA 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.

☐ Drinking or water in mouth
☐ Bathing
☐ Walking
☐ Jogging/running
☐ Bicycling
☐ Standing
☐ Sitting
☐ Lying down/sleeping
☐ Playing on shoreline
☐ Picnicking
☐ Motorcycle/ATV
☐ Hunting/Trapping
☐ Wildlife watching
☐ None
☐ Other: _____

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).

☐ Culverts ☐ Fences ☐ Log jams ☐ Rip rap ☐ Water control structure
☐ Barbed wire ☐ Dams ☐ Thick vegetation ☐ Low bridges ☐ None
☐ Utility pipe ☐ Other (specify):_____

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

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

Comments:_____
_____

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

☐ Private Property
☐ No trespass sign
☐ Wildlife
☐ Steep slopes
☐ No public access
☐ No roads
☐ Fence
☐ Barge/ship traffic
☐ Industrial
☐ None of the Above
☐ Other:_____

Comments:_____
_____

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

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

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).

_____
_____
_____
_____

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

_____
_____
_____
_____

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).

_____
_____
_____
_____
_____

Severity Value	Description
☐ **1 No Flow**	When a flow severity of *1* is recorded for a sampling visit, record a flow value of 0 ft3/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.
☐ **2 Low Flow**	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 ft3/s. ***Note:*** 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.
☐ **3 Normal Flow**	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.
☐ **4 Flood Flow**	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).
☐ **5 High Flow**	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.
☐ **6 Dry**	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.

Appendix C: Contact Information and RUAA Interview Forms

Contact Information Form
(This form must be completed prior to conducting a RUAA survey.)

River or stream name: _____

Notify the contacts that a recreational use-attainability analysis is being planned for the river or stream. Document whether or not the entity was notified, the name of the person contacted, and the date they were notified about the proposed RUAA project.

Required Local Contacts:

TCEQ region staff	Notified: ☐ Yes ☐ No Date: _____ Name: _____
Clean Rivers Partners (River Authority and other local partners)	Notified: ☐ Yes ☐ No Date: _____ Name: _____
Texas Parks and Wildlife Department Point of Contact: Cindy Hobson 512.389.8195 cindy.hobson@tpwd.texas.gov	Notified: ☐ Yes ☐ No Date: _____
Texas State Soil Water Conservation Board Point of Contact: T.J. Helton 254.773.2250 ext. 234 thelton@tsswcb.texas.gov	Notified: ☐ Yes ☐ No Date: _____

Suggested Additional Local Contacts to Notify (*Notify the contacts that a recreational use-attainability analysis is being planned for the river or stream. If contacted, include whether or not the entity was notified, the name of the person contacted, and the date they were notified about the proposed RUAA project on a separate page and attach it to this form*):

Local Parks and Recreation Departments	Yes ☐ No☐
Local Government/Jurisdiction	Yes ☐ No☐
Local Recreation Groups	Yes ☐ No☐
Conservation Groups	Yes ☐ No☐
Local County Extension Agent	Yes ☐ No☐
Watershed Groups	Yes ☐ No☐
Long-term Landowners/Adjacent Landowners	Yes ☐ No☐
Texas Stream Team	Yes ☐ No☐
Canoe Clubs	Yes ☐ No☐
City Commissioners Office	Yes ☐ No☐
Real estate agents	Yes ☐ No☐
Local non-profits	Yes ☐ No☐
City/county offices (Engineer, Health, Law Enforcement)	Yes ☐ No☐
Flood control districts	Yes ☐ No☐
Councils of Government	Yes ☐ No☐
TPWD Game Warden	Yes ☐ No☐
Other:_____	Yes ☐ No☐

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.

RUAA 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):

_____
_____

Appendix D: Corrective Action Report Form

Corrective Action Report

SOP-Q-105

CAR #: 08-003

Report Initiation Date _____ **Report By:** _____ **Procedure or QC Typ** _____

Deviation: _____

Analyte: _____

Affected Sample #s: _____

Sampling Station: _____

Project(s): _____

Attached Documentation:

- ☐ COC
- ☐ FDS
- ☐ FlowLink
- ☐ Flow8
- ☐ GM
- ☐ Log Book
- ☐ QC Sheet
- ☐ Memo
- ☐ Other

Details of the problem, nonconformance or out-of-control situation:

Possible Causes:

Corrective Actions Taken:

Corrective Actions Suggested:

CAR routed to: _____ **Date:** _____

Supervisor: ○ **Tier 1** (does not affect final data integrity) ○ **Tier 2** (data accepted but flag required) ○ **Tier 3** (possibly affects final data integrity)

Corrective actions taken for specific incident: _____

Corrective actions taken to prevent recurrences: _____

Corrective actions to be taken: _____

Responsible Party: _____ **Proposed completion date:** _____

Effect on data quality: _____

Responsible Supervisor: _____ **Date:** _____

Concurrence:

Program/Project Manager: _____ **Date:** _____
(Tier 3 CARs only)

Quality Assurance Officer: _____ **Date:** _____

Q-105-1, Rev. 3