Texas State Soil and Water Conservation Board
Big Cypress Creek Bacteria Assessment
TSSWCB Project #09-54

Comprehensive Recreational Use Attainability Analysis

Big Cypress Creek, Tankersley Creek, and Hart Creek

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Funding Source:

Texas State Soil and Water Conservation Board

July 2011

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ACKNOWLEDGEMENTS

We want to thank all of the landowners who allowed us access to their property for this study and for participating in the interviews. We also want to recognize the Titus County Freshwater Supply District for not only allowing us access to their property, but also for cutting trails to the stations on their property. We appreciate the extra effort they put forth to help us complete the field study.

Funding for this project was provided through a Texas State Soil and Water Conservation Board (TSSWCB) State General Revenue Nonpoint Source Grant, project number 09-54, *Assessment of Contact Recreation Use Impairments and Watershed Planning for Big Cypress Creek and Tributaries (Hart and Tankersley Creeks)[Short Title: Big Cypress Creek Bacteria Assessment*.

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INTRODUCTION

Big Cypress Creek and its tributaries are located in the Cypress Creek Basin. The headwaters of Big Cypress Creek originate in southeast Hopkins County. From there, Big Cypress Creek flows east into Lake Cypress Springs and then into Lake Bob Sandlin in Franklin County. After leaving Lake Bob Sandlin, Big Cypress Creek, which forms the county line between Titus and Camp Counties, flows southeast to Lake O' the Pines and then finally to Caddo Lake before entering Louisiana.

The Big Cypress Creek Watershed is primarily located in the South Central Plains Ecoregion with the westernmost reaches located in the East Central Texas Plains Ecoregion. Natural vegetation in the watershed is typified by oaks, hickory and pines. The vegetation of the watershed is marked by a transition from the extensive agricultural clearing of the western portion of the Basin to the more densely forested eastern portion. The riparian woodland surrounding the middle portion of Big Cypress Creek is extensive and undisturbed relative to the adjacent uplands. Large areas above the upper portion of Lake O' the Pines are swamp-like. Soils of the nearly level Big Cypress Creek floodplain are typically poorly drained Estes clay loam soil unit. Upland soils of the watershed are typically moderately drained to well drained sandy and loamy soils.

The Big Cypress Creek watershed, between Lake Bob Sandlin and Lake O' the Pines (Segment 0404), encompasses approximately 445 square miles and over 284,000 acres in Camp, Morris, Titus and Upshur Counties. The watershed is characterized by gently rolling wooded hills and broad, frequently flooded, densely vegetated stream bottoms. Post oak savannah is predominant in the western portion of the basin, while piney-woods are common in the eastern portion. Land use in the watershed is predominantly pasture and forest (Figure 1).

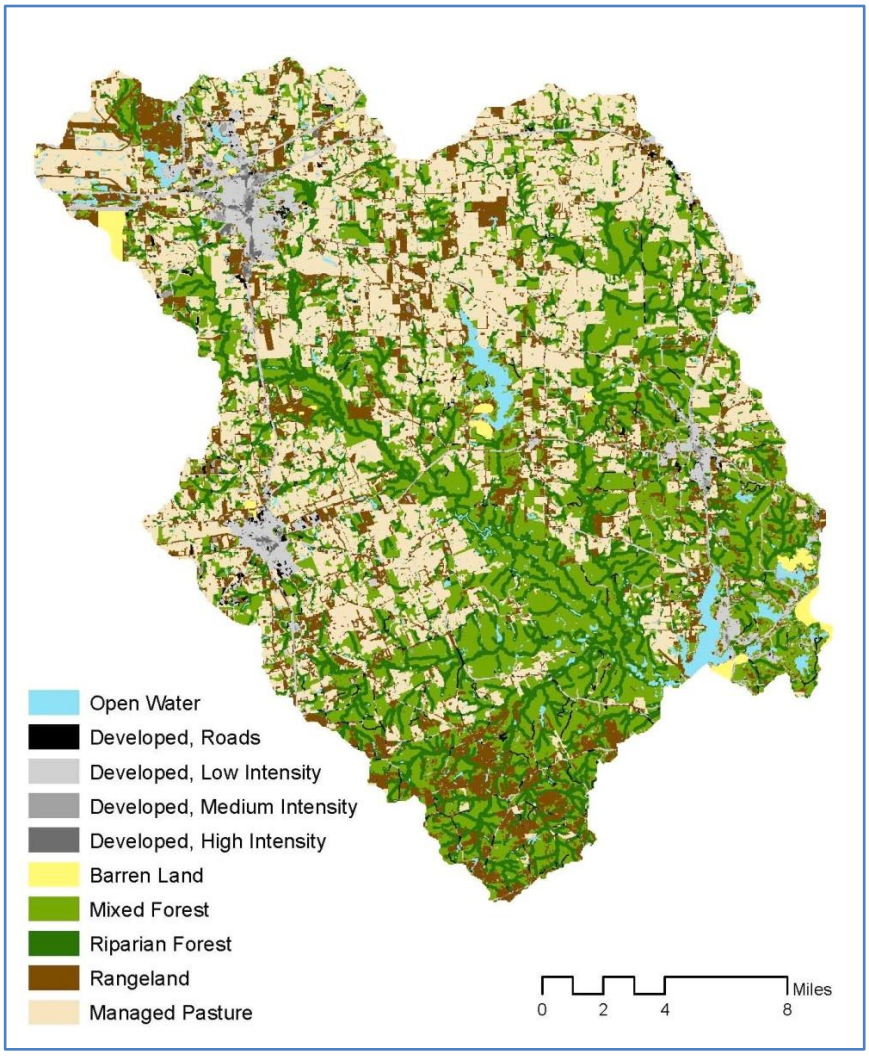


Figure 1: Land use map of Big Cypress Creek Watershed courtesy of Texas Agrilife Research, Department of Biological and Agricultural Engineering.

During periods of rainfall, increased bacterial loads originating from birds, mammals, livestock, inadequately treated sewage, and/or failing septic systems

may be washed into the streams and have the potential to impede recreational use of the waterbodies. Bacterial indicators, such as *E. coli*, may remain in the streams at levels exceeding established criteria and can be measured well after a rain event has occurred. These microorganisms are normally found in wastes of warm-blooded animals and are generally not harmful to human health, but may indicate the presence of pathogens that can cause disease.

In 1996, Segment 0404 of Big Cypress Creek was placed on the *Texas 303(d) List* for having bacteria levels that exceed water quality standards. In 2000, Tankersley Creek (Segment 0404B) and in 2006, Hart Creek (Segment 0404C) were placed on the *303(d) List* for bacteria. Other tributaries to Big Cypress Creek are not currently impaired for bacteria, but they are likely contributing some degree of loading to the impaired reaches of Big Cypress Creek.

While the focus of this project is on recreational uses of Segments 0404, 0404B, and 0404C, this watershed is covered by *One Total Maximum Daily Load for Dissolved Oxygen in Lake O' the Pines (Segment 0403)* which was approved by the EPA on July 9, 2008. The TMDL determined that low dissolved oxygen concentrations in the reservoir are due to high rates of photosynthesis and respiration in aquatic vegetation and that phosphorus is the limiting nutrient during the critical conditions. It is anticipated that many of the implementation strategies designed to reduce phosphorus loadings will also have a positive impact on reducing bacteria loadings to Big Cypress Creek.

Lake O' the Pines is extremely important to the surrounding region. Lake O' the Pines provides drinking water for seven cities and towns, numerous rural water districts, and several steel manufacturing and electric generating companies. The lake is an important resource to the timber industry and to agricultural enterprises such as the poultry industry, dairies, cow/calf operations, and for irrigation. Recreation and tourism are significant sources of income for residents of the watershed. Boating and fishing lure large numbers of recreational users to the watershed each year.

Through the Lake O' the Pines TMDL process, watershed stakeholders have become extremely familiar with water quality rules and regulations, as well as approaches to watershed planning. As such, local stakeholders expressed interest in taking an active role in addressing the bacteria impairments.

Purpose of the Study

The Comprehensive RUAA was one task of the *Assessment of Contact Recreation Use Impairments and Watershed Planning for Big Cypress Creek and Tributaries (Hart and Tankersley Creeks)* funded by the Texas Soil and Water Conservation Board. Other tasks included a Survey and Inventory of Possible Bacteria Sources, an intensive 22-month bacteria sampling program which included eight of the RUAA stations. A sister project was performed concurrently by Texas A&M Agrilife Research through the Texas Water Resources Institute (TWRI), Soil and Aquatic Microbiology Lab (SAML), and the Department of Biological and Agricultural Engineering (BAEN).

The upper eighteen miles of Segment 0404 of Big Cypress Creek, Tankersley Creek (Segment 0404B) and Hart Creek (Segment 0404C) are currently on the *Texas 303(d) List* for non-support of the contact recreation use for bacteria geomean standard. There are currently two recreation use categories in the 2000 Texas Surface Water Quality Standards (TSWQS): contact and noncontact recreation. Contact recreation is presumed as a use for all unclassified waters. Contact recreation is defined as recreational activities involving a significant risk of ingestion of water, including wading by children, swimming, water skiing, diving, and surfing. Noncontact recreation is defined as aquatic recreational pursuits not

involving a significant risk of water ingestion; including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity.

In the Draft 2010 TSWQS, TCEQ made major revisions which included additional subcategories of recreational uses. The following potential recreational use categories are in the draft document: primary contact, secondary contact, and noncontact recreation. These use categories are detailed below:

- **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 water body and/or (2) limited public access.
- **Noncontact recreation:**
  Activities, such as ship and barge traffic, birding, and using hike and bike trails near a water body, not involving a significant risk of water ingestion, and where primary and secondary contact recreation should not occur because of unsafe conditions.

As part of the draft TSWQS process, TCEQ has developed procedures for conducting Recreational Use Attainability Analyses (RUAA) (*TCEQ 2009*). In order for a new category of recreational use or a different bacteria water quality standard to be applied to a waterbody, a Recreational UAA must be conducted. There are two types of RUAA: Basic RUAA and Comprehensive RUAA. A Basic RUAA survey is conducted to (1) collect information on a water body, such as the presence or absence of water recreation activities, stream flow, stream depth, (2) establish/verify a presumed use, or (3) provide core information to be included in a Comprehensive RUAA. Basic RUAA surveys can be conducted on a relatively small unclassified water body that is evaluated during conditions amenable for contact recreation and can often be accomplished on a single sampling date. A Comprehensive RUAA, which includes information from a Basic RUAA, is required for classified water bodies or where presumed uses for unclassified water bodies may be inappropriate. A Comprehensive RUAA is an expanded effort requiring two or more field surveys and a historical data review.

If the Basic RUAA Survey and/or Comprehensive RUAA determine that a water body meets its presumed or designated recreational use, then that use will continue to apply. In cases where a Basic RUAA Survey indicates that the existing use for recreation might be lower than the presumed primary contact, secondary contact recreation, or designated recreational use, then a Comprehensive RUAA is required to fully evaluate the appropriate recreational use of the stream. In order for a recreational use that is less stringent than a designated or presumed use to apply to a water body, the applicable use must be

explicitly assigned to an individual water body in the TSWQS and approved by the Environmental Protection Agency (*TCEQ 2009*).

STUDY AREA

Hart and Tankersley Creeks are tributaries to Big Cypress Creek, the main waterway of the study area. Segment 0404 of Big Cypress Creek begins at Fort Sherman Dam and flows approximately 33 miles southeast into Lake O' the Pines. The landscape near Mount Pleasant is drained by Tankersley and Hart Creeks, tributaries of Big Cypress Creek, which lie on the western and eastern sides of the city, respectively. Tankersley Creek is a perennial stream that extends approximately six miles northwest of Mount Pleasant. The stream flows 2.2 miles southeast into Tankersley Lake above IH 30 and then travels approximately 6.5 miles south to the confluence with Big Cypress Creek below the release at Lake Bob Sandlin. Its main tributary is Dragoo Creek.

Hart Creek rises approximately 4.5 miles north of Mount Pleasant. It flows southeast for about twelve miles to its confluence with Big Cypress Creek southeast of Mount Pleasant. The stream is intermittent in its upper reaches through rolling hills. Near the confluence with Big Cypress Creek the terrain becomes level bottomland in the floodplains of Big Cypress Creek. Tributaries of Hart Creek include Hayes Creek and Evans Creek.

The City of Mount Pleasant in Titus County is the largest urban center within the study area with a population of about 15,250. Other population centers in the Big Cypress Creek watershed are Pittsburg with approximately 4,700 residents; Daingerfield with 2,400; and Lone Star with 1,550. There are eight permitted discharges within the study area, but none discharge directly into Big Cypress Creek. Five of the wastewater treatment plants (WWTP) are permitted to discharge less than one million gallons per day (MGD) of treated domestic sewage. The City of Pittsburg is permitted for a maximum of 1.17 MGD, while the City of Mount Pleasant is 2.91 MGD, and the Pilgrims Pride WWTP is 3 MGD. Tankersley Creek is the receiving water for the Pilgrims Pride plant and Hart Creek receives treated effluent from the City of Mount Pleasant plant. There are no municipal separate storm water sewer system (MS4) permits in the project area.

Much of the watershed is located in rural areas and most homes use on-site septic systems for sewage treatment. Potential non-point sources include bacteria originating from aquatic birds, wildlife, cattle, inadequately treated sewage, and/or failing septic systems. The results of SELECT modeling conducted by BAEN showed that the highest potential *E. coli* loads are from septic systems, cattle, poultry litter, and feral hogs. *(McKee, et al.)* Preliminary BST assessment data as reported by Martin & Gentry showed that about 36% of the *E. coli* loading in the study area is from wildlife. Input from local stakeholders indicated that controlling the feral hog population is a significant concern in the region.

Land Use

Land use in the basin in dominated (approximately 88%) by rangeland, managed pasture, mixed forest, and riparian forest. Impervious cover is represented in the watershed by areas of development within the city limits of Mount Pleasant west of Hart Creek and east of Tankersley Creek. Development is predominantly low intensity mainly from residential areas with increased development toward the center of the city in commercial and industrial locations. High intensity development exists in the form of roads, parking lots, and concrete slabs.

Throughout the upper and eastern portion of the Hart Creek watershed, the predominant land use is categorized as managed pasture often adjacent to mixed forest and the riparian corridors of watershed and its tributaries (Figure 2). The western border of the watershed transects through the western central area of Mount Pleasant where impervious cover is common with various intensities of development.

The upper reach of Tankersley Creek above IH 30 is predominately managed pasture in the northwest of the watershed with mixed forest and rangeland to the north. The stream flows through relatively flat terrain passing through more managed pasture and heavily wooded forest before its confluence.

The Big Cypress Creek watershed, throughout the study area, is almost exclusively mixed forest with some managed pasture. The riparian corridor is heavily wooded and extensive. There are no permitted Confined Animal Feeding Operations (CAFOs) within the study area.

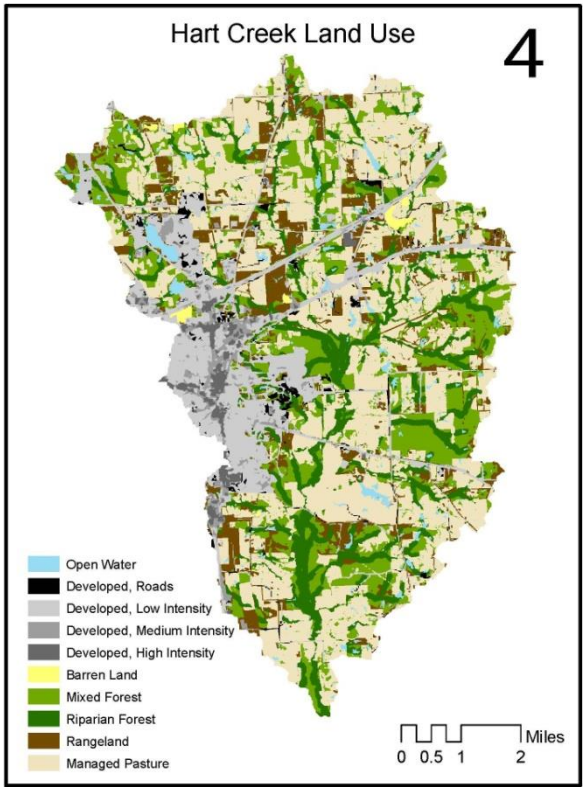


Figure 2: Land use map of the Hart Creek Watershed Texas Agrilife Research.

Climate

The climate is hot during the summer when daily average temperatures are in the upper 80's and cold during winter with daily average temperatures in the 40's. The warmest month is August with an average maximum temperature of 95.6°F, while the coldest month is January with an average minimum temperature of 31.1°F. Temperature variations between night and day tend to be moderate during both summer and winter months with an average difference of 24°F. The average annual rainfall is approximately 47 inches. The rainy season ranges from October to June with monthly rainfall amounts between 3.7 inches and 5.6 inches.

The City of Mount Pleasant Chamber of Commerce bills the area as the "Bass Capital of Texas." There are seven reservoirs within twenty minutes of Mount Pleasant including Lake Bob Sandlin, Lake Monticello, Lake Cypress Springs, Tankersley Lake, Town Lake, Lake Daingerfield, and Welsh Lake. In addition, Ellison Creek Reservoir and Lake O' the Pines are within thirty minutes. There are two state parks adjacent to the Big Cypress Creek watershed: Lake Bob Sandlin State Park and Daingerfield State Park along with camping and restrooms at the Titus County Fresh Water Supply District (TCFWSD) Park near the Fort Sherman Dam (Figure 3).

The Texas Parks and Wildlife Department (TPWD) publication, *An Analysis of Texas Waterways,* states that water conditions in Big Cypress Creek are not normally adequate for recreational activities: however, during periods of run-off, it is possible to float portions of the upper reaches. Often, many hazardous log and brush jams are found which impair navigation. *(TPWD website)*.

Figure 3: TCFWSD Park on Memorial Day: May 30, 2011

Jerry Ash, longtime local TPWD Game Warden, said this area of Big Cypress Creek is the largest unbroken forest in northeast Texas and has remained in its natural state mainly due to there being only three prominent landowners throughout the entire reach. He stated that the most downstream portion of Segment 0404, which is accessible from boat launches on Lake O' the Pines, is frequently used for boating and fishing, but he has never seen anyone swimming there. The game warden said that people launch boats at Sand Crossing Road (station BCC4), but the boats could not go very far upstream due to logjams and dams. He has witnessed fishing on Big Cypress Creek from the bridge crossings at US 271 (station 10310) and at SH 11 (station 10308), but there is no place to launch a boat at either site. He stated that no commercial fishing camps exist and that the area is not very accessible for recreational activity. In summary, the game warden stated that it is highly unlikely that any swimming and very little fishing occurs in the segment except for some fishing and boating in the lower 3-4 miles near Sand Crossing Road. He has not witnessed any swimming or fishing in Hart or Tankersley Creeks. *(Ash, personal conversation).*

There are two USGS stream gages and two precipitation gauges within the study area. USGS gage 07344489, located at the Fort Sherman Dam, records water level and rainfall at Lake Bob Sandlin. USGS gage 07344493 reports water level and stream flow on Big Cypress Creek at US 271 (station 10310) and gage 07344500 measures water level, stream flow, and rainfall on Big Cypress Creek at SH 11 (station 10308). For the *Assessment of Contact Recreation Use Impairments and Watershed Planning for Big Cypress Creek and Tributaries (Hart and Tankersley Creeks)* Quality Assurance Project Plan, all rainfall data reported came from USGS gage 07344489 because precipitation data was not available at gage 07344500 at the beginning of the study. All rainfall data reported in Appendix C was downloaded from USGS gage 07344489.

Historical Review of the Study Area

There are 22 publications in the Texas State Library pertaining to Big Cypress Creek. These reports involve cultural resources, intensive water quality surveys, waste load evaluations, land use, dam studies, water supply and soil types. None of the reports involve recreational uses of the streams. *(The Library Catalog of Texas State Agencies).* No historical photographic evidence, local newspaper accounts, museum collections, published reports, historical society records or long-term landowners/residents accounts concerning recreation could be found. *(The Texas Historical Commission, The Daily Tribune).* No additional information on the historical use the stream was found.

Figure 4: Station BCC2 on Big Cypress Creek below the Hart Creek confluence.

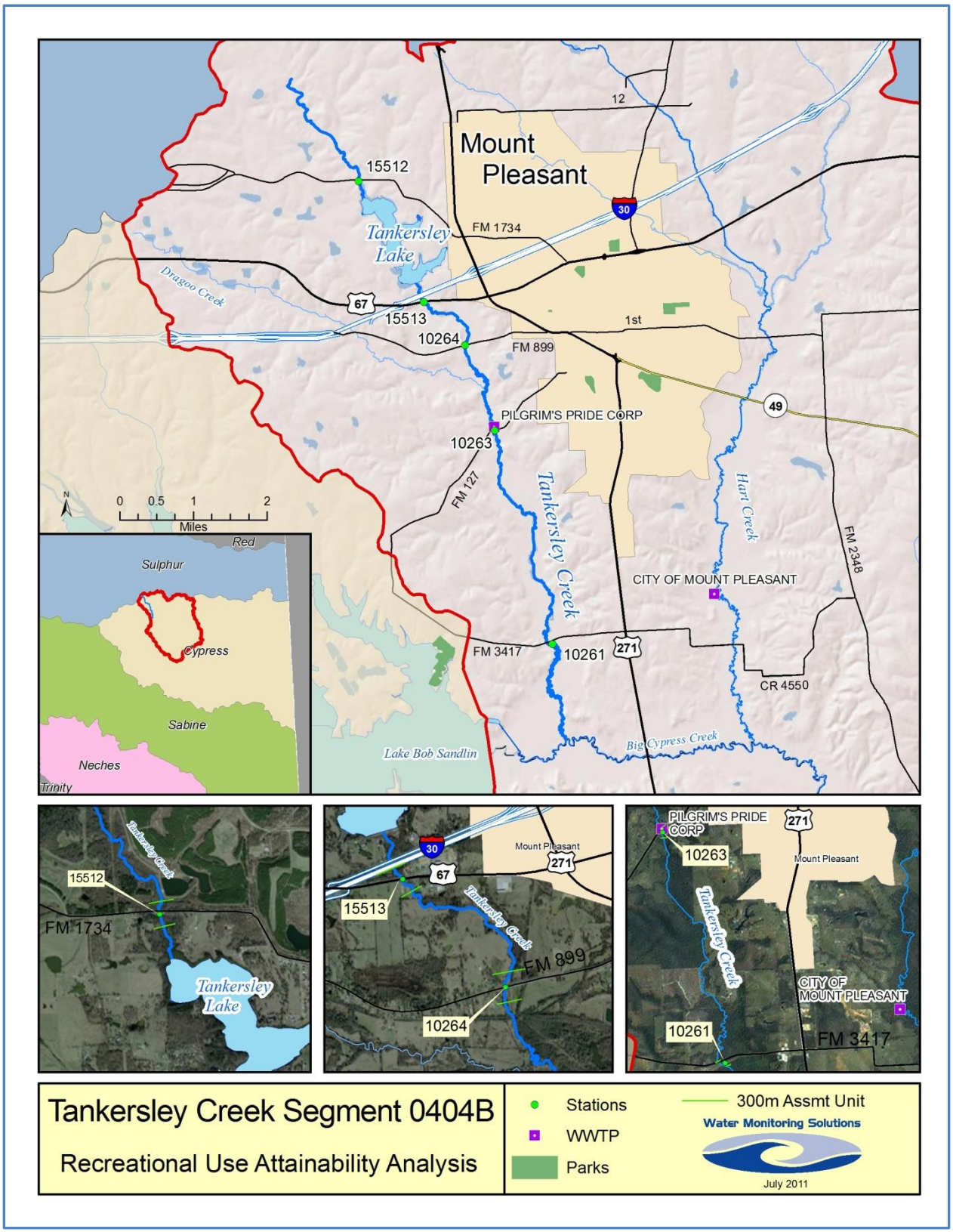


Figure 5: Tankersley Creek RUAA Stations

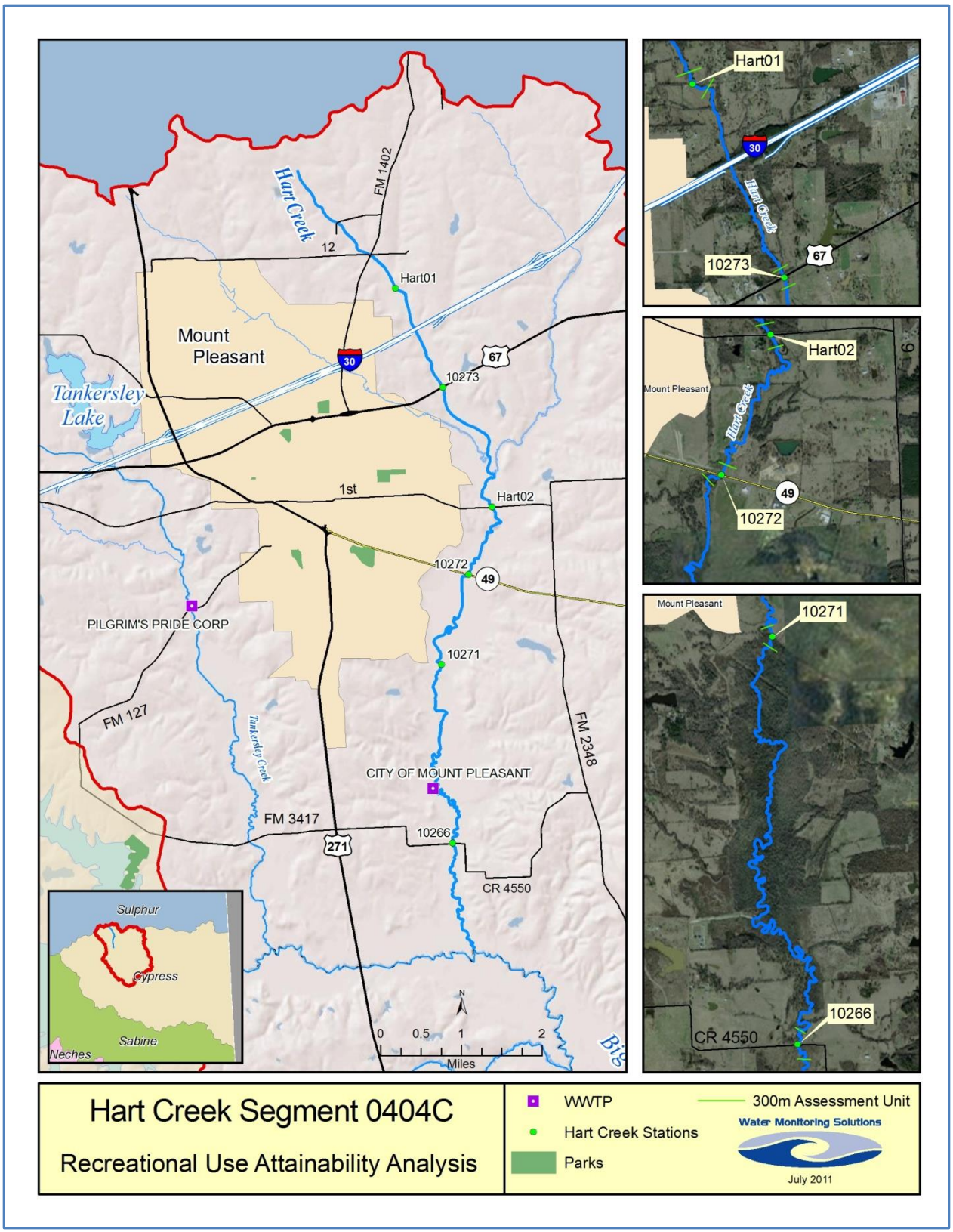


Figure 6: Hart Creek RUAA Stations

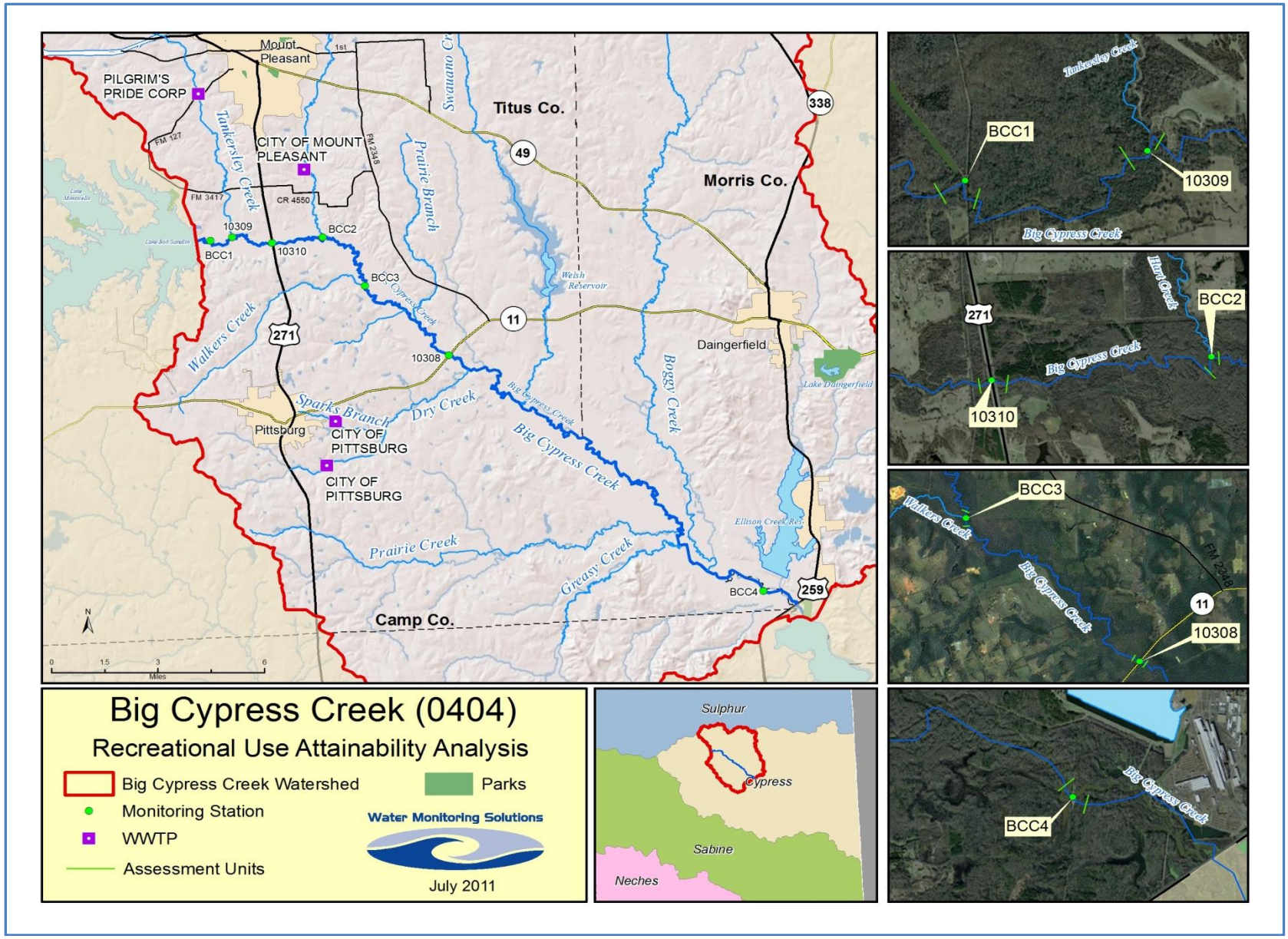


Figure 7: Big Cypress Creek RUAA Stations

METHODS

A 300-meter reach was surveyed at each stream station. The stream width and thalweg depth was measured at 30 meter intervals. Stream width was determined using an engineering tape at wadeable transects and with a laser range finder at the non-wadeable cross-sections. Depth was measured using a metric leveling rod (Figure 8) and the location of each 30-meter transect was determined using a laser range finder (Figure 9).

Figure 8: WMS staff making a thalweg depth measurement at station Hart01.

Figure 9: WMS staff using a laser range finder to locate the next transect at station 10271.

Figure 10: WMS staff making a thalweg depth measurement at a non-wadeable transect at station 15513.

A kayak was used to travel the 300-meter reach at the non-wadeable stations. During the first round of sampling, thalweg depth was not measured at the non-wadeable sites in Big Cypress Creek except for station BCC3. Thalweg depth was measured from the kayak at all of the non-wadeable sites during the second round except at station BCC1 where the depth exceeded the length of the 2.4-meter leveling rod (Figure 10).

Other field measurements included air and water temperature, and the length and width of all pools within the reach. Pools were defined as being at least one meter deep by ten meters long. A stream flow measurement was made at all wadeable stations where there was not an existing USGS gage. Flow was measured using a SonTek FlowTracker Acoustic Doppler Velocimeter (Figure 11).

Field observations included noting any channel obstructions such as dams, logjams, pipelines, fencing and trash; human presence including litter, walkways, rope swings, fire pits and fishing tackle; animal presence including tracks, trails, nests, scat, and beaver dams (Figure 12). Physical characteristics of the reach including bank steepness, bank stability, sediment material, water clarity, and vegetation were also noted. The ease of access to the station, fences and/or no trespassing signs, and the number of people present at the site were recorded on the field forms (Appendix A).

Photos facing upstream, downstream, left bank and right bank were taken of the stream at 30 meters, 150 meters, and 300 meters. Photos were also taken of channel obstructions, human and/or animal presence, and of conditions that enabled/prevented access to the stream. A complete photographic record is included in Appendix B.

Figure 11: WMS staff making a stream flow measurement at station 10266.

Figure 12: Large animal tracks observed at station

RESULTS AND DISCUSSION

A total of 91.2 kilometers in Tankersley Creek, Hart Creek, and Big Cypress Creek were evaluated with eighteen full surveys during each round (Table 1). The first round of field surveys were conducted on Memorial Day (May 30) through June 1, 2011 and the second round of surveys were conducted on July 1 through 3, 2011. Sites where people were most likely to be present were surveyed on Memorial Day and during the July 4th weekend. Three sites on Big Cypress Creek were selected where there was public access and where the stream was presumed to be the deepest. These sites were at the bridge crossings on US 271, SH 11 and Sand Crossing. No one was present at these stations during either round of field surveys; however, many people were observed at Lake Bob Sandlin Park on Memorial Day and at Town Lake on Saturday, July 2nd (Figure 3). Boaters were noted at the park by the dam of Tankersley Lake during both rounds of field surveys. No one was observed at any of the bacteria monitoring stations over the course of the 22-month bacteria sampling project.

Table 1: Field Surveys Conducted

Segment	Stream Name	Stream Type	Total Stream km	First Surveys	Second Surveys
0404B	Tankersley Creek	Perennial	16.1	5	5
0404C	Hart Creek	Perennial	13.9	6	6
0404	Big Cypress Creek	Perennial	61.2	7	7
		Total	**91.2**	**18**	**18**

There are no parks or public recreation areas located on any of the stream sites except on the U.S. Army Corps of Engineers property located above the headwaters of Lake O' the Pines. This property includes station BCC4: Big Cypress Creek at CR 2231 (Sand Crossing). The USACE property extends from the main body of the reservoir approximately 3.5 miles upstream of this station. (Appendix D).

Forest and pasture were the dominant riparian zones recorded for all streams (Table 2). There were no mowed riparian zones at any station in the study area. Riparian zone types were calculated by assigning one point each for the left and right bank at 30, 150, and 300 meters for a total of six points per station.

Almost all of the riparian zones surveyed in Big Cypress Creek were forested (81%) followed by shrub dominated corridor (14%). Station 10310 was the only location where pasture was recorded. The riparian zone of Hart Creek was dominated by forest (42%) and pasture (31%). Most of the pasture zones were noted at stations 10273 and 10272, as were all of the denuded eroded banks. At station 10273, the eroded banks were due to work being performed by the private landowner along the stream corridor. The eroded banks at 10273 were due to cattle crossing the stream (Figure 13).

Figure 13: Denuded banks at station 10273.

In Tankersley Creek, fourteen out of thirty (47%) of the left and right bank riparian zone types were forest while six (20%) were recorded as shrub dominated corridor and denuded eroded bank. The field survey for station 15513 was conducted upstream of US 67 and over half of the reach passed under IH 30 (Figure 14). The banks at 150 and 300 meters were considered eroded or denuded due to the

Figure 14: Concrete banks along IH 30 at station 15513.

concrete banks along the IH 30 corridor. Construction at FM 3417 (station 10261) has denuded the banks along the highway at the bridge. The remaining 13% was considered pasture which occurred mostly at station 10264. Although cattle were present at this location, an electric fence prevented them from entering the stream.

Multiple field observations indicate the amount of water present at each station in the streams (Table 3). Big Cypress Creek had the widest average width, deepest average thalweg, and the most stream flow. Tankersley and Hart Creeks would have similar average widths and thalweg depths if station 15512 had not been included. This station is at the headwaters of Tankersley Lake. The average widths and depths of Big Cypress Creek were increased by stations BCC1 and BCC4. BCC1 is below the spillway of Fort Sherman Dam below Lake Bob Sandlin, and BCC4 is at the headwaters of Lake O' the Pines.

Table 2: Riparian Zone Types

Station	Pasture	%	Shrub dominated corridor	%	Forest	%	Denuded eroded bank	%	Mowed maintained corridor	%
Tankersley Creek										
15512			4		2					
15513					2		4			
10264	3		1		2					
10263	1		1		4					
10261					4		2			
Total	**4**	**13%**	**6**	**20%**	**14**	**47%**	**6**	**20%**	**0**	**0%**
Hart Creek										
Hart01	2		2		2					
10273	4						2			
Hart02	1		2		3					
10272	4						2			
10271					6					
10266			2		4					
Total	**11**	**31%**	**6**	**17%**	**15**	**42%**	**4**	**11%**	**0**	**0%**
Big Cypress Creek										
BCC1					6					
10309					6					
10310	2		4							
BCC2					6					
BCC3					6					
10308					6					
BCC4			2		4					
Total	**2**	**5%**	**6**	**14%**	**34**	**81%**	**0**	**0%**	**0**	**0%**

Big Cypress Creek

For Big Cypress Creek, thalweg depth was not measured at stations 10308, 10310, and BCC4 during the first round, but was measured from the kayak during the second field effort. The depth at BCC1 was greater than the 2.4-meter leveling rod. These measurements account for the differences in the average thalweg depth between the two site surveys. The area received approximately 1 inch of rain about three days before the second round and this most likely accounted for the higher average stream flow between the two field surveys.

Stream flow was not measured at three stations in Big Cypress Creek because the water was too deep to wade at BCC1, BCC3, and BCC4. Since there are no major tributaries between the spillway and the Tankersley confluence, the flow measurement from station 10309 was also recorded for BCC1. Flow reported by USGS gaging stations on Big Cypress Creek at US 271 and SH 11 were used for this analysis. A flow measurement at BCC4 was not possible due to the backwater effects of Lake O' the Pines. Station 15512 was also not measured because it is too deep to wade and because the site is in the backwater of Tankersley Lake.

Fishing was the most common recreational activity noted in Big Cypress Creek. There were three people fishing from a boat in Big Cypress Creek immediately below the Fort Sherman Dam (above station BCC1) during the field survey on June 1, 2011. Access to this location is limited to Titus County Freshwater Supply District (TCFWSD) employees, and the property is fenced and patrolled by TCFWSD security personnel (Figure 16). All of the property on both sides of Big Cypress Creek between US 271 to below the Walkers Creek confluence is owned by TCFWSD (Appendix D). Access to this property is limited to employees only, and staff must pass through an electronically controlled gate to get onto the property (Figure 17). Security staff regularly patrol this area. Prior to the commencement of the study, TCFWSD board had to approve our access to the stations located on their property. TCFWSD staff cleared RTV paths through the thick forest so that stations BCC2 and BCC3 would be readily accessible for this study. TCFWSD staff was present while performing the surveys on their property.

Only three of the seven stations on Big Cypress Creek were located at bridge crossings. Fishing tackle was noted at BCC4, but no one was present when the field surveys were conducted. The local game warden along with USACE staff stated that they have never witnessed anyone wading or swimming, but regularly have witnessed people fishing from the shore and from small boats. The landowner at station 10309 stated that his family fishes the stream from the shore on rare occasions but never gets into the water. According to landowners and the TPWD Game Warden, people occasionally fish from the shore at stations 10308 and 10310. We observed some fishing tackle, but no one was present at these sites during the surveys. No one was ever present at any of the stations during bacteria sampling or while making flow measurements from August 2009 through May 2011.

Table 3: Hydrological stream characteristics for each station and sampling event

Station	Memorial Day			July 4th		
	Avg. Width	Avg. Thalweg	Flow (cfs)	Avg. Width	Avg. Thalweg	Flow (cfs)
Segment 0404B: Tankersley Creek						
15512	16.1	1.75	N/A	13.5	1.63	N/A
15513	5.3	0.70	0.01	6.8	0.75	0
10264	5.3	0.61	0.01	5.6	0.66	0.01
10263	5.3	0.65	6.6	5.1	0.59	3
10261	3.1	0.35	1.6	5.1	0.59	5.9
Average	**7.0**	**0.8**	**2.1**	**7.2**	**0.8**	**2.2**
Segment 0404C: Hart Creek						
Hart01	3.0	0.31	0.01	2.7	0.31	<0.01
10273	5.7	0.72	0	5.5	0.59	<0.01
Hart02	3.9	0.37	0.3	3.8	0.33	0.2
10272	4.8	0.55	0.2	4.2	0.38	0.2
10271	3.3	0.17	0.2	2.9	0.15	0.2
10266	5.3	0.46	3.8	5.1	0.51	1.9
Average	**4.3**	**0.4**	**0.8**	**4.0**	**0.4**	**0.4**
Segment 0404: Big Cypress Creek						
BCC1	44.8		0.3	43		0.2
10309	7.3	0.86	0.3	6.6	0.61	0.2
10310	13.8		2.8	12.9	1.2	5.4
BCC2	9.7	0.75	2.7	7	0.58	3.7
BCC3	13	0.79		12.8	0.97	
10308	9.8		7.9	9.9	1.18	7.1
BCC4	35.5		N/A	42.6	2.26	N/A
Average	**19.1**	**0.8**	**2.8**	**19.3**	**1.1**	**3.3**

Hart Creek and Tankersley Creek

Discharge from the wastewater treatment plants on both Hart and Tankersley Creeks significantly increased the amount of flow in each stream. There was very little to no flow at all sites above the WWTP outfalls. It should be mentioned that the reason for the large disparity in stream flow between stations 10261 and 10263 in Tankersley Creek during the first round was due to the Memorial Day holiday. Flow was measured at 10261 on the holiday (May 30) and at station 10263 (below the Pilgrims Pride WWTP) the following afternoon. Discharge from this plant also dramatically affected the width and thalweg depth at station 10261 when comparing between the two site surveys.

No evidence of primary contact, secondary contact, or noncontact recreation activities were observed by field staff at any of the stations in Hart Creek and at only one site in Tankersley Creek (Table 4). Some fishing tackle was observed during the second site survey at station 15512, located at the headwaters of Tankersley Lake. Public access to the stations in Hart and Tankersley Creeks is very limited since almost all are located on private property that generally has barbed wire fences running along the property line. Access to the stream is along the public right of way at bridge crossings, but there is no parking area at

any station in these watersheds. Information provided by attendees at public meetings and through landowner and local expert interviews indicated that no primary contact recreational activities occur at any station in Hart Creek or Tankersley Creek. A few people had witnessed or heard of people fishing and/or hunting in the watershed but none were aware of anyone swimming or wading in the streams.

Table 4: RUAA Summary for each station

Station	Primary Contact	Secondary Contact	Non-contact	Average Thalweg (m)	Pools >1m	General Public Access	PDSI
Segment 0404B: Tankersley Creek; Unclassified Stream							
15512	Not obs/rep	Seldom	Seldom	1.69	Yes	Easy	Extreme
15513	Not obs/rep	Not obs/rep	Not obs/rep	0.73	Yes	Very limited	Extreme
10264	Not obs/rep	Not obs/rep	Not obs/rep	0.64	Yes	Very limited	Extreme
10263	Not obs/rep	Not obs/rep	Not obs/rep	0.62	Yes	Very limited	Extreme
10261	Not obs/rep	Not obs/rep	Not obs/rep	0.47	No	Very limited	Extreme
Segment 0404C: Hart Creek; Unclassified Stream							
Hart01	Not obs/rep	Not obs/rep	Not obs/rep	0.31	No	Very limited	Extreme
10273	Not obs/rep	Not obs/rep	Not obs/rep	0.66	Yes	Very limited	Extreme
Hart02	Not obs/rep	Not obs/rep	Not obs/rep	0.35	No	Very limited	Extreme
10272	Not obs/rep	Not obs/rep	Not obs/rep	0.47	Yes	Very limited	Extreme
10271	Not obs/rep	Not obs/rep	Not obs/rep	0.16	No	Very limited	Extreme
10266	Not obs/rep	Not obs/rep	Not obs/rep	0.49	Yes	Very limited	Extreme
Segment 0404: Big Cypress Creek; Classified Stream							
BCC1	Not obs/rep	Frequent	Frequent	N/A	Yes	No access	Extreme
10309	Not obs/rep	Seldom	Seldom	0.74	Yes	No access	Extreme
10310	Not obs/rep	Seldom	Seldom	0.60	Yes	Moderate	Extreme
BCC2	Rare	Rare	Rare	0.67	Yes	No access	Extreme
BCC3	Not obs/rep	Not obs/rep	Not obs/rep	0.88	Yes	No access	Extreme
10308	Not obs/rep	Seldom	Seldom	0.59	Yes	Moderate	Extreme
BCC4	Not obs/rep	Frequent	Frequent	1.13	Yes	Easy	Extreme

Observations and Evidence of Recreational Use and Surrounding Conditions that Promote Recreation

No one was observed carrying out primary contact recreation activities at any of the stations during the RUAA site surveys or while conducting the bacteria sampling and flow measurement project. The only secondary contact recreation activities observed were three people fishing from a boat at station BCC1 on June 1, 2011. Access to station BCC1 is limited to TCFWSD staff who must pass through a security controlled gate (Figure 16). Fishing tackle was present at several stations in Big Cypress Creek; however, no one was present at any station except during the first visit to BCC1. There were no non-contact activities observed at any station during either round of the field study.

Discarded drink bottles, cans, and plastic shopping bags were the most common indications of human presence for all stations in Tankersley and Hart Creeks. These items tended to be most concentrated near the bridge and along the public right of ways and were likely thrown out of passing vehicles. Tires were observed at many stations during the site surveys. There were no houses, pavilions, playgrounds,

docks, benches, hammocks, children's toys, fire pits, rope swings or other indicators of human use at any station in these watersheds. The only other indication of contact recreation noted in either of these streams was at station 15512 on Tankersley Creek during the second round of field surveys. Fishing tackle consisting of a bobber, a short piece of fishing line and plastic bottle being used as a trotline were observed about 200 meters downstream from FM 1734 near the headwaters of Tankersley Lake. Due to its location, it could not be determined if the bobber was used at/near the FM 1734 bridge crossing and had floated downstream, or if someone boating on Tankersley Lake had left it there.

Figure 15: Chair used for fishing at station BCC4

"Indicators of human use" were observed only at stations located in Big Cypress Creek, with the exception of station 15512 in Tankersley Creek (Table 5). Three people were fishing from a boat below the Fort Sherman Dam (above BCC1) on May 31st. A couple of bobbers and some fishing line along with spray paint "tagging" of the bridge piling was noted at station 10310 during the second round of field surveys. ATV tracks located approximately 15 meters away from the stream were noted at station 10308, but these tracks had been previously noted by samplers in October 2010. Fishing tackle, foot paths, drink bottles, a fire pit and a chair were recorded at BCC4 during the first round of surveys (Figure 15). Similar items were also observed at this location during the second site survey.

Table 5: Indications of human use in Big Cypress Creek

Station	Chair	Fishing tackle	Foot print	RV/ATV tracks	Drink bottle	Total	Avg./ Site
BCC1		1	1	1		**3**	
10309						**0**	
10310		1		1	1	**3**	
BCC2						**0**	
BCC3						**0**	
10308		1		1	1	**3**	
BCC4	1	1	1		1	**4**	
Total	**1**	**4**	**2**	**3**	**3**	**13**	**1.9**

Very few surrounding conditions to promote recreational use were found on all the streams combined (Table 6). There are no parks, playgrounds, boat ramps, docks, or residential areas at any of the stations. All of the sites in Tankersley and Hart Creeks were at public road crossings, but only three of the seven Big Cypress Creek sites were accessible from public roads. Station BCC4 was the only site that had a parking area, albeit limited to along the roadside and unimproved. Stations BCC4, 10310, and 15512 were the only sites with the entire reach located on public land. Landowner permission was obtained to access all other stations. The majority of these sites were fenced with barbed wire up to, and in some cases, fenced across the stream.

Table 6: Characteristics that promote recreation

Station	Public Property	Urban/ suburban location	Rural area	Road Bridge	Roads paved or unpaved	Power line or utility corridor	Total	Avg./ Site
Tankersley Creek (Segment 0404B)								
15512	1		1	1	1		**4**	
15513		1		1	1		**3**	
10264			1	1	1	1	**4**	
10263			1	1	1	1	**4**	
10261			1	1	1		**3**	
Total	**1**	**1**	**4**	**5**	**5**	**2**	**18**	**3.0**
Hart Creek (Segment 0404C)								
Hart01		1		1	1		**3**	
10273		1		1	1	1	**4**	
Hart02			1	1	1		**3**	
10272			1	1	1		**3**	
10271			1	1	1		**3**	
10266			1	1	1		**3**	
Total	**0**	**2**	**4**	**6**	**6**	**1**	**19**	**3.2**
Big Cypress Creek (Segment 0404)								
BCC1			1				**1**	
10309			1				**1**	
10310	1		1	1	1	1	**5**	
BCC2			1				**1**	
BCC3			1				**1**	
10308			1	1	1		**3**	
BCC4	1		1	1	1		**4**	
Total	**2**	**0**	**7**	**3**	**3**	**1**	**16**	**2.3**

Surrounding Conditions that Impede Recreation and Channel Obstructions

Since all but three of the stations in the study area (84%) were located on private property, there were physical barriers that impeded access to the streams. Barriers included barbed wire fences and "no trespassing" signs at about a third of the sites (Table 7). Only one site (BCC4) had what could be described as an unimproved parking area along the side of the road. Other physical barriers to recreational use of the stream included steep slopes (50%), thick riparian vegetation (89%), and deep mud/silt sediment (79%). The murky and mostly stagnant water was not aesthetically pleasing which also discourages recreational uses. In addition, the presence of wildlife, especially snakes, along with mosquitoes, briars, and poison ivy serve as deterrents to the use of the stream.

Figure 16: Security controlled gate near station BCC1

Figure 17: Security controlled gate near stations BCC2 and BCC3

There were no roads or any type of public access to over half of the Big Cypress Creek stations. TCFWSD cleared RTV paths so that field staff could readily access sites BCC1, BCC2, and BCC3. WMS staff were escorted by the landowner to these sites and to station 10309. Tires and other large debris were commonly observed in the stream channel at several stations; however, they tended to be most concentrated at sites on Hart Creek. The reason for this may be that all of the sites on Tankersley Creek were located on more heavily traveled farm-to-market highways and the four sites on Hart Creek where the refuse was most prevalent were on less traveled county roads, reducing the likelihood of being observed while illegally dumping into the stream.

Personal Interviews

RUAAs were discussed at five public meetings to seek stakeholder input on the recreational uses of the streams and to gain landowner access to monitoring stations. The number of participants in the formal interview process was limited since no one was observed at any of the stations during the field surveys (with the exception of fishermen below the Fort Sherman Dam). Only a couple of public meeting attendees were willing to participate in the formal interview process, so most of the formal interviews were with the landowners where the field surveys were performed. Three interviews were conducted with people familiar with the Hart Creek watershed and three with the Tankersley Creek watershed. Six interviews were held with people knowledgeable of the Big Cypress Creek watershed. This included a local game warden, Titus County Freshwater District staff and the US Army Corps of Engineers.

At each public meeting, the attendees were asked if they had witnessed or heard of anyone wading or swimming in the study streams. No attendees had witnessed any primary contact recreation activities occurring in the watershed. One person interviewed stated that one time, many years ago, he had witnessed people swimming in Big Cypress Creek below the confluence with Tankersley Creek, but had not seen anyone swimming in any stream in the area since.

Many people stated that they were aware of people fishing and/or hunting in/around area streams, especially near Big Cypress Creek. The most common reason given for not swimming and fishing in these streams was that there are several good fishing lakes nearby. Others stated that they prefer going to swimming pools, and that the study streams are shallow, turbid and have snakes.

Table 7: Conditions that impede recreational use

Station	No public access	"No trespass" sign	Private Property	Electric Fence	Barbed wire	Fence	No road	No public parking	No water	Construction	Stagnant or foul odor	Steep slope	Thick veg.	Wildlife	Mosquitoes	Deep mud	Trash	Total	Avg./Site
Tankersley Creek (Segment 0404B)																			
15512								1			1		1	1	1	1		**6**	
15513		1	1		1	1		1			1	1	1	1	1	1	1	**12**	
10264			1	1	1	1		1			1	1	1	1		1		**10**	
10263			1			1		1			1	1	1	1		1		**8**	
10261			1		1	1		1		1			1	1		1	1	**9**	
Total	**0**	**1**	**4**	**1**	**3**	**4**	**0**	**5**	**0**	**1**	**4**	**3**	**5**	**5**	**2**	**5**	**2**	**45**	**7.5**
Hart Creek (Segment 0404C)																			
Hart01			1		1	1		1			1	1	1		1	1	1	**10**	
10273			1		1	1		1			1		1			1		**7**	
Hart02			1		1	1		1				1	1	1	1		1	**9**	
10272			1			1		1								1		**4**	
10271			1		1	1		1			1	1	1	1	1		1	**10**	
10266			1	1	1	1		1				1	1	1	1	1	1	**11**	
Total	**0**	**0**	**6**	**1**	**5**	**6**	**0**	**6**	**0**	**0**	**3**	**4**	**5**	**3**	**4**	**4**	**4**	**51**	**8.5**
Big Cypress Creek (Segment 0404)																			
BCC1	1	1	1		1	1	1	1					1	1	1	1		**11**	
10309	1	1	1		1	1	1	1			1		1	1	1	1		**12**	
10310								1			1	1	1	1	1	1	1	**8**	
BCC2	1	1	1		1	1	1	1			1		1	1	1	1		**12**	
BCC3	1	1	1		1	1	1	1			1		1	1	1	1		**12**	
10308			1		1	1		1			1	1	1	1	1	1		**10**	
BCC4													1	1	1			**3**	
Total	**4**	**4**	**5**	**0**	**5**	**5**	**4**	**6**	**0**	**0**	**5**	**2**	**7**	**7**	**7**	**6**	**1**	**68**	**9.7**

Channel Obstructions

Figure 18: Garbage in the channel in Hart Creek at station 10271.

The most common channel obstruction observed was brush/log jams and thick vegetation which was observed at 78% of the sites (Table 8). As mentioned previously, tires and other large debris were observed in the channels of all three streams but were most concentrated in Hart Creek (Figure 18). Other channel obstructions included garbage (44%), and cement columns and culverts at a third of the stations.

Beaver dams were observed at two stations in Tankersley Creek and at one site in Big Cypress Creek (Figure 19). Culverts and low bridges were most common in Tankersley and Hart Creeks. Another common channel obstruction was cement bridge columns which were found at a third of the sites. Half of the stations on Hart Creek had barbed wire fences that extended across the channel. Fencing at Tankersley and Big Cypress Creek stations stopped at the bank edges of the stream.

Figure 19: Beaver dam in Big Cypress Creek at station 10309

Table 8: Channel obstructions observed during field surveys

Station	Barbed wire	Fence	Log jam or tree	Dam	Water Construction	Culvert	Low bridge	Cement column	Garbage	Rip rap	Thick veg.	Utility Pipe	Total	Avg./Site
Tankersley Creek (Segment 0404B)														
15512						1	1				1		**3**	
15513			1					1			1		**3**	
10264			1	1						1	1		**4**	
10263			1	1				1	1	1	1	1	**7**	
10261			1			1		1	1		1		**5**	
Total	**0**	**0**	**4**	**2**	**0**	**2**	**1**	**3**	**2**	**2**	**5**	**1**	**22**	**4.4**
Hart Creek (Segment 0404C)														
Hart01			1			1			1		1		**4**	
10273	1	1	1			1						1	**5**	
Hart02	1	1	1			1			1		1		**6**	
10272			1					1					**2**	
10271			1			1	1		1		1		**5**	
10266	1	1	1		1		1		1		1	1	**8**	
Total	**3**	**3**	**6**	**0**	**1**	**4**	**2**	**1**	**4**	**0**	**4**	**2**	**30**	**5.0**
Big Cypress Creek (Segment 0404)														
BCC1				1									**1**	
10309				1							1		**2**	
10310			1					1			1		**3**	
BCC2			1								1		**2**	
BCC3			1								1		**2**	
10308			1					1	1	1	1		**5**	
BCC4									1				**1**	
Total	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**2**	**2**	**1**	**5**	**0**	**16**	**2.3**

SUMMARY

Eighteen RUAA surveys were conducted in three streams in the Big Cypress Creek Basin. The RUAA surveys were completed in order to evaluate whether the existing and/or attainable recreational uses of these streams might be different than the presumed recreational uses. Important data collected in the RUAA included general stream characteristics, observations and evidence of recreational use, surrounding conditions that promote recreation, and surrounding conditions that impede recreation including channel obstructions. Forest was the dominant riparian zone recorded for all the streams combined (58%), followed by shrub dominated corridors (17%), and pastures (16%).

There are five permitted domestic sewage outfalls of less than one million gallons per day total that are located on tributaries to Big Cypress Creek (Segment 0404). There is one permitted wastewater treatment plant outfall greater than or equal to one million gallons per day located on Tankersley Creek (Segment 0404B) and one on Hart Creek (Segment 0404C). There is one permitted wastewater treatment plant outfall greater than one million gallons per day in a tributary of Segment 0404 and discharges into Assessment Unit 01 – the lower portion of Big Cypress Creek.

Field observations indicated that Big Cypress Creek had a significant amount of water at the time of the surveys despite extreme drought conditions. Although most sites had substantial pools of over one meter in depth; the results of the RUAA summary analysis indicated that no primary contact recreation activities occur at any station in the study area. RUAA summary analysis further indicated that no secondary contact recreation activities have occurred at any station in Hart Creek. With the exception of station 15512, no secondary contact recreation has occurred at any other station in Tankersley Creek in a number of years. There were indications of secondary contact recreation in Big Cypress Creek at stations BCC1, 10308, 10310, and BCC4. No non-contact recreation activities were noted at any station in the study area.

No one was observed carrying out primary contact recreation activities at any station during the RUAA surveys. No one was observed at any of the eight stations where bacteria sampling and flow measurements were made from August 2009 through May 2011. The results of interviews and discussions at five public meetings over the course of two years corroborated these findings. The only people observed during the study period were three men fishing from a boat between station BCC1 and the Fort Sherman Dam. Access to this station is limited to TCFWSD staff, and one must pass through a security controlled gate to access the stream.

Figure 20: No trespassing (purple paint on tree) near station 10308

Station BCC4 was the only other station in the study area where a large amount of evidence of human

activity was observed. Fishing tackle, a fire pit, walking trails, and a chair were noted during the field surveys. Some evidence of fishing was noted at Big Cypress Creek stations 10308 and 10310, and at station 15512 in Tankersley Creek. No houses, pavilions, playgrounds, docks, benches, hammocks, children's toys, rope swings or other indicators of human use were observed at any station in these watersheds. With the exception of litter near the bridge crossings, no evidence of human activity was recorded at any site in Hart Creek or at the remaining stations in Tankersley Creek and Big Cypress Creek.

There were two sites in the study area identified during the RUAA field surveys where public access is readily available: station 15512 in Tankersley Creek and station BCC4 in Big Cypress Creek. There were no houses, parks, playgrounds, or schools located adjacent to or near any of the stations in the study area. Access to the other stations was limited to the public right of way at stations with bridge crossings.

Figure 21: Snake at station BCC2

RUAA summary analysis indicated that all of the stations had very limited public access due to the large amount of privately owned land surrounding these streams. All of the streams combined had an average of less than three conditions that promote recreation, while they had an average of 8.5 conditions that impede recreational uses. Conditions that impeded recreational use of the streams include private property including fences (84%), no parking area (95%), and thick riparian vegetation including briars and poison ivy (89%). Other conditions that impede the recreational use of the stream included deep mud/silt (79%) and the presence of wildlife especially snakes (79%) (Figure 21). In addition to limited access to the stations, channel obstructions were also common with an average of four types of obstructions per stream. These channel obstructions include log jams (78%), followed by thick vegetation (78%), along with garbage and other large debris (44%) (Figure 22).

Figure 22: Log jam and vegetation in Big Cypress Creek at station 10310.

Personal interviews with people living in the watersheds corroborated the RUAA findings. All but one person stated that they had never witnessed any primary contact recreation activities occurring in any of the study streams. They further stated that fishing was primarily limited to the stations in Big Cypress Creek where evidence of fishing was observed. The residents said that they prefer fishing in nearby reservoirs and swimming in the swimming areas or in public and private swimming pools due to issues such as depth, turbidity and snakes.

REFERENCES

An Analysis of Texas Waterways, A Report on the Physical Characteristics of Rivers, Streams and Bayous in Texas. 1974. Texas Parks and Wildlife Department. Published by The Texas Agricultural Extension Service.
Jerry Ash, Texas Parks and Wildlife Department game warden, Marshall, TX (Personal Communication). June 10, 2011.

Martin, Emily and Gentry, Terry. *Bacterial Source Tracking Big Cypress Creek Bacteria Assessment Project.* Texas Agrilife Research. July 18, 2011 public meeting; Mount Pleasant, Texas.

McKee, Kyna; Jasjeet Kaur; R. Karthikeyan. *Modeling Support for Big Cypress Creek Watershed – SELECT.* Texas Agrilife Research. July 18, 2011 public meeting; Mount Pleasant, Texas.

Recreational Use-Attainability Analyses (RUAAs); Procedures for a Comprehensive RUAA and a Basic RUAA Survey. May 2009. Texas Commission on Environmental Quality. 26 pp.

Texas Parks and Wildlife Department website:
http://www.tpwd.state.tx.us.publications/pwdpubs/pwd_rp_t3200_1047/index.phtml

The Daily Tribune (Mount Pleasant newspaper) website: *www.dailytribune.net*

The Library Catalog of Texas State Agencies website: *http://tsla.sirsi.net/uhtbin/cgisirsi/x/x/0/49/*

The Texas Historical Commission website: *www.thc.state.tx.us*

APPENDICES

APPENDIX A

RUAA Summary Form

Field Forms

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, Historical Information Review, and other relevant information to answer the following questions on the water body.

Name of water body: Tankersley Creek
Segment No. or Nearest Downstream Segment No.: 0404B
Classified?: No
County: Titus

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 Water Body
   a. What is the average thalweg depth? 0.8 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

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, Historical Information Review, and other relevant information to answer the following questions on the water body.

Name of water body: Hart Creek
Segment No. or Nearest Downstream Segment No.: 0404C
Classified?: No
County: Titus

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 Water Body
   a. What is the average thalweg depth? 0.4 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

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, Historical Information Review, and other relevant information to answer the following questions on the water body.

Name of water body: Big Cypress Creek
Segment No. or Nearest Downstream Segment No.: 0404
Classified?: Yes
County: Titus, Camp, Morris, Upshur

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 Water Body
   a. What is the average thalweg depth? 0.95 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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Lizard Arochia Randy Rushin WMS
Date & Time: ~~8/31~~ 11/11	1830 / County Name: Titus
Stream Name: Tankersley Creek	
Segment No. or nearest downstream Segment No.:	0404B
Description of Site: ~~#~~ 15512 @ FM 1734	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. N/A cfs Backwater of Tankersley Lake Could not measure

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 31 °C Water Temp 32 °C

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

lots of vegetation on stream banks & in stream. Steep drop off from bank. Access from road onto City property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 15512
Date: 8/21/11 Time: 1830

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Thick aquatic vegetation, soft sediments, tall grass & vines near roadway, fences

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 1734

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?
Yes Tankersley Lake park is <3 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 15512
Date: 8/01/11 Time: 1830

b) Check the number of individuals observed at the site.
X 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).
Same as AZ 3B7

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? X Unknown ☐ Never ☐ Daily ☐ Monthly ☐ Yearly

4. If infrequently, what is the reason? X 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).
Uncertain - there was no evidence of fishing or other activity @ site, which is located in the headwater/backwater of Tankersley Lake

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).
Overgrown banks & thick vegetation @ site

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 15512
Date: 6/21/11 FDS Page 3 of 8 1830

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ Wadeable X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name: Turkeysley Creek Site: 1551Z
Date: 5/01/11 Time: 1830

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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)	Depth
1	17	1.9
2	14	1.6
3	16	1.8
4	14	1.7
5	14	1.6
6	15	1.8
7	15	2.0
8	15	2.3
9	26	1.4
10	15	1.4
Avg	16.1	1.75

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 15512
Date: 5/21/11 Time: 1830

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Tankersley Lake dam/spillway

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

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

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

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

Comments: FM 1734 Crossing

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

- [x] Private Property
- [ ] No trespass sign
- [ ] Wildlife
- [ ] Steep slopes
- [ ] No public access
- [ ] No roads
- [x] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: snakes, poison ivy,

Comments: Fences on all sides of stream

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: FM 1734

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 15512
Date: 6/21/11 Time: 1830

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	common	✓abundant
Algae Cover:	✓absent	rare	common	abundant
Odor:	none	✓rare	common	abundant
Color:	clear	green	red	✓brown	black
Bottom Deposit:	sludge	✓solids	✓fine sediments	none	other
Water Surface:	✓clear	scum	foam	debris	oil

Other: thick vegetation on stream channels

8. Vertebrates Observed within 300 meter reach

Snakes	✓None	slight presence	moderate presence	large presence
Water Dependent Birds	None	✓slight presence	moderate presence	large presence
Alligators	✓None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	✓slight presence	moderate presence	large presence
Domesticated Pets	✓None	slight presence	moderate presence	large presence
Livestock	✓None	slight presence	moderate presence	large presence
Feral Hogs	✓None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓Tracks ✓Fecal droppings ✓Bird nests

11. Garbage Observed

Large garbage in the channel	✓None	Rare	Common	Abundant
Small garbage in the channel	✓None	Rare	Common	Abundant
Bank Garbage	None	Rare	✓Common	Abundant

Briefly describe the kinds of garbage observed: bottles/cans, plastic bags - general litter found along the highway at the bridge

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushin WMS
Date & Time: 5/31/11 1030	County Name: Titus
Stream Name: Tankersley Creek	
Segment No. or nearest downstream Segment No.:	0404B
Description of Site: #15513 @ US67	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. <0.01 cfs estimated could not measure any velocity

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 31 °C Water Temp 26 °C

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

L	Forest ~~up~~ by US67	LR ✓	Urban	LR	Rip rap
LR	Shrub dominated corridor	LR	Pasture	LR	Concrete
	Herbaceous marsh		Row crops	Other (specify):	
	Mowed/maintained corridor		Denuded/Eroded bank		

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

fenced, steep banks, logs/limbs, poison ivy, mostly on private property with no trespassing sign.

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☑ Silt ☑ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 15513
Date: 5/31/11 Time: 1030

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
fencing, no parking, steep banks, poison ivy, poor clarity, snakes vegetation in stream, log jam, alot of snags

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
US 67 & IH 30

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? Yes, Tankersley Lake is about 1.5 miles u/s of site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 15513
Date: 5/31/11 Time: 10 30

b. Check the number of individuals observed at the site.
X 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).
See B2 & A7

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: No evidence of activity in stream

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).
See B2

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).
See B2 fences, busy road, thick vegetation, steep banks

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 15513
Date: 5/31/11 FDS Page 3 of 8 1030

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 meters) Upstream X Downstream X Left Bank X Right Bank X
Photos #s (150 meters) Upstream X Downstream X Left Bank X Right Bank X
Photos #s (300 meters) Upstream X Downstream X Left Bank X Right Bank X

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	240	4.6	>1.5
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	0.6	0.15
60 meters	5.8	0.85
90 meters	6.7	0.91
120 meters	5.2	1.01
150 meters	4.6	>1.82
180 meters	4.3	0.61
210 meters	3.6	0.46
240 meters	3.9	0.34
270 meters	~~2.7~~ 9	0.52
300 meters	5/31 ~~2.7~~ 9	0.79
Average	~~4.7~~ 5.3	0.70

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 15513
Date: 5/31/11 Time: 1030

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5/31 PC ~~4.1~~ 5.3
Width at narrowest point of the stream within 300 meter reach	0.6
Width at the widest point of the stream within 300 meter reach	5/31 PC ~~6.1~~ 9

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☒ Yes ☐ No

COMMENTS:
@ the one pool 50m u/s of bridge

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 15513
Date: 5/31/11 Time: 1030

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: IH30 approx 150-200 m u/s of 67 – lots of rip rap & concrete blocks in channel

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

- [ ] Culverts
- [x] Fences
- [x] Log jams
- [x] Rip rap
- [ ] Water control structure
- [x] Barbed wire
- [ ] Dams
- [x] 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
- [x] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved)
- [x] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] Power Line Corridor
- [ ] Parks (national/city/county/state)
- [ ] Public Property
- [ ] Other: _____
- [ ] None of the Above

Comments: IH 30 & US 67 bridges

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

- [x] Private Property
- [x] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [ ] No public access
- [ ] No roads
- [x] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: Snakes, poison ivy, thick brush

Comments: _____

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

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: US 67 & IH 30 crossings

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 15513
Date: 5/31/11 Time: 1030

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: absent rare common X abundant
Algae Cover: X absent rare common abundant
Odor: X none rare common abundant
Color: clear green red X brown black
Bottom Deposit: sludge solids X fine sediments none other
Water Surface: clear X scum foam debris X oil
Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	X slight presence	moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	X Common	Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: mostly around I 30, bottles cans, 2 cooler (styrofoam), bags (plastic)

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushm WMS
Date & Time: 5/31/.. 0900	County Name: Titus
Stream Name:	Tankersley Creek
Segment No. or nearest downstream Segment No.:	0404 B
Description of Site:	#10264 @ FM 899

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.01 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 28 °C Water Temp 25 °C 76.5 F

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

L	Forest		Urban	LR	Rip rap @ bridge
L	Shrub dominated corridor	R	Pasture		Concrete
	Herbaceous marsh		Row crops		Other (specify):
	Mowed/maintained corridor		Denuded/Eroded bank		

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks, heavy vegetation, fencing, poison ivy rip rap by bridge, private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☑ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 10264
Date: 5/31/11 Time: 0900

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
steep banks, steep slope from road to stream, ~~heavy~~ thick vegetation, poor water clarity, fences on u/s side of bridge, lots of trees/stumps, snakes, poison ivy, briars

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 899

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? Yes, Tankersley Lake 2.5 miles u/s, Lake Bob Sandlin 6 miles d/s

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10264
Date: 5/31/11 Time: 0900

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).
Same as B2 & A7

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: No evidence of activity in stream

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).
Same as B2 & A7

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).
No good path from road to stream, no parking area overgrown banks, steep bank slope, thick vegetation, poison ivy, snakes

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 10264
Date: 5/31/11 FDS Page 3 of 8 0900

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	130	6.6	1.07
Pool 2	12.2	6.4	0.92
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance width	Depth (meters)
30 meters 1.2	0.03
60 meters 6.6	1.07
90 meters 4.3	0.52
120 meters 6.4	0.88
150 meters 4.9	0.67
180 meters 5.2	0.61
210 meters 5.8	0.64
240 meters 8.4	0.43
270 meters 5.5	0.58
300 meters 4.9	0.64
Average 5.3	0.61

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 10264
Date: 5/31/11 Time: 0900

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.3
Width at narrowest point of the stream within 300 meter reach	1.7
Width at the widest point of the stream within 300 meter reach	8.4

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Jankersley Creek Site: 10264
Date: 5/31/11 Time: 0900

F. Additional RUAA Information

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
- [X] 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 [X] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: FM 899 crossing

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

- [X] Private Property
- [ ] No trespass sign
- [X] Wildlife
- [X] Steep slopes
- [ ] No public access
- [ ] No roads
- [X] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [X] Other: snakes, poisoning, thick brush

Comments: _____

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

- [X] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: FM 899 crossing

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10264
Date: 5/31/11 Time: 0900

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	X absent	rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	clear	X scum	foam	debris	X oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments: Cattle fenced out of stream

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	X None	Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed:
A few tires in the stream, some litter near bridge, none upstream

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information: Linzard Arocha Randy Rushin WMS	
Date & Time: 5/31/11 13:35	County Name: Titus
Stream Name: Tankersley Creek	
Segment No. or nearest downstream Segment No.: 0404 B	
Description of Site: #10263 @ FM127	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 6.6 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C Water Temp 28 °C 82.2 F

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

R	Forest		Urban		Rip rap
R	Shrub dominated corridor	R	Pasture		Concrete
	Herbaceous marsh		Row crops	Other (specify):	Pilgrims Pride WWTP L bank - u/s
	Mowed/maintained corridor		Denuded/Eroded bank		

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks, no parking area, riprap, private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10263
Date: 5/31/11 Time: 1335

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☒ No primary contact activities that commonly occur were observed
☐ 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).
Steep banks, heavy vegetation poison ivy, WWTP, fences narrow, odor, not very deep, soft sediments

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 127 bridge

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? Yes, Tankersley Lake is 5 miles & Lake Bob Sandlin is 4 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10263
Date: 5/31/11 Time: 1335

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).
Same as B2 & A7

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: odor of WWTP, no evidence of activity in stream

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).
Same as B2 & A7

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).
Stream banks overgrown snakes poison ivy
Steep bank soft sediments

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10263
Date: 5/31/11 1335
FDS Page 3 of 8

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 meters) Upstream Y Downstream Y Left Bank Y Right Bank Y
Photos #s (150 meters) Upstream Y Downstream Y Left Bank Y Right Bank Y
Photos #s (300 meters) Upstream Y Downstream Y Left Bank Y Right Bank Y

a) Substantial pools - Measure the length of each pool (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	10	5.8	1.05
Pool 2	13	6.4	1.3
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	3.66	0.34
60 meters	5.64	0.68
90 meters	7.20	0.50
120 meters	5.80	1.05
150 meters	4.27	0.62
180 meters	5.51	0.72
210 meters	5.46	0.39
240 meters	4.11	0.27
270 meters	6.40	1.30
300 meters	4.27	0.67
Average	5.30	0.65

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: 10263
Date: 5/31/11 Time: 1335

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.30
Width at narrowest point of the stream within 300 meter reach	5/31 RR ~~Q1.34~~ 3.66
Width at the widest point of the stream within 300 meter reach	7.20

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10263
Date: 5/31/11 Time: 1335

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: WWTP outfall, 2 pipelines

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

- [ ] Culverts
- [ ] Barbed wire
- [x] Utility pipe
- [ ] Fences
- [ ] Dams
- [x] Other (specify): beaver dam
- [x] Log jams
- [x] Thick vegetation
- [x] Rip rap
- [ ] Low bridges
- [ ] Water control structure
- None

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

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

Comments: Bridge @ FM 127

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

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

Comments: Snakes, beavers observed, many turtles & animal tracks

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

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

Comments: FM 127 Bridge crossing is about 200m d/s of Pilgrims Pride outfall

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: 10263
Date: 5/31/11 Time: 1335

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	none	rare	X common	abundant
Color:	clear	X green	red	brown	black
Bottom Deposit:	X sludge	solids	X fine sediments	none	other
Water Surface:	clear	scum	X foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	slight presence	X moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	X moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: a couple of tires in stream, most litter near bridge - cans/bottles, plastic bags

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Saw 2 beavers, 1 male cotton mouth, numerous turtles, animal trails on banks & tracks

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	10263.001.WAD
Start Date and Time	2011/05/31 14:36:16

Site Details

Site Name	TANK AT 127
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	2.7%
Velocity	1.4%	3.0%
Width	0.1%	0.1%
Method	2.1%	-
# Stations	2.5%	-
Overall	**3.7%**	**4.1%**

Summary

Averaging Int.	20	# Stations	20
Start Edge	REW	Total Width	10.000
Mean SNR	33.3 dB	Total Area	6.710
Mean Temp	82.32 °F	Mean Depth	0.671
Disch. Equation	Mid-Section	Mean Velocity	0.9833
		Total Discharge	**6.5980**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:36	12.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:36	11.50	0.6	0.500	0.6	0.200	0.7172	1.00	0.7172	0.250	0.1793	2.7
2	14:36	11.00	0.6	0.470	0.6	0.188	0.4656	1.00	0.4656	0.235	0.1094	1.7
3	14:38	10.50	0.6	0.430	0.6	0.172	0.7989	1.00	0.7989	0.215	0.1718	2.6
4	14:38	10.00	0.6	0.430	0.6	0.172	0.9859	1.00	0.9859	0.215	0.2120	3.2
5	*14:39*	*9.50*	*0.6*	*0.610*	*0.6*	*0.244*	*0.8661*	*1.00*	*0.8661*	*0.305*	*0.2641*	*4.0*
6	14:39	9.00	0.6	0.700	0.6	0.280	1.0994	1.00	1.0994	0.350	0.3849	5.8
7	14:40	8.50	0.6	0.900	0.6	0.360	1.2890	1.00	1.2890	0.450	0.5800	8.8
8	14:40	8.00	0.6	0.900	0.6	0.360	1.3835	1.00	1.3835	0.450	0.6225	9.4
9	14:41	7.50	0.6	0.900	0.6	0.360	1.5092	1.00	1.5092	0.450	0.6791	10.3
10	*14:42*	*7.00*	*0.6*	*0.950*	*0.6*	*0.380*	*1.5830*	*1.00*	*1.5830*	*0.475*	*0.7520*	*11.4*
11	14:42	6.50	0.6	1.000	0.6	0.400	1.4432	1.00	1.4432	0.500	0.7216	10.9
12	*14:43*	*6.00*	*0.6*	*0.800*	*0.6*	*0.320*	*1.0282*	*1.00*	*1.0282*	*0.400*	*0.4112*	*6.2*
13	14:43	5.50	0.6	0.900	0.6	0.360	1.2631	1.00	1.2631	0.450	0.5684	8.6
14	*14:44*	*5.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.9856*	*1.00*	*0.9856*	*0.500*	*0.4928*	*7.5*
15	14:45	4.50	0.6	0.800	0.6	0.320	0.6388	1.00	0.6388	0.400	0.2555	3.9
16	14:46	4.00	0.6	0.850	0.6	0.340	0.3606	1.00	0.3606	0.425	0.1533	2.3
17	14:46	3.50	0.6	0.530	0.6	0.212	0.1414	1.00	0.1414	0.265	0.0375	0.6
18	*14:47*	*3.00*	*0.6*	*0.500*	*0.6*	*0.200*	*0.0069*	*1.00*	*0.0069*	*0.375*	*0.0026*	*0.0*
19	14:47	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

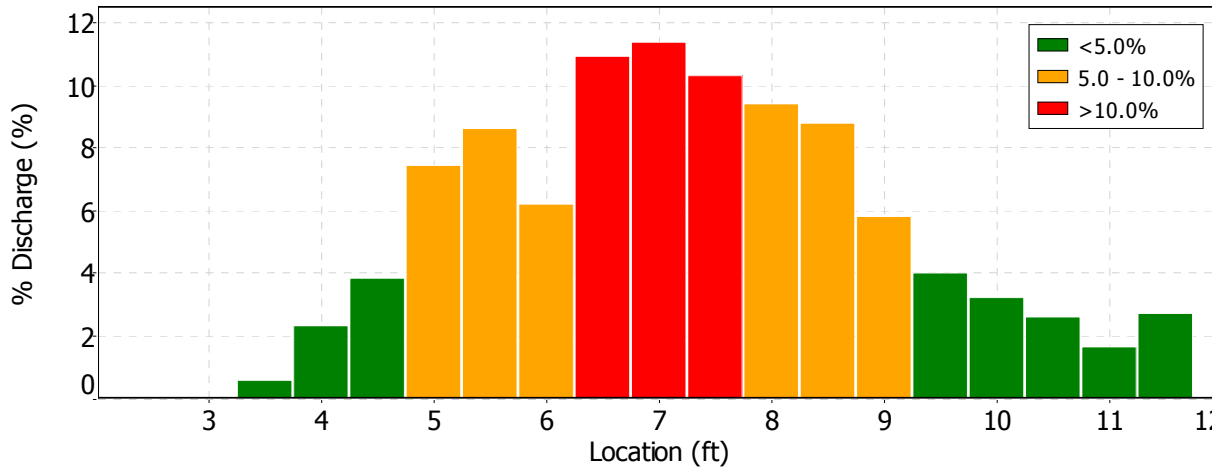
Water Monitoring Solutions

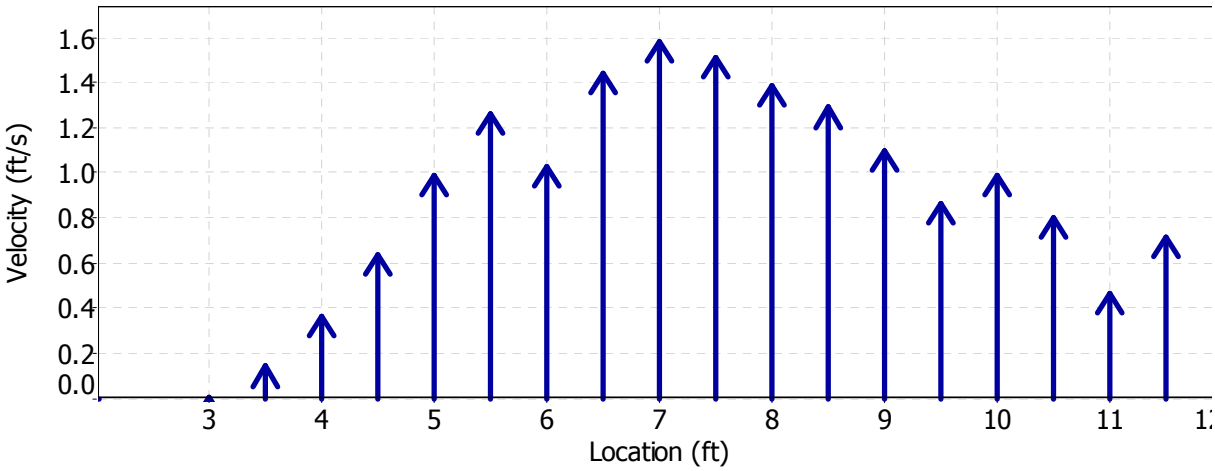
Discharge Measurement Summary

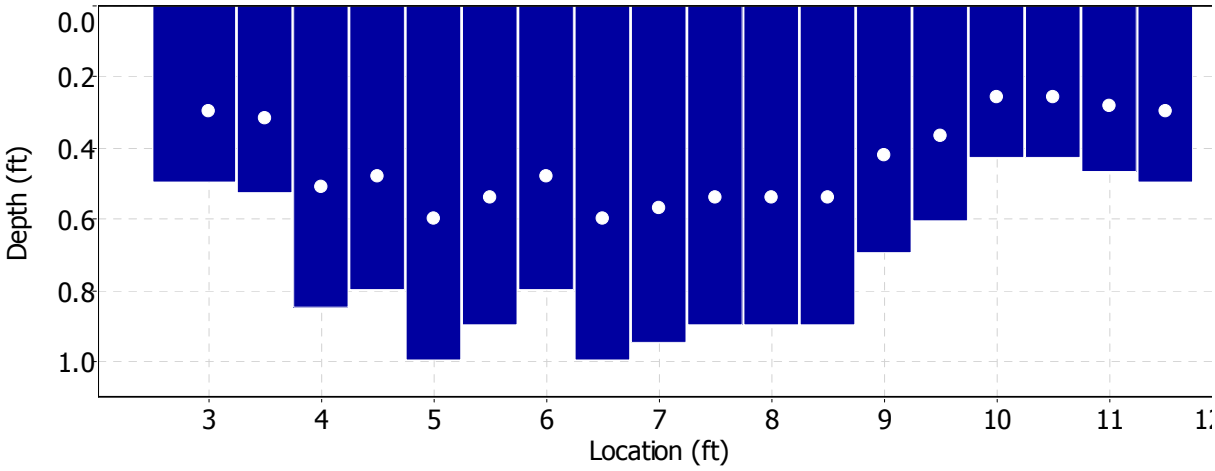
Date Generated: Tue Jun 7 2011

File Information	
File Name	10263.001.WAD
Start Date and Time	2011/05/31 14:36:16

Site Details	
Site Name	TANK AT 127
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information	
File Name	10263.001.WAD
Start Date and Time	2011/05/31 14:36:16

Site Details	
Site Name	TANK AT 127
Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
5	9.50	0.6	High standard error: 0.064
10	7.00	0.6	High standard error: 0.087
12	6.00	0.6	High standard error: 0.060
14	5.00	0.6	High standard error: 0.073
18	3.00	0.6	High number of spikes: 3
		0.6	SNR (19.5) is different from typical SNR (33.3)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushin WMS
Date & Time: 5/30/11 1400	County Name: Titus
Stream Name: Tankersley Creek	
Segment No. or nearest downstream Segment No.: 0404B	
Description of Site: @ FM 3417 #10261	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☐ no flow X 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 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.

X 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 1.6 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 35 °C Water Temp 30 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Bridge construction @ site, no parking area, fences on u/s side of bridge, steep banks, private property u/s of bridge

8. Dominant Primary Substrate

☐ Cobble X Sand X Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: #10261 @ FM 3417
Date: 5/30/11 Time: 1400

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Bridge construction, no parking area, steep slopes, heavy vegetation, too shallow, Lake Bob Sandlin nearby

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 3417 crosses stream

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? Yes, Lake Bob Sandlin is within 2 miles from site.

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Tankersley Creek Site: #10261 c FM 3417
Date: 5/30/11 Time: 1400

b. Check the number of individuals observed at the site.
X 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).
Same as A7 & B2

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 X Never ☐ Daily ☐ Monthly ☐ Yearly

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: No activity observed or evidence ~~it has~~ contact had occured

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).
Same as A7 & B2

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).
Heavy vegetation, no parking area, steep banks shallow water, park @ lake Bob Sandlin nearby

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Tzunkersley Creek Site: #10261 @fm3417
Date: 5/30/11 FDS Page 3 of 8 1400

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. No pools greater than 1m deep; deepest pool = 0.7m

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	20	3.4	0.7
Pool 2	16	3.7	0.5
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Width	Depth (meters)
30 meters	2.1	0.14
60 meters	3.0	0.11
90 meters	2.6	0.30
120 meters	~~3.6~~ 3.5	0.27
150 meters	4.0	0.46
180 meters	3.3	0.70
210 meters	4.3	0.43
240 meters	3.7	0.50
270 meters	3.4	0.42
300 meters	1.5	0.18
Average	3.1	0.35

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: # 10261 @ FM 3417
Date: 5/30/11 Time: 1400

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	3.1
Width at narrowest point of the stream within 300 meter reach	1.5
Width at the widest point of the stream within 300 meter reach	5/30/11 PR ~~0.7~~ 4.7

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No

COMMENTS: too shallow & narrow

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: #10261 @ FM 3417
Date: 5/30/11 Time: 1400

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Bridge construction @ site

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

- [ ] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [x] Other (specify): Steep banks
- [ ] Log jams
- [x] Thick vegetation
- [ ] Rip rap
- [ ] Low bridges
- [ ] Water control structure
- None

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

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

Comments: FM 3417

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

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

Comments: No parking area; thick vegetation

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

- [x] Roads ~~FM 3417~~ FM 3417
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [ ] Other: _____
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [x] NPDES Discharge ~6.8km d/s of ~~City of~~ Pilgrims Pride outfall
- [ ] Gates on corridor
- [ ] Children's toys
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments:

Field Data Sheets – Basic RUAA Survey

Stream Name: Tankersley Creek Site: # 10261 @ FM 3417
Date: 5/30/11 Time: 1400

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	X absent	rare	common	abundant
Algae Cover:	absent	X rare	common	abundant
Odor:	none	X rare	common	abundant
Color:	clear	X green	red	brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	clear	X scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	X slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: some drink bottles, bags mostly near bridge

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	10261.530.WAD
Start Date and Time	2011/05/30 15:00:24

Site Details

Site Name	FM 3417
Operator(s)	RUSHIN

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	2.3%
Velocity	1.4%	2.7%
Width	0.2%	0.2%
Method	2.3%	-
# Stations	3.0%	-
Overall	**4.1%**	**3.7%**

Summary

Averaging Int.	20	# Stations	17
Start Edge	REW	Total Width	6.400
Mean SNR	34.4 dB	Total Area	2.850
Mean Temp	81.51 °F	Mean Depth	0.445
Disch. Equation	Mid-Section	Mean Velocity	0.5549
		Total Discharge	**1.5815**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	15:00	3.40	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*15:00*	*3.90*	*0.6*	*0.300*	*0.6*	*0.120*	*-0.0784*	*1.00*	*-0.0784*	*0.150*	*-0.0118*	*-0.7*
2	*15:01*	*4.40*	*0.6*	*0.450*	*0.6*	*0.180*	*-0.0535*	*1.00*	*-0.0535*	*0.225*	*-0.0120*	*-0.8*
3	*15:01*	*4.90*	*0.6*	*0.500*	*0.6*	*0.200*	*0.1713*	*1.00*	*0.1713*	*0.250*	*0.0428*	*2.7*
4	*15:03*	*5.40*	*0.6*	*0.620*	*0.6*	*0.248*	*0.5902*	*1.00*	*0.5902*	*0.217*	*0.1281*	*8.1*
5	*15:10*	*5.60*	*0.6*	*0.650*	*0.6*	*0.260*	*0.8202*	*1.00*	*0.8202*	*0.162*	*0.1333*	*8.4*
6	15:04	5.90	0.6	0.700	0.6	0.280	1.0607	1.00	1.0607	0.175	0.1857	11.7
7	15:11	6.10	0.6	0.700	0.6	0.280	1.1713	1.00	1.1713	0.175	0.2050	13.0
8	15:04	6.40	0.6	0.700	0.6	0.280	1.1450	1.00	1.1450	0.175	0.2004	12.7
9	*15:12*	*6.60*	*0.6*	*0.650*	*0.6*	*0.260*	*0.9419*	*1.00*	*0.9419*	*0.162*	*0.1530*	*9.7*
10	*15:05*	*6.90*	*0.6*	*0.630*	*0.6*	*0.252*	*0.7260*	*1.00*	*0.7260*	*0.157*	*0.1143*	*7.2*
11	15:13	7.10	0.6	0.570	0.6	0.228	0.6699	1.00	0.6699	0.142	0.0954	6.0
12	15:06	7.40	0.6	0.380	0.6	0.152	0.6447	1.00	0.6447	0.152	0.0980	6.2
13	15:07	7.90	0.6	0.380	0.6	0.152	0.6499	1.00	0.6499	0.190	0.1235	7.8
14	15:08	8.40	0.6	0.500	0.6	0.200	0.3917	1.00	0.3917	0.250	0.0979	6.2
15	15:09	8.90	0.6	0.380	0.6	0.152	0.1047	1.00	0.1047	0.266	0.0278	1.8
16	15:09	9.80	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

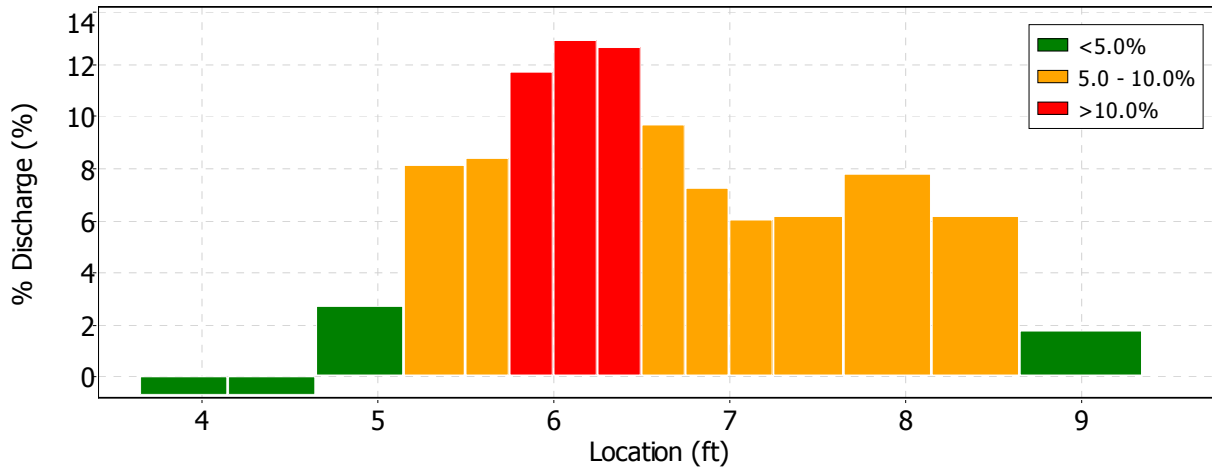
Water Monitoring Solutions

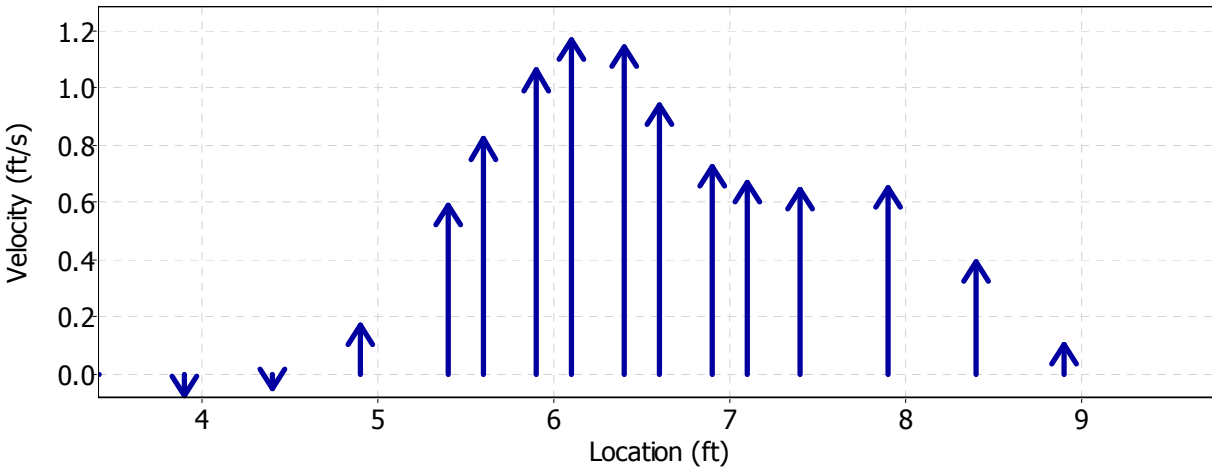
Discharge Measurement Summary

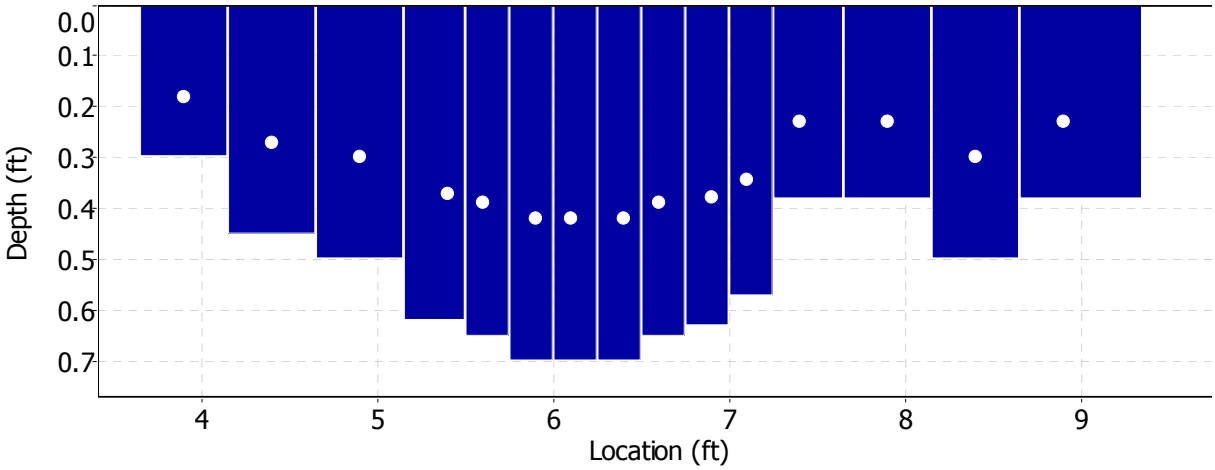
Date Generated: Tue Jun 7 2011

File Information	
File Name	10261.530.WAD
Start Date and Time	2011/05/30 15:00:24

Site Details	
Site Name	FM 3417
Operator(s)	RUSHIN







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information	
File Name	10261.530.WAD
Start Date and Time	2011/05/30 15:00:24

Site Details	
Site Name	FM 3417
Operator(s)	RUSHIN

Quality Control

St	Loc	% Dep	Message
1	3.90	0.6	High angle: 169
		0.6	SNR (48.1) is different from typical SNR (34.4)
2	4.40	0.6	High angle: 126
		0.6	SNR (44.5) is different from typical SNR (34.4)
3	4.90	0.6	High angle: 32
4	5.40	0.6	High standard error: 0.038
5	5.60	0.6	High standard error: 0.048
9	6.60	0.6	High standard error: 0.050
10	6.90	0.6	High standard error: 0.039

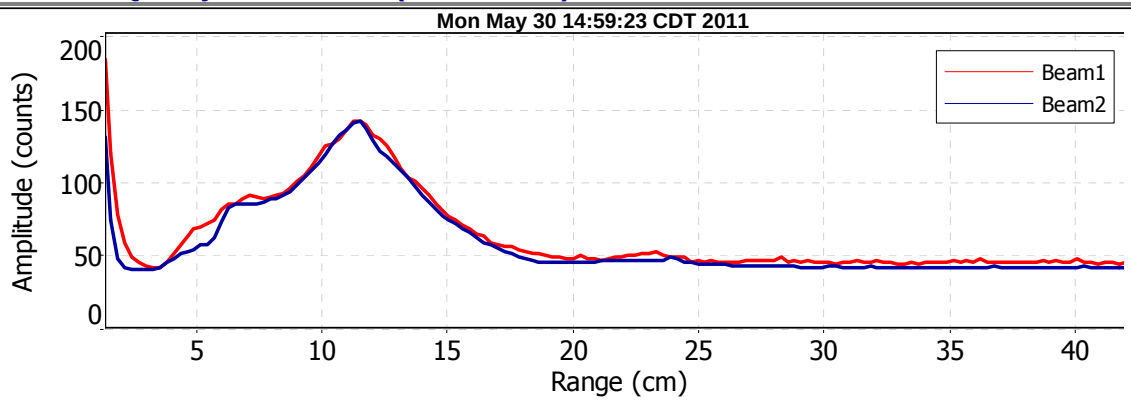
Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information		Site Details	
File Name	10261.530.WAD	Site Name	FM 3417
Start Date and Time	2011/05/30 15:00:24	Operator(s)	RUSHIN

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin L Arocha WMS
Date & Time:	~~5/31~~ 6/1/11 1722 County Name: Titus
Stream Name:	Hart Creek
Segment No. or nearest downstream Segment No.:	0404C
Description of Site:	~~st~~ Hart 01 - @ CR 3210

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. <0.01 cfs very low velocity but could not measure b/c too shallow @ u/s location

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C Water Temp 27 °C 81.3 F

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

fences (barbed wire), thick vegetation w/ briars & vines, poison ivy, no parking area, very steep bank from bridge to stream on private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 1
Date: 6/01/11 Time: 1722

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☑ No primary contact activities that commonly occur were observed

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).
Very steep banks, brush, briars, poison ivy, shallow, narrow channel

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 3210 but no parking areas

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?
Yes, Town Lake is within 2 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 1
Date: 6/8/11 Time: 1722

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).
Same as A7 & B2

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).
Same as B2, too shallow for fishing

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).
Same as A7, difficult to access stream, very shallow

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 1
Date: 5/21/11 FDS Page 3 of 8 1722

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: ✓ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	4.6	0.77
60 meters	5.5	0.69
90 meters	1.4	0.14
120 meters	5.8	0.45
150 meters	2.1	0.15
180 meters	3.4	0.25
210 meters	~~3.8~~ 0.6	0.06
240 meters	1.5	0.02
270 meters	3.8	0.43
300 meters	1.6	0.12
Average	3.0	0.31

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 1
Date: 6/8/11 Time: 1722

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	3.0
Width at narrowest point of the stream within 300 meter reach	0.6
Width at the widest point of the stream within 300 meter reach	5.8

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☑ No

COMMENTS:
stream is dry @ FM 1402 approx. 800 m u/s of site

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hert Creek Site: Hert1
Date: 8/03/11 Time: 1722

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: CR 3210 road crossing

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

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

Comments: thick vegetation

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

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: CR 3210

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 4
Date: 6/8/11 Time: 1722

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	X absent	rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	X solids	X fine sediments	none	other
Water Surface:	clear	scum	foam	debris	✓ oily

Other:
Oily surface film

8. Vertebrates Observed within 300 meter reach

Snakes	X None	slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks ☐ Fecal droppings ☐ Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	X Common	Abundant
Small garbage in the channel	None	Rare	X Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: tires @ bridge along with some other debris, most litter near bridge

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Stream was dry @ FM 1402 approx. 800m u/s of site

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin L Arocha WMS
Date & Time: 6/1/11 1618	County Name: Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: #10273 @ US67	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.0 cfs measured no velocity was measurable

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 34 °C Water Temp 25 °C 77.4 F

5. 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	LR Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

fences, thick vegetation, no paths or parking area, vines, briars, poison ivy, private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10273
Date: 6/8/11 Time: 1618

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☑ No primary contact activities that commonly occur were observed
☐ 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).
Shallow & narrow channel, very silty sediment, difficult to move around, debris, logs & limbs, murky water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
No, fenced w/barbed wire. Only road is US 67 crossing

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?
Yes Town Lake is within 3 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hurt Creek Site: 10273
Date: 6/8/11 Time: 1618

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).
too shallow & narrow, trees, logs, debris

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: No indication of any activity @ site

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).
Same as B7 & A7

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).
overgrown banks, fences, no parking area, on private property,

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10273
Date: 8/31/11 FDS Page 3 of 8 1618

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	140	9	>1.4
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	3	0.15
60 meters	9	>1.4
90 meters	8	1.0
120 meters	5.5	1.2
150 meters	7.0	0.75
180 meters	7.3	0.70
210 meters	6.7	0.91
240 meters	4.9	0.41
270 meters	4.6	0.63
300 meters	1	0.02
Average	5.7	0.72

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10273
Date: 6/8/11 Time: 1618

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.7
Width at narrowest point of the stream within 300 meter reach	1
Width at the widest point of the stream within 300 meter reach	7.3

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☑ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10273
Date: 5/21/11 Time: 1618

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: log jam in stream

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

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

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

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

Comments: US 67 crossing

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

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

Comments: _____

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

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: US 67 crossing

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10273
Date: 8/8/11 Time: 1618

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	✓ common	abundant	
Algae Cover:	✓ absent	rare	common	abundant	
Odor:	none	rare	common	abundant	
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	✓ None	slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	✓ None	slight presence	moderate presence	large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	None	slight presence	moderate presence	✓ large presence
Feral Hogs	✓ None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ✓ Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	✓ Common	Abundant
Small garbage in the channel	None	Rare	✓ Common	Abundant
Bank Garbage	None	✓ Rare	Common	Abundant

Briefly describe the kinds of garbage observed: tires & fencing in stream, some general litter near bridge (bottles/cans/plastic bags)

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	10273.001.WAD
Start Date and Time	2011/06/01 16:52:38

Site Details

Site Name	HART AT 67
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	2.3%	4.3%
Velocity	23.4%	143.7%
Width	0.8%	0.8%
Method	11.7%	-
# Stations	4.2%	-
Overall	**26.7 %**	**143.8 %**

Summary

Averaging Int.	20	# Stations	12
Start Edge	REW	Total Width	10.000
Mean SNR	47.3 dB	Total Area	6.512
Mean Temp	78.40 °F	Mean Depth	0.651
Disch. Equation	Mid-Section	Mean Velocity	-0.0056
		Total Discharge	**-0.0368**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	16:52	0.00	None	0.500	0.0	0.0	0.0000	1.00	0.0059	0.125	0.0007	-2.0
1	16:52	0.50	0.6	0.650	0.6	0.260	0.0059	1.00	0.0059	0.487	0.0029	-7.8
2	*16:53*	*1.50*	*0.6*	*0.650*	*0.6*	*0.260*	*0.0269*	*1.00*	*0.0269*	*0.650*	*0.0175*	*-47.6*
3	16:54	2.50	0.6	0.700	0.6	0.280	-0.0016	1.00	-0.0016	0.700	-0.0011	3.1
4	*16:54*	*3.50*	*0.6*	*0.650*	*0.6*	*0.260*	*-0.0276*	*1.00*	*-0.0276*	*0.650*	*-0.0179*	*48.7*
5	*16:55*	*4.50*	*0.6*	*0.650*	*0.6*	*0.260*	*0.0007*	*1.00*	*0.0007*	*0.650*	*0.0004*	*-1.2*
6	*16:57*	*5.50*	*0.6*	*0.650*	*0.6*	*0.260*	*-0.0384*	*1.00*	*-0.0384*	*0.650*	*-0.0249*	*67.9*
7	16:58	6.50	0.6	0.650	0.6	0.260	-0.0092	1.00	-0.0092	0.650	-0.0060	16.2
8	*16:58*	*7.50*	*0.6*	*0.650*	*0.6*	*0.260*	*-0.0600*	*1.00*	*-0.0600*	*0.650*	*-0.0390*	*106.1*
9	16:59	8.50	0.6	0.650	0.6	0.260	0.0023	1.00	0.0023	0.650	0.0015	-4.1
10	*17:01*	*9.50*	*0.6*	*0.650*	*0.6*	*0.260*	*-0.0449*	*-1.00*	*0.0449*	*0.487*	*0.0219*	*-59.6*
11	17:01	10.00	None	0.650	0.0	0.0	0.0000	1.00	0.0449	0.162	0.0073	-19.9

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

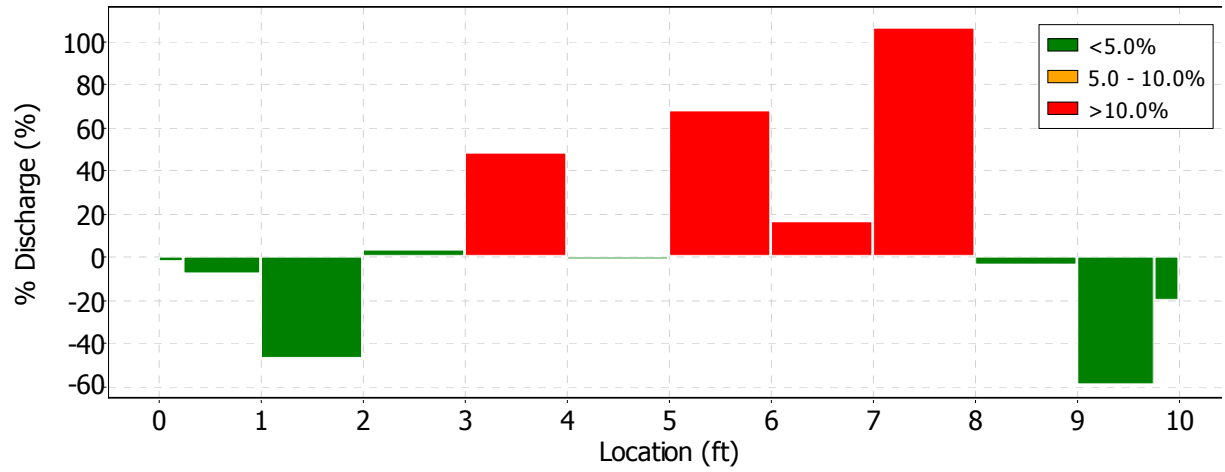
Water Monitoring Solutions

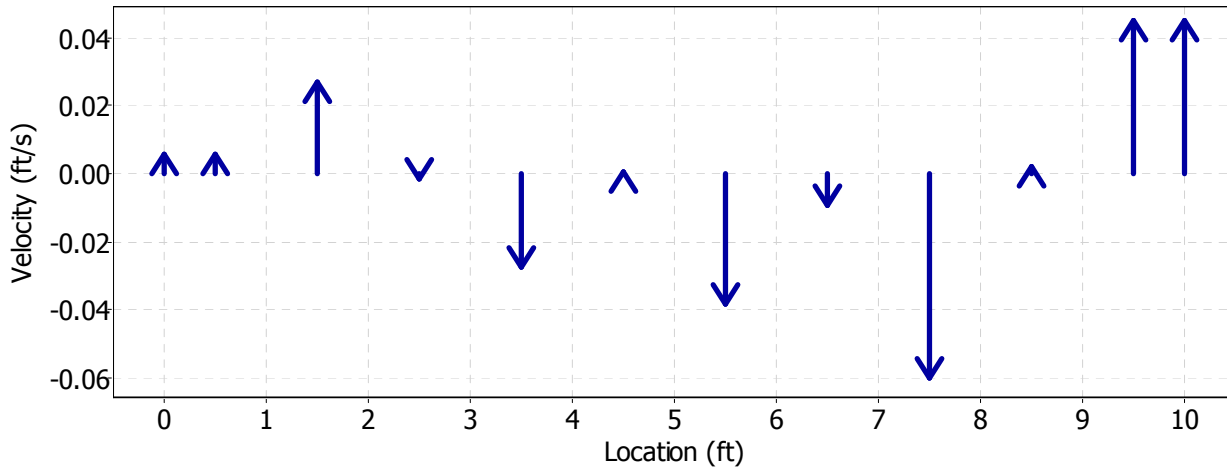
Discharge Measurement Summary

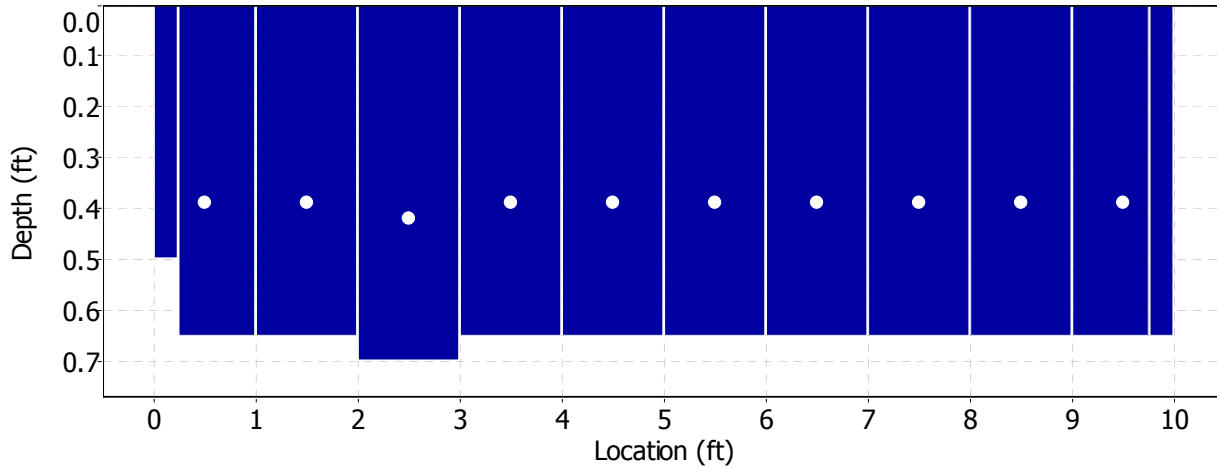
Date Generated: Tue Jun 7 2011

File Information	
File Name	10273.001.WAD
Start Date and Time	2011/06/01 16:52:38

Site Details	
Site Name	HART AT 67
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information	
File Name	10273.001.WAD
Start Date and Time	2011/06/01 16:52:38

Site Details	
Site Name	HART AT 67
Operator(s)	AROCHA

Quality Control

St	Loc	%Dep	Message
2	1.50	0.6	High angle: -27
4	3.50	0.6	High angle: 138
5	4.50	0.6	High SNR variation during measurement: 5.6,4.7
6	5.50	0.6	High angle: -167
		0.6	High SNR variation during measurement: 5.6,3.4
8	7.50	0.6	High angle: 172
10	9.50	0.6	High angle: 154
		0.6	SNR (21.9) is different from typical SNR (47.3)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin LARocha WMS
Date & Time: 5/31/11 1844	County Name: ~~Orange~~ Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: #Hart02 - @ CR 4705	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☐ no flow ☒ flow 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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.13 cfs est using velocity measurement

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C Water Temp 26 °C 78.6 F

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

R Forest	____ Urban	____ Rip rap
LR Shrub dominated corridor	L Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks, fencing on both sides, thick vegetation on U/S side and private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: #Hart 2
Date: 5/31/11 Time: 1844

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Steep banks, narrow & shallow channel, fences, poison ivy, briars & vines, poor clarity, silty sediments

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 4205

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? Yes, Town Lake is 5 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 2
Date: 5/31/11 Time: 1844

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).
See B2 & A7

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: no evidence of activity in stream

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).
See B2

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).
fences, steep bank, no parking area, poison ivy

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 2
Date: 5/31/11 FDS Page 3 of 8 1844

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	26		0.6
Pool 2	17		0.9
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	1.2	0.05
60 meters	4.3	0.32
90 meters	4.6	0.52
120 meters	2.1	0.21
150 meters	4.6	0.19
180 meters	4.6	0.51
210 meters	6.4	0.62
240 meters	2.1	0.15
270 meters	5.8	0.59
300 meters	3.0	0.50
Average	3.9	0.3.66

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: #Hart 2
Date: 5/31/11 Time: 1844

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	3.9
Width at narrowest point of the stream within 300 meter reach	1.2
Width at the widest point of the stream within 300 meter reach	6.4

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 2
Date: 5/31/11 Time: 1849

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: CR 4205 bridge

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

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

Comments: _____

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: CR 4205

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 2
Date: 5/31/11 Time: 1844

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	X absent	rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none other
Water Surface:	X clear	scum	foam	debris oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: some tires by bridge, cans/bottles, a couple of trash bags

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	K Rushin L Aroche WMS
Date & Time: 5/31/11 1732	County Name: Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: # 10272 - @ SH49	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.2 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 33 °C Water Temp 30 °C 85.4 F

5. 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	X Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	X Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Steep banks, thick vegetation, fences, poison ivy private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 5/31/11 Time: 1732

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
narrow & shallow stream channel, silty bottom, fences, poor clarity, sloughing banks, fences, no parking area, busy highway

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
SH49 bridge

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? Yes Town Lake is 2 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 5/3/11 Time: 1732

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).
Same as B2

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: No evidence of activity in stream

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).
Same as A7 & B2

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).
thick vegetation steep banks, fencing, poison ivy

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 5/31/11 FDS Page 3 of 8 1732

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	10	5	1.1
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	5.8	0.22
60 meters	5.0	0.55
90 meters	5.2	0.71
120 meters	4.0	0.78
150 meters	3.5	0.30
180 meters	5.0	1.07
210 meters	4.6	0.29
240 meters	3.7	0.51
270 meters	5.5	0.63
300 meters	6.1	0.44
Average	4.8	0.55

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 5/31/11 Time: 1732

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	4.8
Width at narrowest point of the stream within 300 meter reach	3.5
Width at the widest point of the stream within 300 meter reach	6.1

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10272
Date: 5/31/11 Time: 1732

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Pipe Line, log jams

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

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

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

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

Comments: SH 49 bridge

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

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

Comments: _____

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: SH 49

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10272
Date: 5/31/11 Time: 1732

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	X common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	X green	red	brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	X slight presence	moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: Some tires & bridge, bottles & cans, Plastic bags.

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	10272.001.WAD
Start Date and Time	2011/05/31 18:01:01

Site Details

Site Name	HART AT 49
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	29.6%
Velocity	6.6%	88.6%
Width	0.3%	0.3%
Method	4.8%	-
# Stations	1.8%	-
Overall	**8.4%**	**93.4%**

Summary

Averaging Int.	20	# Stations	29
Start Edge	LEW	Total Width	16.000
Mean SNR	42.8 dB	Total Area	17.488
Mean Temp	85.51 °F	Mean Depth	1.093
Disch. Equation	Mid-Section	Mean Velocity	0.0129
		Total Discharge	**0.2254**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	18:01	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	18:01	0.50	0.6	0.600	0.6	0.240	0.0141	1.00	0.0141	0.450	0.0063	2.8
2	18:01	1.50	0.6	1.000	0.6	0.400	0.0174	1.00	0.0174	0.750	0.0130	5.8
3	*18:20*	*2.00*	*0.6*	*1.200*	*0.6*	*0.480*	*-0.0433*	*1.00*	*-0.0433*	*0.600*	*-0.0260*	*-11.5*
4	*18:02*	*2.50*	*0.6*	*1.270*	*0.6*	*0.508*	*0.0400*	*1.00*	*0.0400*	*0.635*	*0.0254*	*11.3*
5	*18:19*	*3.00*	*0.6*	*0.900*	*0.6*	*0.360*	*-0.0059*	*1.00*	*-0.0059*	*0.450*	*-0.0027*	*-1.2*
6	18:02	3.50	0.6	3.500	0.6	1.400	0.0112	1.00	0.0112	1.750	0.0195	8.7
7	*18:19*	*4.00*	*0.6*	*1.700*	*0.6*	*0.680*	*-0.0561*	*1.00*	*-0.0561*	*0.850*	*-0.0477*	*-21.2*
8	18:04	4.50	0.6	1.700	0.6	0.680	-0.0187	1.00	-0.0187	0.850	-0.0159	-7.1
9	18:18	5.00	0.6	1.850	0.6	0.740	-0.0167	1.00	-0.0167	0.925	-0.0155	-6.9
10	18:04	5.50	0.6	1.800	0.6	0.720	0.0217	1.00	0.0217	0.900	0.0195	8.6
11	*18:17*	*6.00*	*0.6*	*1.750*	*0.6*	*0.700*	*0.0364*	*1.00*	*0.0364*	*0.875*	*0.0319*	*14.1*
12	*18:05*	*6.50*	*0.6*	*1.720*	*0.6*	*0.688*	*0.0735*	*1.00*	*0.0735*	*0.860*	*0.0632*	*28.0*
13	18:16	7.00	0.6	1.650	0.6	0.660	0.0561	1.00	0.0561	0.825	0.0463	20.5
14	*18:06*	*7.50*	*0.6*	*1.520*	*0.6*	*0.608*	*0.0623*	*1.00*	*0.0623*	*0.760*	*0.0474*	*21.0*
15	18:15	8.00	0.6	1.450	0.6	0.580	0.0203	1.00	0.0203	0.725	0.0147	6.5
16	*18:06*	*8.50*	*0.6*	*1.300*	*0.6*	*0.520*	*0.0472*	*1.00*	*0.0472*	*0.650*	*0.0307*	*13.6*
17	*18:15*	*9.00*	*0.6*	*1.200*	*0.6*	*0.480*	*0.0331*	*1.00*	*0.0331*	*0.600*	*0.0199*	*8.8*
18	*18:07*	*9.50*	*0.6*	*1.130*	*0.6*	*0.452*	*0.0223*	*1.00*	*0.0223*	*0.565*	*0.0126*	*5.6*
19	*18:14*	*10.00*	*0.6*	*1.100*	*0.6*	*0.440*	*0.0509*	*1.00*	*0.0509*	*0.550*	*0.0280*	*12.4*
20	*18:08*	*10.50*	*0.6*	*1.090*	*0.6*	*0.436*	*-0.0295*	*1.00*	*-0.0295*	*0.545*	*-0.0161*	*-7.1*
21	*18:13*	*11.00*	*0.6*	*0.800*	*0.6*	*0.320*	*0.0787*	*1.00*	*0.0787*	*0.400*	*0.0315*	*14.0*
22	*18:09*	*11.50*	*0.6*	*0.800*	*0.6*	*0.320*	*-0.0463*	*1.00*	*-0.0463*	*0.400*	*-0.0185*	*-8.2*
23	*18:13*	*12.00*	*0.6*	*0.720*	*0.6*	*0.288*	*0.0430*	*1.00*	*0.0430*	*0.360*	*0.0155*	*6.9*
24	*18:09*	*12.50*	*0.6*	*0.650*	*0.6*	*0.260*	*-0.0725*	*1.00*	*-0.0725*	*0.325*	*-0.0236*	*-10.5*
25	*18:12*	*13.00*	*0.6*	*0.600*	*0.6*	*0.240*	*0.0381*	*1.00*	*0.0381*	*0.300*	*0.0114*	*5.1*
26	*18:10*	*13.50*	*0.6*	*0.450*	*0.6*	*0.180*	*-0.1010*	*1.00*	*-0.1010*	*0.338*	*-0.0341*	*-15.1*
27	*18:11*	*14.50*	*0.6*	*0.200*	*0.6*	*0.080*	*-0.0459*	*1.00*	*-0.0459*	*0.250*	*-0.0115*	*-5.1*
28	18:11	16.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

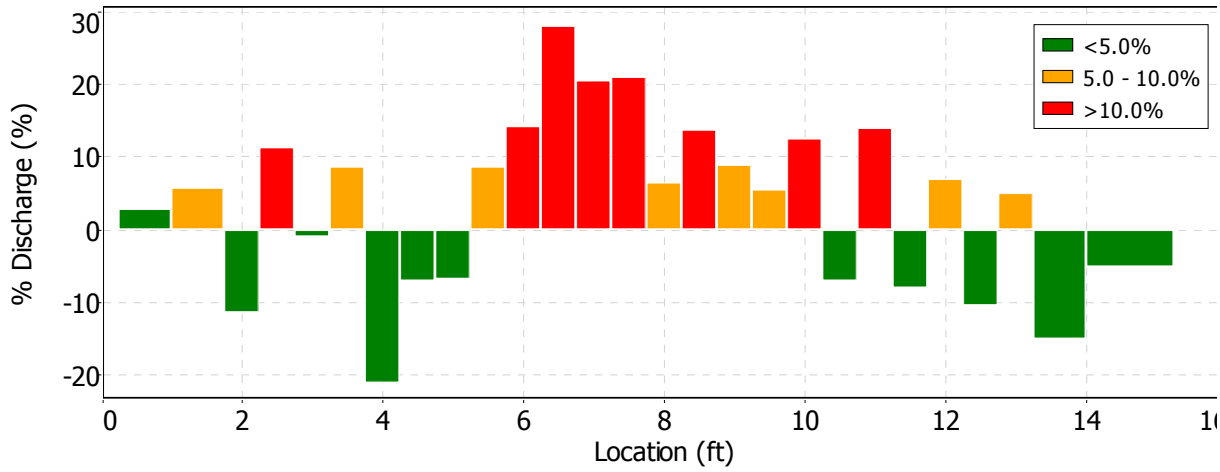
Water Monitoring Solutions

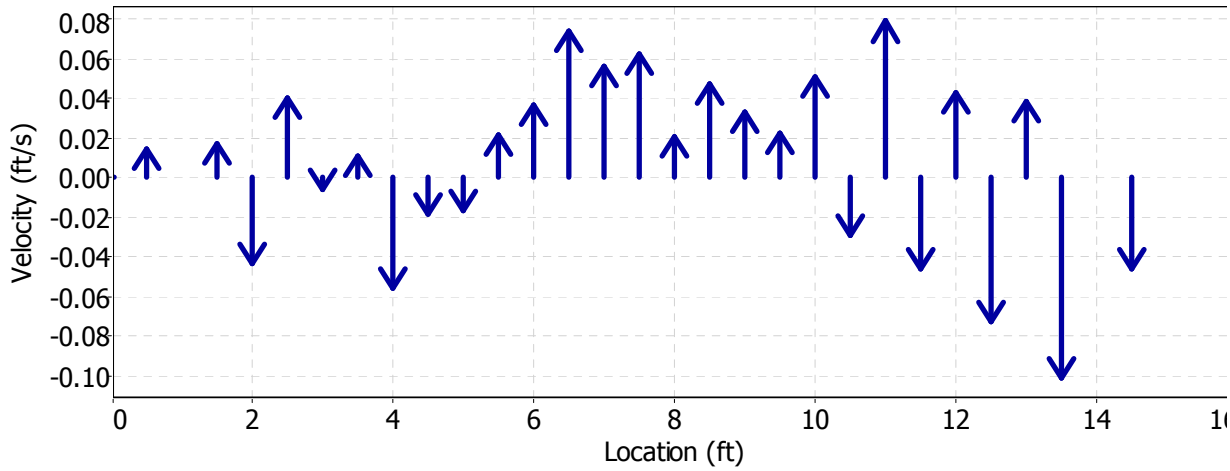
Discharge Measurement Summary

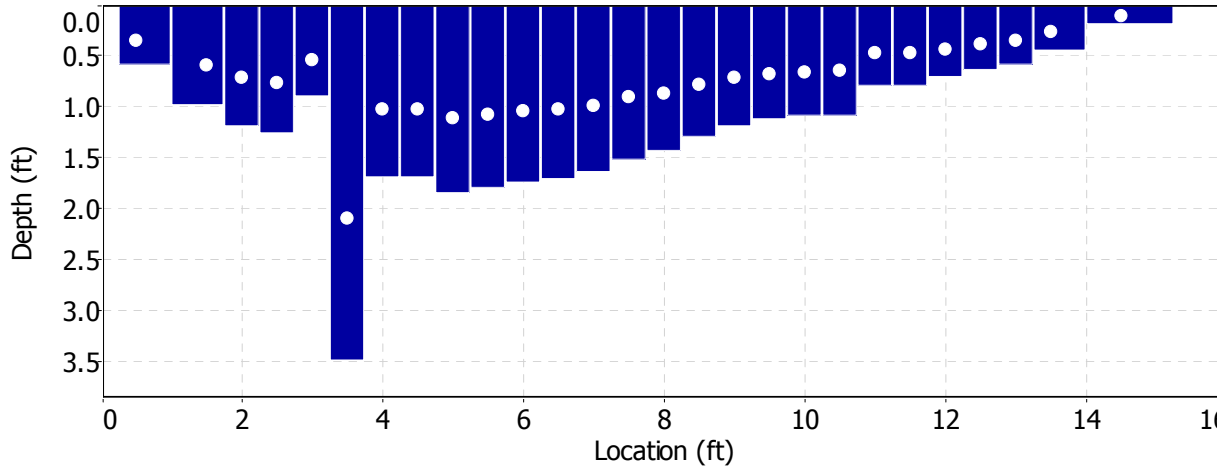
Date Generated: Tue Jun 7 2011

File Information	
File Name	10272.001.WAD
Start Date and Time	2011/05/31 18:01:01

Site Details	
Site Name	HART AT 49
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information	
File Name	10272.001.WAD
Start Date and Time	2011/05/31 18:01:01

Site Details	
Site Name	HART AT 49
Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
3	2.00	0.6	High angle: -155
4	2.50	0.6	High angle: -22
5	3.00	0.6	SNR (53.1) is different from typical SNR (42.8)
7	4.00	0.6	High angle: 160
11	6.00	0.6	High angle: 33
12	6.50	0.6	High angle: -31
		0.6	High SNR variation during measurement: 6.5,6.5
14	7.50	0.6	High SNR variation during measurement: 6.5,6.5
16	8.50	0.6	High angle: -27
		0.6	High SNR variation during measurement: 5.2,4.7
17	9.00	0.6	High SNR variation during measurement: 6.0,5.6
18	9.50	0.6	High angle: -56
19	10.00	0.6	High SNR variation during measurement: 6.0,5.6
20	10.50	0.6	High angle: -135
21	11.00	0.6	High SNR variation during measurement: 8.2,7.7
22	11.50	0.6	High angle: -124
		0.6	SNR (53.5) is different from typical SNR (42.8)
23	12.00	0.6	High angle: 25
		0.6	High SNR variation during measurement: 9.9,9.5
24	12.50	0.6	High angle: -159
		0.6	SNR (54.2) is different from typical SNR (42.8)
		0.6	High standard error: 0.010
25	13.00	0.6	High angle: -42
26	13.50	0.6	High angle: 172
27	14.50	0.6	High angle: 141

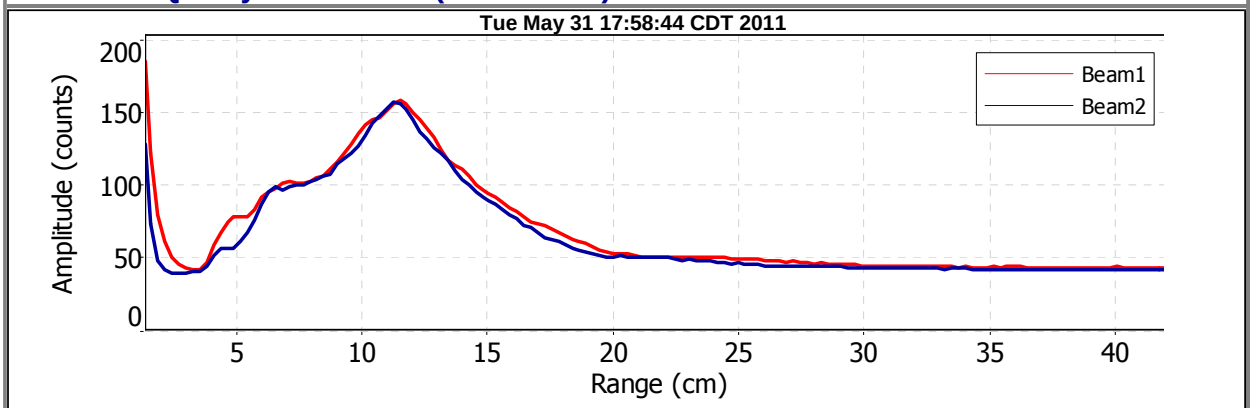
Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information		Site Details	
File Name	10272.001.WAD	Site Name	HART AT 49
Start Date and Time	2011/05/31 18:01:01	Operator(s)	AROCHA

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin L Arocha WMS
Date & Time: 5/31/11 ~~11:30~~ PM	County Name: Titus
Stream Name: Hart Creek	16:48
Segment No. or nearest downstream Segment No.:	0404C
Description of Site: # 10271 @ CR 4410 (SE 28)	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.2 cfs used SH49 measurement as representative. Very low flow

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 33 °C Water Temp 26 °C 78.3 F

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

42 X Forest	___ Urban	___ Rip rap
___ Shrub dominated corridor	L Pasture u/s	___ Concrete
___ Herbaceous marsh	___ Row crops	Other (specify): unimproved pasture
___ Mowed/maintained corridor	___ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

No parking, fenced, thick vegetation, shallow & narrow channel, no trespassing sign, private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Azt Creek Site: 10271
Date: 5/31/11 Time: 1648

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
Narrow & shallow channel, silty substrate, logs, limbs
Steep banks, no parking area, lots of trash in stream,
no trespassing sign, fences

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
~~Sil 49~~ RR 5/31/11 CR 4410

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? Yes, Town Lake is 2.5 miles from site; Lake Bob Sandlin is 7 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10271
Date: 5/31/11 Time: 1648

b. Check the number of individuals observed at the site.
X 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).
Same as B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: No evidence of activity in stream

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).
same as A7 & B2

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).
No parking area, fences, concrete blocks in channel
thick vegetation

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271
Date: 5/31/11 FDS Page 3 of 8 1648

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. No significant pools noted

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	5.2	0.23
60 meters	4.6	0.14
90 meters	3.7	0.25
120 meters	1.7	0.13
150 meters	2.7	0.14
180 meters	4.0	0.24
210 meters	2.9	0.23
240 meters	2.7	0.14
270 meters	2.7	0.12
300 meters	3.1	0.10
Average	3.3	0.17

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271
Date: 5/31/22 Time: 1648

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	3.3
Width at narrowest point of the stream within 300 meter reach	1.7
Width at the widest point of the stream within 300 meter reach	5.2

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10271
Date: 5/31/11 Time: 1648

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: bridge @ CR 4410

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

- [x] Private Property
- [x] No trespass sign
- [ ] Wildlife
- [x] Steep slopes
- [ ] No public access
- [ ] No roads
- [ ] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: No parking area

Comments: _____

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

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10271
Date: 5/31/11 Time: 1648

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	X moderate presence	large presence

Comments: saw 3 nutria & wild hog tracks, raccoon tracks, scat

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	Common	X Abundant
Small garbage in the channel	None	Rare	Common	X Abundant
Bank Garbage	None	Rare	Common	X Abundant

Briefly describe the kinds of garbage observed: tires, compressed air-tank, muffler, microwave, various other metal objects, feed buckets & cans/bottles, plastic sacks

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushin L. Arocha WMS
Date & Time: ~~5/30/11~~ 5/31/11 15:27	County Name: Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: #10266 @ CR 4550 (SE12)	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 3.8 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 33 °C Water Temp 26 °C 78.9 F

5. 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
L R Shrub dominated corridor	L R Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): Unimproved pastures
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

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

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

steep banks, thick vegetation, no parking area, fences private property, poison ivy

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 102666
Date: 5/31/11 Time: 15:27

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
X No primary contact activities that commonly occur were observed

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).
Shallow, narrow stream channel, lots of debris in channel, poison ivy, clarity is poor, log jams, fencing on both sides of road

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 4550

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?
Yes, Lake Bob Sandlin is 6 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10266
Date: 5/31/11 Time: 15:27

b. Check the number of individuals observed at the site.
X 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).
Same as B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: No evidence of activity in stream

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).
Same as B2

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).
Property privately held, no parking area, fencing

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10266
Date: 5/31/11 FDS Page 3 of 8 15:27

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	10	7.8	1.22
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance width	Depth (meters)
30 meters 5.8	0.29
60 meters 5/31 ~~4.0~~ 4.4	0.50
90 meters 5.5	0.50
120 meters 3.7	0.38
150 meters 4.6	0.35
180 meters 7.8	0.65
210 meters 4.7	0.57
240 meters 4.3	0.42
270 meters 6.1	0.56
300 meters 5.6	0.41
Average 5.3	0.~~44~~ 43

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10266
Date: 5/31/11 Time: 15:27

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.3
Width at narrowest point of the stream within 300 meter reach	3.7
Width at the widest point of the stream within 300 meter reach	7.8

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10266
Date: 5/31/11 Time: 15:27

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: WWTP discharge u/s of site

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

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

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

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

Comments: CR 4550 crossing

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

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

Comments: ~~CR~~ CR 5/31

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

- [x] Roads
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [ ] Other: _____
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [x] NPDES Discharge (*)
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: CR 4550

(*) City of MP WWTP u/s of site ~1.8 km

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10266
Date: 5/31/11 Time: 15:27

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	X absent	rare	common	abundant	
Algae Cover:	X absent	rare	common	abundant	
Odor:	X none	rare	common	abundant	
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	X None	slight presence	moderate presence	large presence
Water Dependent Birds	None	X slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	None	X slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments: Livestock u/s of bridge, no snakes observed, many animal tracks

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	X Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: Several tires dumped in stream @ bridge, bottles/cans, small litter @ bank/bridge

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	10266.001.WAD
Start Date and Time	2011/05/31 16:08:11

Site Details

Site Name	HART AT 4550
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	3.0%
Velocity	1.0%	6.5%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.2%	-
Overall	**3.2%**	**7.3%**

Summary

Averaging Int.	20	# Stations	23
Start Edge	REW	Total Width	21.000
Mean SNR	27.5 dB	Total Area	11.693
Mean Temp	79.62 °F	Mean Depth	0.557
Disch. Equation	Mid-Section	Mean Velocity	0.3254
		Total Discharge	**3.8043**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	16:08	25.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*16:08*	*24.50*	*0.6*	*0.230*	*0.6*	*0.092*	*0.1093*	*1.00*	*0.1093*	*0.172*	*0.0188*	*0.5*
2	*16:08*	*23.50*	*0.6*	*0.200*	*0.6*	*0.080*	*0.1972*	*1.00*	*0.1972*	*0.200*	*0.0395*	*1.0*
3	*16:10*	*22.50*	*0.6*	*0.200*	*0.6*	*0.080*	*0.2260*	*1.00*	*0.2260*	*0.200*	*0.0452*	*1.2*
4	*16:10*	*21.50*	*0.6*	*0.350*	*0.6*	*0.140*	*0.1627*	*1.00*	*0.1627*	*0.350*	*0.0570*	*1.5*
5	*16:11*	*20.50*	*0.6*	*0.700*	*0.6*	*0.280*	*0.3494*	*1.00*	*0.3494*	*0.700*	*0.2446*	*6.4*
6	*16:12*	*19.50*	*0.6*	*0.800*	*0.6*	*0.320*	*0.2651*	*1.00*	*0.2651*	*0.800*	*0.2120*	*5.6*
7	*16:12*	*18.50*	*0.6*	*0.650*	*0.6*	*0.260*	*0.3320*	*1.00*	*0.3320*	*0.650*	*0.2158*	*5.7*
8	*16:13*	*17.50*	*0.6*	*0.650*	*0.6*	*0.260*	*0.2333*	*1.00*	*0.2333*	*0.650*	*0.1516*	*4.0*
9	*16:14*	*16.50*	*0.6*	*0.700*	*0.6*	*0.280*	*0.3675*	*1.00*	*0.3675*	*0.700*	*0.2573*	*6.8*
10	*16:14*	*15.50*	*0.6*	*0.670*	*0.6*	*0.268*	*0.2408*	*1.00*	*0.2408*	*0.670*	*0.1613*	*4.2*
11	*16:15*	*14.50*	*0.6*	*0.800*	*0.6*	*0.320*	*0.2933*	*1.00*	*0.2933*	*0.800*	*0.2346*	*6.2*
12	*16:16*	*13.50*	*0.6*	*0.680*	*0.6*	*0.272*	*0.2277*	*1.00*	*0.2277*	*0.680*	*0.1549*	*4.1*
13	*16:16*	*12.50*	*0.6*	*0.700*	*0.6*	*0.280*	*0.3156*	*1.00*	*0.3156*	*0.700*	*0.2210*	*5.8*
14	*16:17*	*11.50*	*0.6*	*0.850*	*0.6*	*0.340*	*0.4006*	*1.00*	*0.4006*	*0.850*	*0.3405*	*9.0*
15	*16:17*	*10.50*	*0.6*	*0.650*	*0.6*	*0.260*	*0.3589*	*1.00*	*0.3589*	*0.650*	*0.2333*	*6.1*
16	*16:18*	*9.50*	*0.6*	*0.700*	*0.6*	*0.280*	*0.2379*	*1.00*	*0.2379*	*0.700*	*0.1665*	*4.4*
17	*16:19*	*8.50*	*0.6*	*0.600*	*0.6*	*0.240*	*0.5102*	*1.00*	*0.5102*	*0.600*	*0.3061*	*8.0*
18	*16:19*	*7.50*	*0.6*	*0.570*	*0.6*	*0.228*	*0.3396*	*1.00*	*0.3396*	*0.570*	*0.1935*	*5.1*
19	*16:20*	*6.50*	*0.6*	*0.500*	*0.6*	*0.200*	*0.3527*	*1.00*	*0.3527*	*0.500*	*0.1763*	*4.6*
20	*16:20*	*5.50*	*0.6*	*0.400*	*0.6*	*0.160*	*0.5381*	*1.00*	*0.5381*	*0.400*	*0.2152*	*5.7*
21	16:21	4.50	0.6	0.200	0.6	0.080	1.0607	1.00	1.0607	0.150	0.1592	4.2
22	16:21	4.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

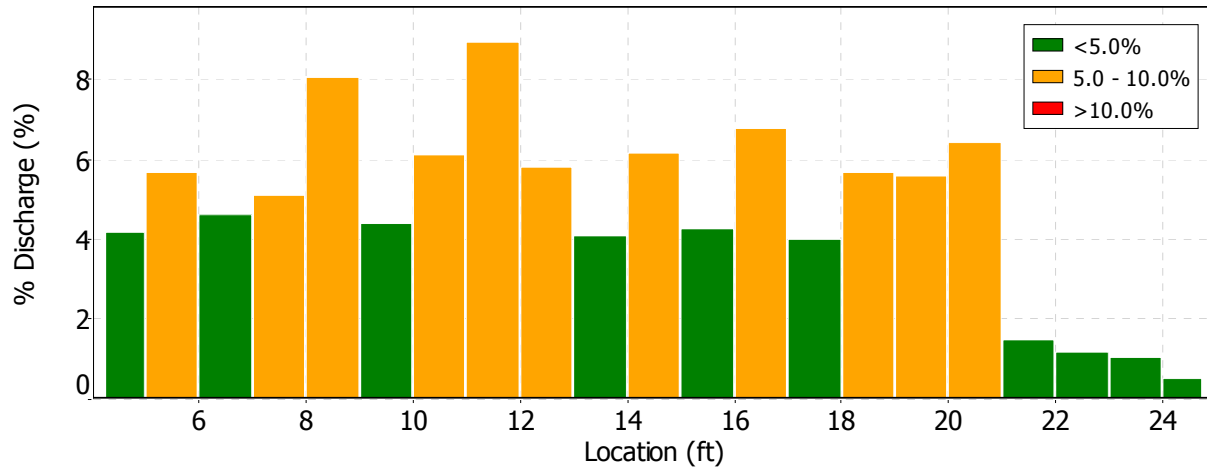
Water Monitoring Solutions

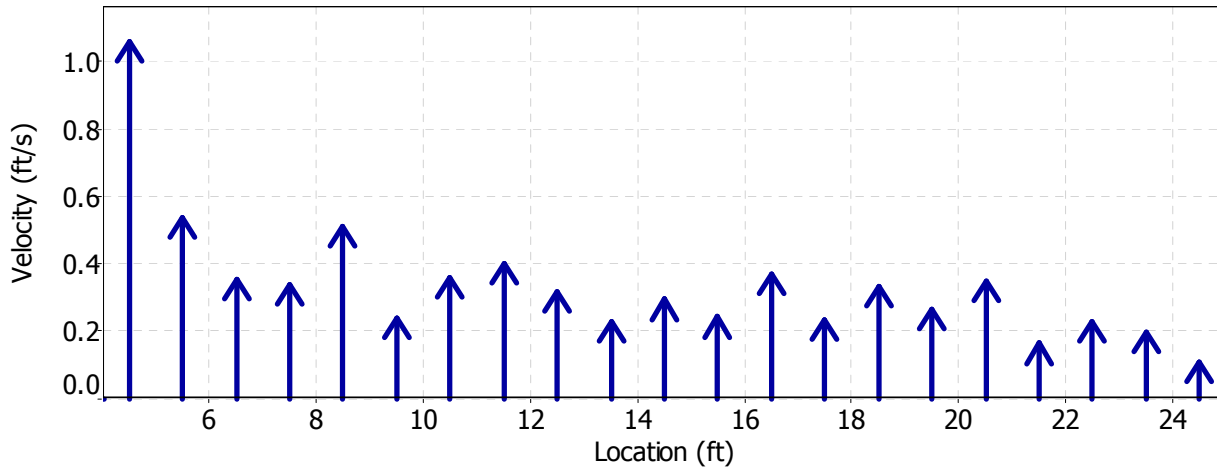
Discharge Measurement Summary

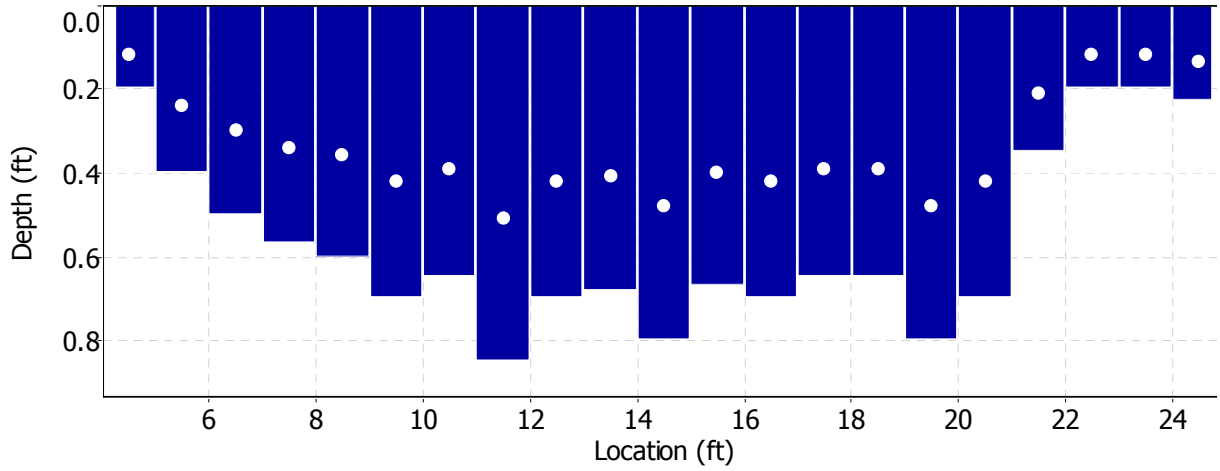
Date Generated: Tue Jun 7 2011

File Information	
File Name	10266.001.WAD
Start Date and Time	2011/05/31 16:08:11

Site Details	
Site Name	HART AT 4550
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information		Site Details	
File Name	10266.001.WAD	Site Name	HART AT 4550
Start Date and Time	2011/05/31 16:08:11	Operator(s)	AROCHA

Quality Control

St	Loc	%Dep	Message
1	24.50	0.6	High angle: 30
2	23.50	0.6	High angle: 26
3	22.50	0.6	High angle: 45
4	21.50	0.6	High angle: 59
5	20.50	0.6	High angle: 24
6	19.50	0.6	High angle: 31
7	18.50	0.6	High angle: 28
8	17.50	0.6	High angle: 41
9	16.50	0.6	High angle: 39
10	15.50	0.6	High angle: 55
11	14.50	0.6	High angle: 50
12	13.50	0.6	High angle: 59
13	12.50	0.6	High angle: 56
14	11.50	0.6	High angle: 51
15	10.50	0.6	High angle: 50
16	9.50	0.6	High angle: 53
17	8.50	0.6	High angle: 38
18	7.50	0.6	High angle: 63
19	6.50	0.6	High angle: 55
20	5.50	0.6	High angle: 34

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

L Thomas WETMWD R Rushin

Data Collectors & Contact Information:	Linzrd Arocha WMS
Date & Time: 6/1/11 0800	County Name: Titus Co. / Camp Co Line
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: #BCC1 @ spillway - Lake Bob Sandlin	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. ~0.3 cfs Too deep to wade, but very little velocity. Should be about the same as #10309 ~0.3 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 23 °C Water Temp 28 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

On private property w/ security controlled gate, Had to be escorted to station, no roads to site

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC #1
Date: 6/1/11 Time: 0800

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
Private property w/ security controlled gate

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
No roads, security gate, escorted by TCFWS Staff

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? Lake Bob Sandlin Park within 1.5 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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 3 persons fishing from a boat
☐ Boating-commercial, recreational
☐ Non-whitewater-kayaking, rafting, canoeing
☒ No secondary contact recreation activities were observed
☐ Other secondary contact activities: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC #1
Date: 6/1/11 Time: 0800

b. Check the number of individuals observed at the site.
X None X 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 X 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).
A7 & B2, only TCFWSD employees allowed to fish below dam

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

4. If infrequently, what is the reason? physical characteristics of the water body X limited public access other
If other, list reasons: A7 & B2

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).
Access to public is not allowed, only accessible to TCFWSD employees

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).
No roads, had to be escorted by TCFWSD staff

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC #1
Date: 6/1/11 FDS Page 3 of 8 0800

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC #1
Date: 6/1/11 Time: 0800

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☒ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	42
2	38
3	38
4	39
5	41
6	39
7	48
8	56
9	55
10	52
Avg	44.8

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC #1
Date: 6/1/11 Time: 0800

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Ft. Sherman Dam

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

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

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

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

Comments: Security controlled gate, private property

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

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

Comments: TCFWSD staff cut paths (ATV) for our convenience to for this study

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC #1
Date: 6/1/11 Time: 0800

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	common	abundant	
Algae Cover:	absent	rare	common	abundant	
Odor:	none	rare	common	abundant	
Color:	clear	green	red	brown	black
Bottom Deposit:	sludge	solids	fine sediments	none	other
Water Surface:	clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	slight presence	moderate presence	large presence
Water Dependent Birds	None	slight presence	moderate presence	large presence
Alligators	None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	large presence
Domesticated Pets	None	slight presence	moderate presence	large presence
Livestock	None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
Tracks Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	Common	Abundant
Small garbage in the channel	None	Rare	Common	Abundant
Bank Garbage	None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Access to property required board approval (TCFWSD)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	L Thomas NETMWD; P Rushin L Arocha WMS
Date & Time: 6/1/11 1413	County Name: Titus / Camp Co.
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: #10309 - approx 100 m upstream of Tankersley confluence	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.3 cfs Measured u/s of Tankersley confluence

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C Water Temp 27 °C 80.1F

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Private property - escorted by adjacent property owner
No roads to site, required 4WD truck to access site

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 6/1/11 Time: 1413

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
on private property, fenced, no roads, shallow, snags, snakes, poison ivy, thick vegetation, log jams, beaver dam

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
No, on private property, no roads, required 4WD to access site

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? Yes, Lake Bob Sandlin is within 2 miles of site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 6/1/14 Time: ~~1431~~ 1413
6/11 PR

b. Check the number of individuals observed at the site.
X 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).
Same as A7 & B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: landowner stated that they fish here when stream is higher but only rarely & maybe twice per year

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).
Depth, trees, snags & other debris in water, snakes, poison ivy,

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).
Same as A7 & B2

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: 10309
Date: 6/1/10 FDS Page 3 of 8 1413

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	49	10	>1.4
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance width	Depth (meters)
30 meters 4.3	0.31
60 meters 6.1	0.60
90 meters 5.4	0.37
120 meters 5.5	0.78
150 meters 5.7	0.22
180 meters 9	>1.4
210 meters 10	0.93
240 meters 8	>1.4
270 meters 9	>1.4
300 meters 10	>1.4
Average 7.3	~~8.6~~ 0.86

RR 6/11/10

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: 60309
Date: 6/1/11 Time: 1413

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	7.3
Width at narrowest point of the stream within 300 meter reach	4.3
Width at the widest point of the stream within 300 meter reach	10

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 6/1/11 Time: 14 13

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Ft Sherman Dam, beaver dam

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

- [ ] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [x] Other (specify): beaver dam
- [x] Log jams
- [x] Thick vegetation
- [ ] Rip rap
- [ ] Low bridges
- [ ] Water control structure
- None

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

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

Comments: on private property

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

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

Comments: Tracks from landowner's ATV & tractor

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 6/1/18 Time: 1413

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	X solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	X None	Rare	Common	Abundant
Bank Garbage	X None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	10309.001.WAD
Start Date and Time	2011/06/01 14:58:46

Site Details

Site Name	BCC AT TANK
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	2.0%
Velocity	4.2%	14.6%
Width	0.1%	0.1%
Method	2.1%	-
# Stations	1.9%	-
Overall	**5.2%**	**14.8%**

Summary

Averaging Int.	20	# Stations	27
Start Edge	LEW	Total Width	13.000
Mean SNR	40.7 dB	Total Area	9.680
Mean Temp	79.49 °F	Mean Depth	0.745
Disch. Equation	Mid-Section	Mean Velocity	0.0273
		Total Discharge	**0.2646**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:58	15.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*14:58*	*14.50*	*0.6*	*0.400*	*0.6*	*0.160*	*-0.0007*	*1.00*	*-0.0007*	*0.200*	*-0.0001*	*0.0*
2	14:59	14.00	0.6	0.400	0.6	0.160	0.0410	1.00	0.0410	0.200	0.0082	3.1
3	*14:59*	*13.50*	*0.6*	*0.630*	*0.6*	*0.252*	*0.0154*	*1.00*	*0.0154*	*0.315*	*0.0049*	*1.8*
4	15:00	13.00	0.6	0.700	0.6	0.280	0.0528	1.00	0.0528	0.350	0.0185	7.0
5	*15:01*	*12.50*	*0.6*	*0.800*	*0.6*	*0.320*	*0.0128*	*1.00*	*0.0128*	*0.400*	*0.0051*	*1.9*
6	*15:01*	*12.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0367*	*1.00*	*0.0367*	*0.500*	*0.0184*	*6.9*
7	*15:02*	*11.50*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0062*	*1.00*	*0.0062*	*0.500*	*0.0031*	*1.2*
8	15:02	11.00	0.6	1.000	0.6	0.400	0.0102	1.00	0.0102	0.500	0.0051	1.9
9	*15:03*	*10.50*	*0.6*	*1.000*	*0.6*	*0.400*	*-0.0276*	*1.00*	*-0.0276*	*0.500*	*-0.0138*	*-5.2*
10	15:03	10.00	0.6	0.950	0.6	0.380	0.0059	1.00	0.0059	0.475	0.0028	1.1
11	*15:04*	*9.50*	*0.6*	*0.950*	*0.6*	*0.380*	*0.0367*	*1.00*	*0.0367*	*0.475*	*0.0175*	*6.6*
12	*15:04*	*9.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0115*	*1.00*	*0.0115*	*0.500*	*0.0057*	*2.2*
13	15:05	8.50	0.6	0.900	0.6	0.360	0.0190	1.00	0.0190	0.450	0.0086	3.2
14	*15:06*	*8.00*	*0.6*	*0.950*	*0.6*	*0.380*	*0.0417*	*1.00*	*0.0417*	*0.475*	*0.0198*	*7.5*
15	15:07	7.50	0.6	1.000	0.6	0.400	0.0144	1.00	0.0144	0.500	0.0072	2.7
16	*15:07*	*7.00*	*0.6*	*0.800*	*0.6*	*0.320*	*0.0180*	*1.00*	*0.0180*	*0.400*	*0.0072*	*2.7*
17	*15:08*	*6.50*	*0.6*	*0.900*	*0.6*	*0.360*	*0.0476*	*1.00*	*0.0476*	*0.450*	*0.0214*	*8.1*
18	*15:08*	*6.00*	*0.6*	*0.800*	*0.6*	*0.320*	*0.0991*	*1.00*	*0.0991*	*0.400*	*0.0396*	*15.0*
19	*15:09*	*5.50*	*0.6*	*0.750*	*0.6*	*0.300*	*0.0636*	*1.00*	*0.0636*	*0.375*	*0.0239*	*9.0*
20	*15:10*	*5.00*	*0.6*	*0.680*	*0.6*	*0.272*	*0.0315*	*1.00*	*0.0315*	*0.340*	*0.0107*	*4.0*
21	15:11	4.50	0.6	0.700	0.6	0.280	0.0525	1.00	0.0525	0.350	0.0184	6.9
22	*15:12*	*4.00*	*0.6*	*0.600*	*0.6*	*0.240*	*0.0558*	*1.00*	*0.0558*	*0.300*	*0.0167*	*6.3*
23	*15:12*	*3.50*	*0.6*	*0.500*	*0.6*	*0.200*	*0.0226*	*1.00*	*0.0226*	*0.250*	*0.0057*	*2.1*
24	15:13	3.00	0.6	0.500	0.6	0.200	0.0151	1.00	0.0151	0.250	0.0038	1.4
25	*15:14*	*2.50*	*0.6*	*0.450*	*0.6*	*0.180*	*0.0279*	*1.00*	*0.0279*	*0.225*	*0.0063*	*2.4*
26	15:14	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

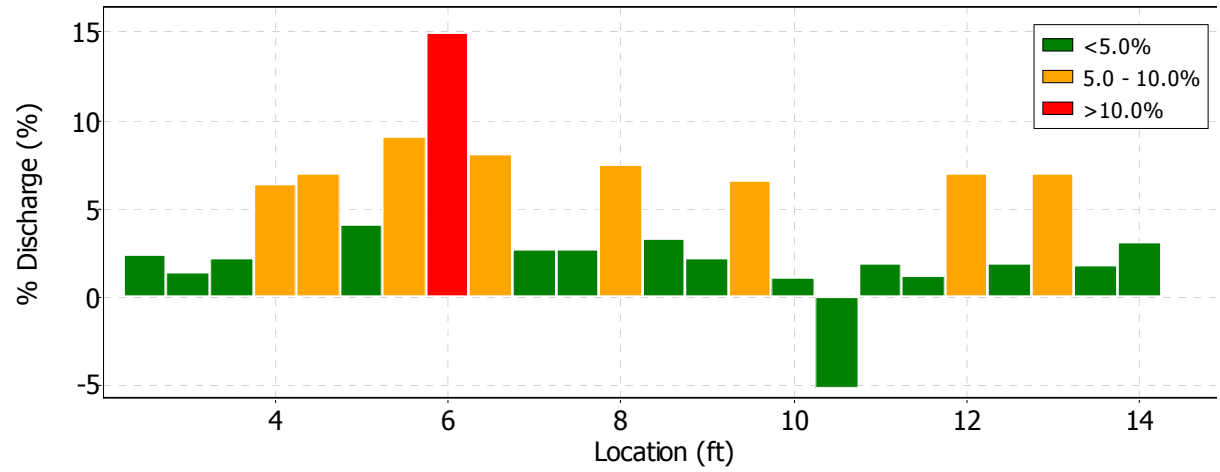
Water Monitoring Solutions

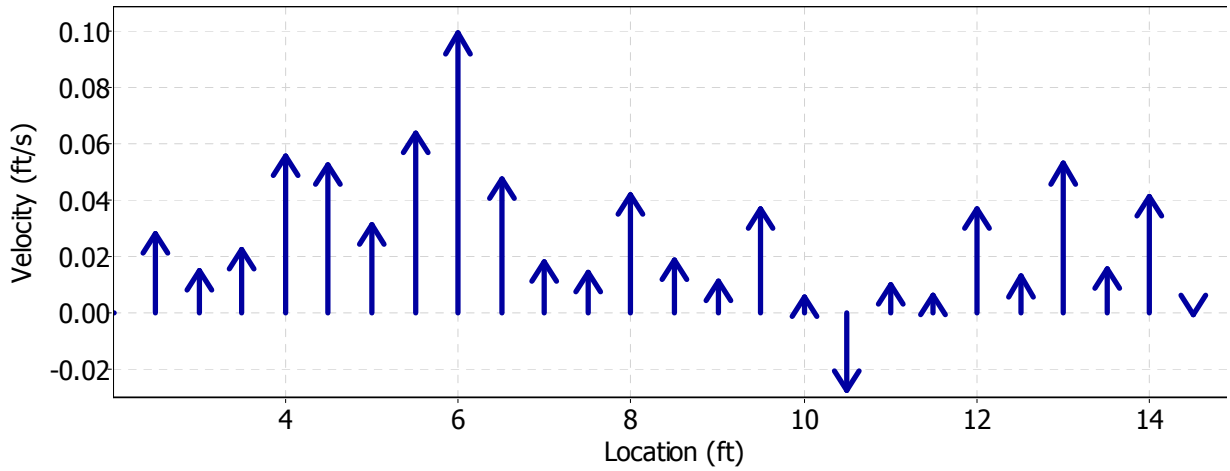
Discharge Measurement Summary

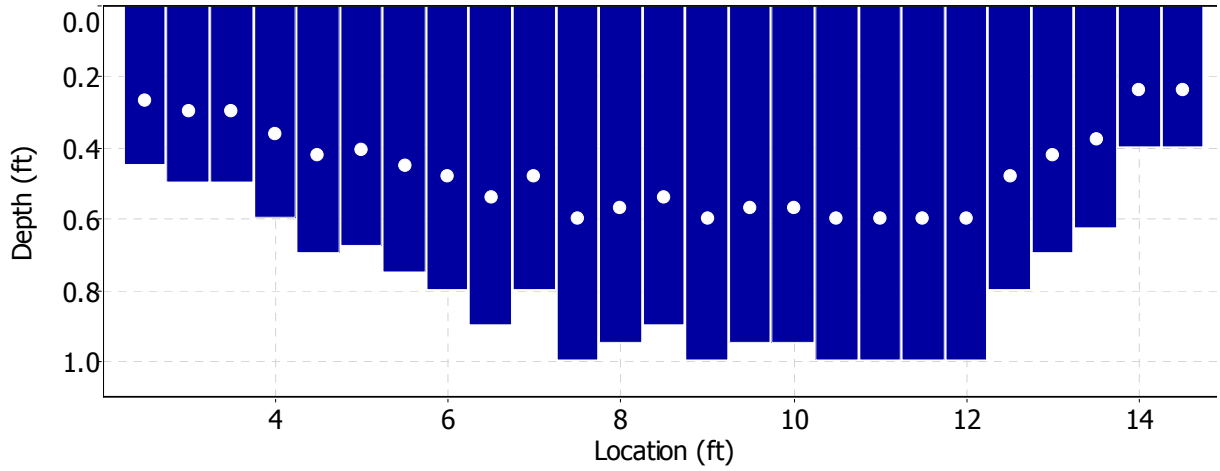
Date Generated: Tue Jun 7 2011

File Information	
File Name	10309.001.WAD
Start Date and Time	2011/06/01 14:58:46

Site Details	
Site Name	BCC AT TANK
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information		Site Details	
File Name	10309.001.WAD	Site Name	BCC AT TANK
Start Date and Time	2011/06/01 14:58:46	Operator(s)	AROCHA

Quality Control

St	Loc	%Dep	Message
1	14.50	0.6	SNR (51.8) is different from typical SNR (40.7)
		0.6	High SNR variation during measurement: 5.6,5.2
3	13.50	0.6	SNR (56.3) is different from typical SNR (40.7)
5	12.50	0.6	High differences in beam SNR: 54.1,42.1
		0.6	High SNR variation during measurement: 5.6,12.5
6	12.00	0.6	High SNR variation during measurement: 4.7,5.2
7	11.50	0.6	SNR (51.4) is different from typical SNR (40.7)
9	10.50	0.6	High angle: 120
		0.6	High SNR variation during measurement: 5.6,5.6
11	9.50	0.6	High angle: 48
12	9.00	0.6	High SNR variation during measurement: 8.6,7.7
14	8.00	0.6	High angle: 49
16	7.00	0.6	High SNR variation during measurement: 4.7,6.0
17	6.50	0.6	High angle: 22
18	6.00	0.6	High SNR variation during measurement: 8.2,8.2
19	5.50	0.6	SNR (29.5) is different from typical SNR (40.7)
20	5.00	0.6	High angle: 37
22	4.00	0.6	High SNR variation during measurement: 5.2,6.0
23	3.50	0.6	SNR (26.8) is different from typical SNR (40.7)
		0.6	High SNR variation during measurement: 2.1,6.0
25	2.50	0.6	High angle: -24
		0.6	SNR (25.4) is different from typical SNR (40.7)

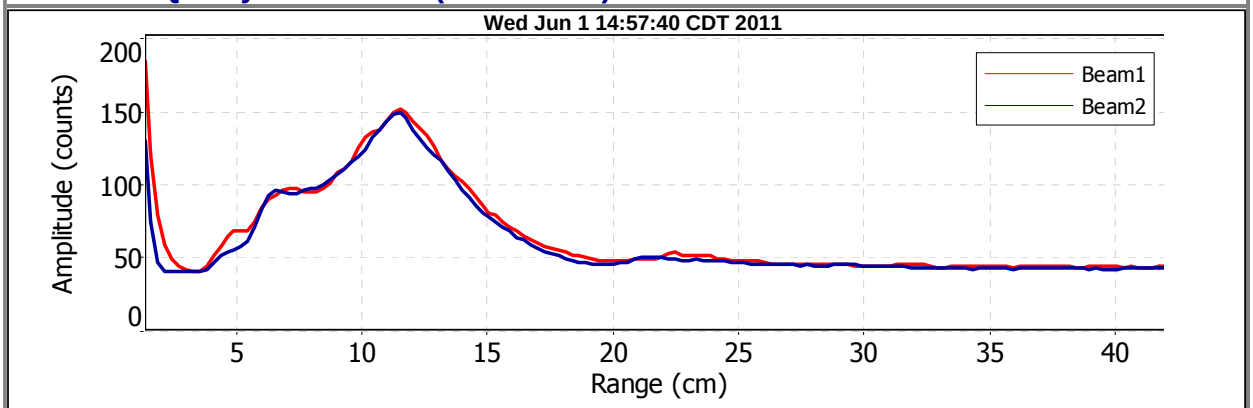
Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information		Site Details	
File Name	10309.001.WAD	Site Name	BCC AT TANK
Start Date and Time	2011/06/01 14:58:46	Operator(s)	AROCHA

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushin WMS
Date & Time: 5/30/11 1200	County Name: Titus / Camp Co
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: #1 0310 @ US 271	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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.

X 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 2.8 cfs USGS gage #07344493

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 26 °C Water Temp 28 °C

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Need 4WD to drive down to stream, steep drive from road down to stream, several bogs along the way.

8. Dominant Primary Substrate

☐ Cobble ☐ Sand X Silt X Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: #10310 @ US 271
Date: 5/30/10 Time: 1200

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
too deep to wade, steep banks, difficult to get to stream from road

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
US 271 crosses creek

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? Yes, Lake Bob Sandlin is ~4 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: #10310 @ US271
Date: 5/30/11 Time: 1200

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).
Same as primary - B2

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: No evidence of activity at site

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).
Same as primary - B2

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).
Same as primary - difficult to get from road to stream, steep banks, heavy vegetation, logs/limbs in stream

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: #10310 @ US 27 1200
Date: 5/30/11

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ Wadeable X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name Big Cypress Creek Site: #10310 @ US271
Date: 5/30/11 Time: 1200

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	15
2	14
3	15
4	8
5	12
6	11
7	14
8	16
9	10
10	13
Avg	13.8

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: #10310 @ US271
Date: 5/30/11 Time: 1200

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: US271

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

- [ ] Private Property
- [ ] No trespass sign
- [ ] Wildlife
- [x] Steep slopes
- [ ] No public access
- [x] No roads to stream from highway (US271)
- [ ] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [ ] Other: _____

Comments: No parking improved area

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: US 271

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: #10310 @ US 271
Date: 5/30/11 Time: 1200

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: X absent ☐ rare ☐ common ☐ abundant
Algae Cover: ☐ absent X rare ☐ common ☐ abundant
Odor: X none ☐ rare ☐ common ☐ abundant
Color: ☐ clear X green ☐ red ☐ brown ☐ black
Bottom Deposit: ☐ sludge ☐ solids X fine sediments ☐ none ☐ other
Water Surface: ☐ clear X scum ☐ foam ☐ debris ☐ oil
Other:

8. Vertebrates Observed within 300 meter reach

Snakes	X None	☐ slight presence	☐ moderate presence	☐ large presence
Water Dependent Birds	None	X slight presence	☐ moderate presence	☐ large presence
Alligators	X None	☐ slight presence	☐ moderate presence	☐ large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	☐ None	☐ slight presence	X moderate presence	☐ large presence
Domesticated Pets	X None	☐ slight presence	☐ moderate presence	☐ large presence
Livestock	X None	☐ slight presence	☐ moderate presence	☐ large presence
Feral Hogs	☐ None	X slight presence	☐ moderate presence	☐ large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks ☐ Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	X None	☐ Rare	☐ Common	☐ Abundant
Small garbage in the channel	X None	☐ Rare	☐ Common	☐ Abundant
Bank Garbage	☐ None	X Rare	☐ Common	☐ Abundant

Briefly describe the kinds of garbage observed: Cans / bottles, grocery sacks

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Site is close to park/boat ramp @ lake Bob Sandlin

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	L Thomas NETMWD Randy Roskin Linard Arocha ~~Big Cypress Creek~~ publ. WMS
Date & Time: 6/1/11 0941	County Name: Titus / Camp Co line
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: BCC2 - @ confluence with Hart Creek	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 2.7 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 30 °C Water Temp 24 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Controlled security gate, ATV path cut for this project by TCFWSD, escorted by staff, no hunting allowed on property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC 2
Date: 6/1/11 Time: 0941

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Depth & width too shallow/narrow, numerous snags, logs/limbs poison ivy, snakes,

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
None, no roads within property to site (see A7).

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? Yes, Lake Bob Sandlin is within 5-6 miles of site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC2
Date: 6/1/11 Time: 0941

b. Check the number of individuals observed at the site.
X 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).
See A7 & B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access X other
If other, list reasons: No one allowed on property except TCFWSD staff

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).
See A7 & B2

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).
No roads, no trails, fenced, security controlled gate
Overgrown / thick forest by site

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC 2
Date: 6/1/11 FDS Page 3 of 8 0941

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: ✓ Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	19	8	>1.4
Pool 2	28	14	>1.4
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	8.0	0.31
60 meters	7.0	0.27
90 meters	6.4	0.56
120 meters	8.5	0.51
150 meters	4.5	0.56
180 meters	8.0	>1.4
210 meters	8.0	0.95
240 meters	23.0	0.98
270 meters	14.0	>1.4
300 meters	10.0	0.60
Average	9.7	0.75

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC2
Date: 6/1/11 Time: 0941

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	9.7
Width at narrowest point of the stream within 300 meter reach	4.5
Width at the widest point of the stream within 300 meter reach	23

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC2
Date: 6/1/11 Time: 0941

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

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

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

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

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

Comments: on private property

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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [x] No Human Presence

Comments: path cut specifically for this study

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC2
Date: 6/1/11 Time: 0941

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	slight presence	X moderate presence	large presence
Water Dependent Birds	None	X slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	X moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	X None	Rare	Common	Abundant
Bank Garbage	X None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
TCFWSD has recently purchased this property & has deemed it a conservation area – no hunting allowed & very limited access to staff. Access required to board approval

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information

File Name	BCC2.001.WAD
Start Date and Time	2011/06/01 10:22:55

Site Details

Site Name	BCC AT HART
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.3%	3.4%
Velocity	2.2%	13.9%
Width	0.2%	0.2%
Method	2.7%	-
# Stations	3.0%	-
Overall	**4.7%**	**14.4%**

Summary

Averaging Int.	20	# Stations	17
Start Edge	REW	Total Width	15.000
Mean SNR	37.5 dB	Total Area	18.065
Mean Temp	75.57 °F	Mean Depth	1.204
Disch. Equation	Mid-Section	Mean Velocity	0.1499
		Total Discharge	**2.7075**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:22	18.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*10:23*	*18.00*	*0.6*	*0.500*	*0.6*	*0.200*	*-0.1414*	*1.00*	*-0.1414*	*0.375*	*-0.0530*	*-2.0*
2	*10:24*	*17.00*	*0.6*	*1.000*	*0.6*	*0.400*	*-0.1617*	*1.00*	*-0.1617*	*1.000*	*-0.1617*	*-6.0*
3	*10:25*	*16.00*	*0.6*	*1.450*	*0.6*	*0.580*	*-0.0223*	*1.00*	*-0.0223*	*1.450*	*-0.0324*	*-1.2*
4	*10:25*	*15.00*	*0.6*	*1.650*	*0.6*	*0.660*	*0.0725*	*1.00*	*0.0725*	*1.650*	*0.1196*	*4.4*
5	10:26	14.00	0.6	1.880	0.6	0.752	0.1096	1.00	0.1096	1.880	0.2060	7.6
6	*10:26*	*13.00*	*0.6*	*2.000*	*0.6*	*0.800*	*0.1706*	*1.00*	*0.1706*	*2.000*	*0.3412*	*12.6*
7	10:27	12.00	0.6	1.680	0.6	0.672	0.2238	1.00	0.2238	1.680	0.3759	13.9
8	*10:28*	*11.00*	*0.6*	*1.680*	*0.6*	*0.672*	*0.2421*	*1.00*	*0.2421*	*1.680*	*0.4068*	*15.0*
9	*10:29*	*10.00*	*0.6*	*1.450*	*0.6*	*0.580*	*0.1693*	*1.00*	*0.1693*	*1.450*	*0.2455*	*9.1*
10	10:29	9.00	0.6	1.200	0.6	0.480	0.1122	1.00	0.1122	1.200	0.1347	5.0
11	*10:31*	*8.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.3996*	*1.00*	*0.3996*	*1.000*	*0.3996*	*14.8*
12	*10:31*	*7.00*	*0.6*	*0.850*	*0.6*	*0.340*	*0.3930*	*1.00*	*0.3930*	*0.850*	*0.3341*	*12.3*
13	*10:32*	*6.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.2287*	*1.00*	*0.2287*	*1.000*	*0.2287*	*8.4*
14	*10:33*	*5.00*	*0.6*	*0.550*	*0.6*	*0.220*	*0.2871*	*1.00*	*0.2871*	*0.550*	*0.1579*	*5.8*
15	*10:34*	*4.00*	*0.6*	*0.400*	*0.6*	*0.160*	*0.0154*	*1.00*	*0.0154*	*0.300*	*0.0046*	*0.2*
16	10:34	3.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

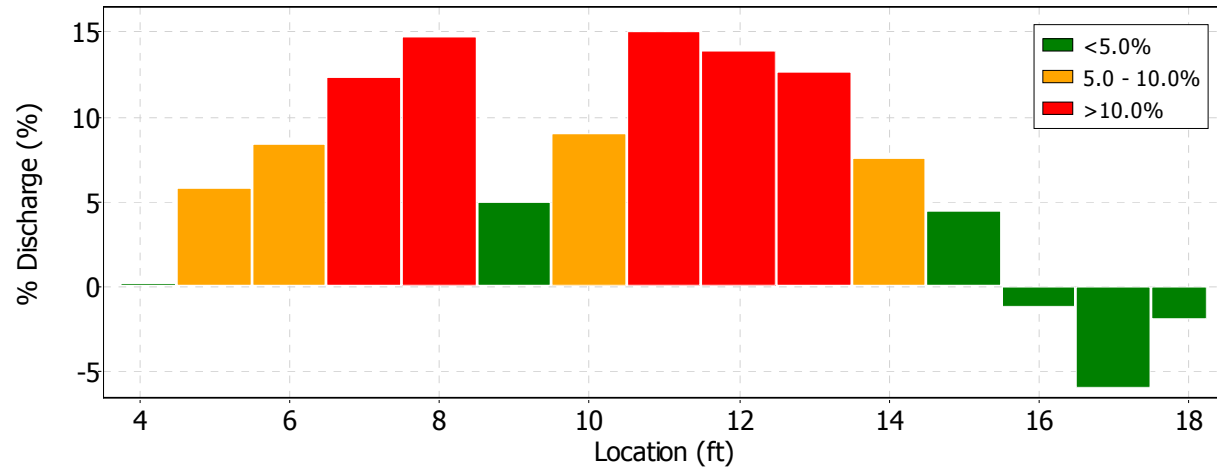
Water Monitoring Solutions

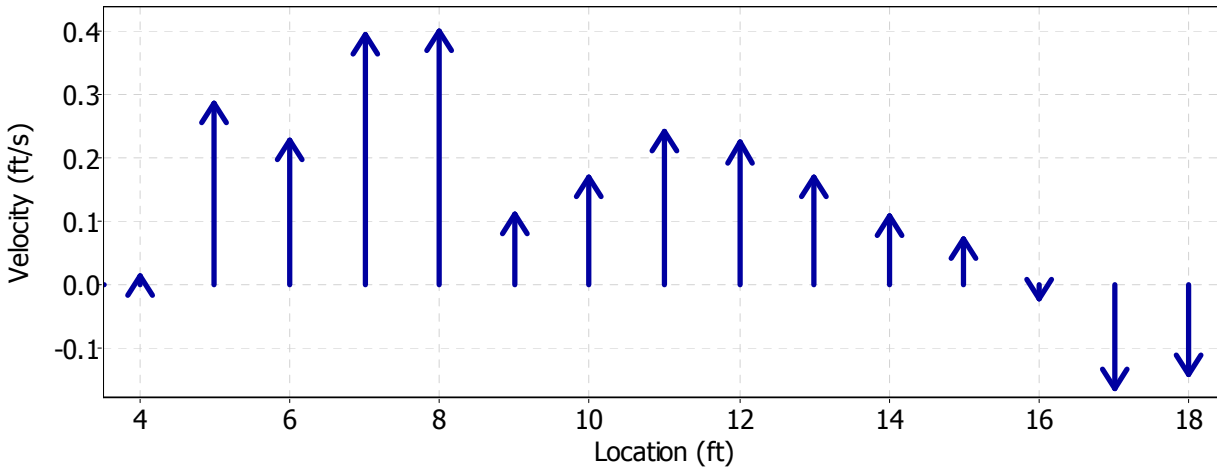
Discharge Measurement Summary

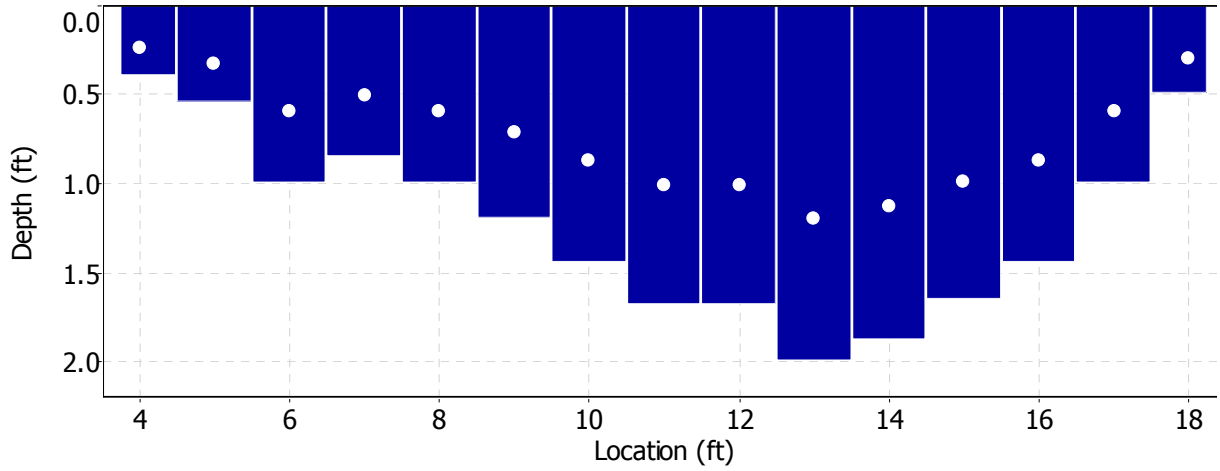
Date Generated: Tue Jun 7 2011

File Information	
File Name	BCC2.001.WAD
Start Date and Time	2011/06/01 10:22:55

Site Details	
Site Name	BCC AT HART
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jun 7 2011

File Information		Site Details	
File Name	BCC2.001.WAD	Site Name	BCC AT HART
Start Date and Time	2011/06/01 10:22:55	Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
1	18.00	0.6	High angle: 163
		0.6	SNR (51.4) is different from typical SNR (37.5)
2	17.00	0.6	High angle: 175
3	16.00	0.6	High angle: 124
		0.6	SNR (47.7) is different from typical SNR (37.5)
4	15.00	0.6	High angle: 23
		0.6	SNR (48.1) is different from typical SNR (37.5)
6	13.00	0.6	High angle: 31
8	11.00	0.6	High angle: -25
		0.6	SNR (27.1) is different from typical SNR (37.5)
9	10.00	0.6	High angle: -28
		0.6	High SNR variation during measurement: 5.6,5.6
11	8.00	0.6	High angle: -37
		0.6	SNR (26.4) is different from typical SNR (37.5)
12	7.00	0.6	High angle: -31
		0.6	SNR (27.1) is different from typical SNR (37.5)
13	6.00	0.6	High angle: -31
		0.6	SNR (26.9) is different from typical SNR (37.5)
14	5.00	0.6	High angle: -38
		0.6	SNR (26.2) is different from typical SNR (37.5)
15	4.00	0.6	SNR (49.0) is different from typical SNR (37.5)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Lee Thomas, NETMWD; Linzed Arocha / Randy Austin WMS
Date & Time: 6/1/11 11:15	County Name: ~~Titus~~ Camp Co. / Titus Co.
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: BCC3 - @ confluence with Walkers Creek	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. _____ cfs too deep to wade

11 cfs @ SH11 USGS gage could not measure

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C Water Temp 26 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Controlled security gate, ATV path cut to site for this project by TCEQ's, required escort

8. Dominant Primary Substrate

☐ Cobble ☒ Sand ☒ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC 3
Date: 6/1/10 Time: 11:15

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
thick vegetation, snags, logs/limbs in channel, soft sediment
snakes, alligators, poison ivy

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
No roads to site, fenced, controlled security gate

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? Yes Lake Bob Sandlin is about 6 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC 3
Date: 6/1/11 Time: 11:15

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).
Same as A7 & B2

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: TCFWSD staff only allowed on property

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).
Same as A7 & B2

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).
No roads, controlled security gate, fences, thick vegetation & forest

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC 3
Date: 6/1/12 FDS Page 3 of 8 1115

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ Wadeable X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC3
Date: 6/1/11 Time: 11:15

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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)	Depth
1	7	0.40
2	10	0.45
3	9	0.35
4	12	0.45
5	17	0.53
6	16	1.76
7	17	1.15
8	14	0.74
9	13	0.89
10	15	1.19
Avg	13	0.79

2 pools #1 1.76 m deep x 39 m long x 17 m wide

#2 1.9 m x 22 m x 16 m

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC 3
Date: 6/1/11 Time: 1115

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Fort Sherman Dam

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

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

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

- [x] Private Property
- [x] No trespass sign
- [x] Wildlife
- [ ] Steep slopes
- [x] No public access
- [x] No roads
- [x] 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: _____
- [x] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: ATV trail cut for this study

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC 3
Date: 6/11/12 Time: 11:15

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant	
Algae Cover:	X absent	rare	common	abundant	
Odor:	X none	rare	common	abundant	
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	None	X slight presence	moderate presence	large presence
Alligators	None	slight presence	X moderate presence	large presence

Comments: saw alligator tracks

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	X moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	X None	Rare	Common	Abundant
Bank Garbage	X None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
TCFWD required board approval to access property for this study. Property operated as a Conservation Area. No hunting is allowed.

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushin WMS
Date & Time: 5/30/11 11:00	County Name: Titus/Camp Co.
Stream Name: Big Cypres Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: 1030 @ SH11	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. ~~13~~ 7.9 cfs USGS gage #07344500 6/4/11

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 27 °C Water Temp 25 °C

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks, difficult to drive down to site – required 4WD to get to site

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☑ Silt ☑ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10308 @ SH11
Date: 5/30/11 Time: 1100

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
too deep to wade, steep banks, difficulty getting to stream, thick vegetation, ~~[illegible]~~ logs/limbs in streams, snakes, poor clarity

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
SH11 crosses site, very steep down from road to stream & several bogs, requires 4WD

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? ~~No~~ Lake Bob Sandlin, Lake O' the Pines, Lake Monticello, Lake Cypress Springs are all nearby (within 15-20 minutes) Welsh Reservoir is 5 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: #10308 @ SH11
Date: 5/30/11 Time: 1100

b. Check the number of individuals observed at the site.
X 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).
Difficult to access site, logs/limbs in stream, snakes poor clarity, Need 4WD to access site

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

4. If infrequently, what is the reason? X physical characteristics of the water body ☐ limited public access X other
If other, list reasons: same as above, No evidence of activity @ site

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).
Site access is limited, too deep to wade, trees/logs/stumps in stream - cannot navigate

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).
Stream banks steep & overgrown, a lot of thick vegetation, no road or easy path to travel from bridge to stream

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: #10308 @ SH71
Date: 5/30/11 FDS Page 3 of 8 1100

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name Big Cypress Creek Site: #10308 @ SH11
Date: 5/30/14 Time: 1100

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	13
2	9
3	8
4	10
5	6
6	6
7	9
8	13
9	12
10	12

Avg. 9.8m

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: #10308 @ SH11
Date: 5/30/11 Time: 1100

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

- [ ] Culverts
- [x] Fences
- [x] Log jams
- [ ] Rip rap
- [ ] Water control structure
- [ ] Barbed wire
- [ ] Dams
- [x] 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
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [x] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

- [x] Private Property
- [ ] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [ ] No public access
- [x] No roads from hwy. to stream
- [x] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [ ] Other: _____

Comments: No parking area

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

- [x] Roads SH11
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [ ] Other: _____
- [x] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: near bridge but not by water

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: #10708 @ SH11
Date: 5/30/11 Time: 1100

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	✓ rare	common	abundant
Algae Cover:	✓ absent	rare	common	abundant
Odor:	✓ none	rare	common	abundant
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	None	✓ slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	✓ large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	✓ large presence
Feral Hogs	None	slight presence	moderate presence	large presence

Comments: saw several nutrea enter stream

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ☐ Fecal droppings ✓ Bird nests

11. Garbage Observed

Large garbage in the channel	None	✓ Rare	Common	Abundant
Small garbage in the channel	None	✓ Rare	Common	Abundant
Bank Garbage	✓ None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed: saw a couple of tires about 50 m d/s of bridge, some cans & plastic bags but not much litter in general

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	Randy Rushin WMS
Date & Time: 5/30/11 1000	County Name: ~~Upshur~~ Camp / Morris Co
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: BCC#4 @ CR 2231 - Sand Crossing	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. N/A cfs Backwater of Lake O' the Pines No flow to very low - can't measure due to depth too deep to wade

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 32 °C Water Temp 28 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Access by bridge, area used for parking & fishing

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Site: Sand Crossing
Date: 5/30/11 Time: 1000

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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 No one present @ site

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☒ No primary contact activities that commonly occur were observed
☐ 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).
Many stumps/logs/limbs & other debris, poor water clarity

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

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? Yes, downstream in Lake O' the Pines @ USACE boat ramp/parking area is less than 3 miles & Ellison Creek Reservoir is 2 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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 - evidence of fishing but no one present
☐ Other secondary contact activities: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: Sand Crossing
Date: 5/30/11 Time: 1000

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

c. Check the following that apply regarding the individuals proximity to the water body.
⊗ X 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) ⊗ No one present @ time of sampling - just an assumption

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).
No one present, but signs of fishing present - line, bait cans, corks & other tackle

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? X Unknown ☐ Never ☐ Daily ☐ Monthly ☐ Yearly
Assume frequently due to amount of litter

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: NA

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).
NA

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, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: Sand Crossing
Date: 5/30/11 1000

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: Sand Crossing
Date: 5/30/01 Time: 10:00

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	41
2	36
3	34
4	20
5	36
6	45
7	47
8	35
9	26
10	35
Avg.	35.5 m

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: Sand Crossing
Date: 5/30/10 Time: 10 00

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

- [ ] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [x] Other (specify): logs / limbs
- [ ] Log jams
- [x] Thick vegetation
- [ ] Rip rap
- [ ] Low bridges
- [ ] Water control structure
- None

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [x] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] Power Line Corridor
- [ ] Parks (national/city/county/state)
- [x] 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: N/A, site on USACE property / public right of way

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

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

Comments: plenty of tackle / litter & a couple of fire remnants, chair @ site - assumed to be used for fishing

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: Sand Crossing
Date: 5/30/11 Time: 1000

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	✓ common	abundant	
Algae Cover:	absent	✓ rare	common	abundant	
Odor:	✓ none	rare	common	abundant	
Color:	clear	✓ green	red	brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	None	✓ slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	✓ None	slight presence	moderate presence	large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	✓ None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ☐ Fecal droppings ✓ Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	Rare	Common	Abundant
Small garbage in the channel	✓ None	Rare	Common	Abundant
Bank Garbage	None	Rare	✓ Common	Abundant

Briefly describe the kinds of garbage observed: fishing tackle, drink cans/bottles, other litter

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Site @ road, ~~so~~ that ~~they~~ is not accessible during high flows / flooding. Noticed several cars passing by during site visit. No one stopped, though.

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R. RUSHIN, L. AROCHA WMS
Date & Time: 7/8/11 1845	County Name: Titus
Stream Name: TANKERSLEY CREEK	
Segment No. or nearest downstream Segment No.: 0404B	
Description of Site: @ 15512 @ FM 1734	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. N/A cfs Backwater of Tankersley lake

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 30 °C Water Temp 27 °C

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

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

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

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

A lot of vegetation on stream banks & in stream thick cover of algae & floating Macrophytes

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☒ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15512
Date: 7/1/11 Time: 1845

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
Thick vegetation on banks & in stream, very soft, ful smelling sediments, tall grass by stream

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 3417

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?
Yes Tankersley Lake park is < 3 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15512
Date: 7/1/11 Time: 1045

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).
Same as A2 & B7

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).
found one bottle ~~used~~ floating with fishing line & weight - appeared to have been in water for some time - no other evidence except for one bobber near bridge

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).
thick vegetation & soft sediment @ site, thick algae cover & macrophytes, no fish activity noted - probably better fishing in lake d/s of site

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15512
Date: 7/1/11 FDS Page 3 of 8 1845

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: ~~10261~~ 15512
Date: 7/1/11 Time: 1845

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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)	Depth (m)
1	20	1.82
2	15	1.74
3	13	1.58
4	13	1.62
5	14	1.68
6	12	1.80
7	12	2.22
8	10	1.42
9	9	1.31
10	17	1.15
Avg	13.5	1.63

Field Data Sheets – Basic RUAA Survey

Stream Name: TANKERSLEY CREEK Site: ~~10201~~ 15512
Date: 7/1/11 Time: ~~0750~~ 1845

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

2. Are there permanent or long-term hydrologic modifications that are constructed and operated in a way that affects the recreational uses? [x] Yes [ ] No (If yes, please provide supporting documentation and photos.)
Comments: Tankersley Lake - site @ headwaters

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

- [x] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [x] Other (specify): algae covering surface along w/ floating macrophytes
- [ ] Log jams
- [x] Thick vegetation
- [ ] Rip rap
- [ ] Low bridges
- [ ] Water control structure
- None

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [x] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] Power Line Corridor
- [ ] Parks (national/city/county/state)
- [ ] Public Property
- [x] Other: backwater of lake
- [ ] 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
- [x] Wildlife
- [ ] Steep slopes
- [ ] No public access
- [ ] No roads
- [x] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: snakes

Comments: _____

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: FM 3417

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15S12
Date: 7/1/11 Time: 1845

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	common	✓ abundant
Algae Cover:	absent	rare	common	✓ abundant
Odor:	none	✓ rare	common	abundant
Color:	clear	✓ green	red	brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	clear	✓ scum	foam	debris	oil

Other:
surface covered in algae

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	None	✓ slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	✓ slight presence	moderate presence	large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	✓ None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
☐ Tracks ☐ Fecal droppings ☐ Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	✓ Rare	Common	Abundant
Small garbage in the channel	None	✓ Rare	Common	Abundant
Bank Garbage	None	Rare	✓ Common	Abundant

Briefly describe the kinds of garbage observed: bottles & cans @ bridge - likely hwy litter

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R. RUSHIN, L. AROCHA WMS
Date & Time: 7/1/11 17:45	County Name: Titus Co
Stream Name: TANKERSLEY CREEK	
Segment No. or nearest downstream Segment No.: 0404B	
Description of Site: H 15513 @ US 67	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0 cfs no flow - dry around 180m

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 33 °C Water Temp 26 °C

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

L Forest by US67	LR Urban	LR Rip rap
LR Shrub dominated corridor	____ Pasture	LR Concrete by IH 30
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

fenced, steep banks, logs/limbs, poison ivy & briars, private property w/ no trespassing sign

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☒ Rip rap ☒ Concrete

closer to 67 by IH 30

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15513.
Date: 7/1/14 Time: 1745

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
fencing, no parking, steep banks, poison ivy, vines & briars
soft sediment, poor water clarity, snakes, snags

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Yes @ US 67 & TH 30

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?
Yes, Tankersley lake park is less than 1.5 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15513
Date: 7/1/11 Time: 1745

b. Check the number of individuals observed at the site.
X 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).
See B2 & A7

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

4. If infrequently, what is the reason? X physical characteristics of the water body ☐ X limited public access ☐ other
If other, list reasons: No evidence of human activity in stream

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).
Same as B2, Too shallow to fish in most places

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).
Fences, thick vegetation, steep banks

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15513
Date: 4/1/11 FDS Page 3 of 8 17:45

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	14	9	>1.4
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	8	1.05
60 meters	9	1.00
90 meters	9	0.68
120 meters	9	0.90
150 meters	9	0.45
180 meters	Dry	—
210 meters	6	0.55
240 meters	4	0.42
270 meters	6	>1.4
300 meters	8	1.00
Average	6.8	0.75

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15513
Date: 7/11/11 Time: 1745

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	6.8
Width at narrowest point of the stream within 300 meter reach	0
Width at the widest point of the stream within 300 meter reach	9

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15513
Date: 7/1/11 Time: 1745

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Rip rap in channel b/tn 67 & I 30

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

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

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
- [x] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved)
- [x] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

- [x] Private Property
- [x] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [ ] No public access
- [ ] No roads
- [x] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: snakes poison ivy

Comments: _____

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

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: US 67 & I 30

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 15513
Date: 7/1/11 Time: 1745

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	common	X abundant
Algae Cover:	absent	X rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	clear	X scum	foam	debris	oil

Other:
Some oily bio film & algae on surface

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	X slight presence	moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: @ bridges mostly litter

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

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

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	K RUSHIN, L ARCCHA WMS
Date & Time: 7/2/11 07:22	County Name: Titus Co
Stream Name:	TANKERSLEY CREEK
Segment No. or nearest downstream Segment No.:	0404B
Description of Site:	~~#10624 @ FM899~~ #10216 @ FM899

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. <0.01 cfs est. velocity = 0.1 fps

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 28 °C Water Temp 27 °C

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

L Forest	____ Urban	LR Rip rap @ bridge only
L Shrub dominated corridor	R Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks, thick vegetation, fencing, poison ivy, rip rap by bridge, no parking area

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10264
Date: 7/2/11 Time: 0722

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
Shallow, poor clarity, steep banks, thick vegetation, snags, snakes

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 899 right of way

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?
Yes Tankersley Lake Park is 2.5 miles & LBS park is 6 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10264
Date: 7/2/11 Time: 0722

b. Check the number of individuals observed at the site.
X 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).
Same as A7 & B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: too shallow for good fishing, No evidence

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).
Same as #2 & #4

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).
No parking area, thick vegetation, private property
thick vegetation poison ivy, snakes

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10264 0722
Date: 7/2/11 FDS Page 3 of 8

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	10	8	1.2
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	6.3	0.35
60 meters	6.7	0.92
90 meters	5.2	0.85
120 meters	5.5	0.89
150 meters	6.4	0.80
180 meters	6.1	0.59
210 meters	5.2	0.71
240 meters	4.9	0.63
270 meters	4.3	0.49
300 meters	5.8	0.39
Average	5.6	0.66

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10264
Date: 7/2/11 Time: 0722

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.6
Width at narrowest point of the stream within 300 meter reach	4.3
Width at the widest point of the stream within 300 meter reach	6.7

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10264
Date: 7/2/11 Time: 0722

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: FM 899

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

- [x] Private Property
- [ ] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [ ] No public access
- [ ] No roads
- [x] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: snakes, poison ivy

Comments: _____

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

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: FM 899

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10264
Date: 7/2/11 Time: 0722

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: X absent rare common abundant
Algae Cover: X absent rare common abundant
Odor: X none rare common abundant
Color: clear green red X brown black
Bottom Deposit: sludge solids X fine sediments none other
Water Surface: clear X scum foam debris oil
Other:
surface oily bio film

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments: cattle fenced out of stream

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
Tracks Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: one tire in stream & highway litter near bridge

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

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

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R RUSHING, L. ARCHA WMS
Date & Time: 7/2/11 0830	County Name:
Stream Name: TANKERSLEY CREEK	
Segment No. or nearest downstream Segment No.: 0404-B	
Description of Site: P102103 @ FM 127	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 3.0 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 31 °C Water Temp 28 °C 82.4

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

LR Forest	___ Urban	LR Rip rap @ bridge
R Shrub dominated corridor	L Pasture	___ Concrete
___ Herbaceous marsh	___ Row crops	Other (specify): ___
___ Mowed/maintained corridor	___ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks thick vegetation, fencing, poison ivy, no parking area, rip rap from bridge

8. Dominant Primary Substrate

☐ Cobble ☒ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10263
Date: 7/2/11 Time: 0830

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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 ☒ No primary contact activities that commonly occur were observed
☐ 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).
Steep banks, vegetation, snags/limbs, shallow, odor from WWTP

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 127

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?
Yes Tankersley Lake Park is 5 miles & LBJ park is 4 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 102163
Date: 7/2/11 Time: 0830

b. Check the number of individuals observed at the site.
X 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).
Same as A7 & B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: too shallow

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).
No evidence of 2° Rec, too shallow for fishing

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).
Steep banks, fencing, no parking area, snakes, poison ivy, soft bottom

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 102163
Date: 7/2/11 FDS Page 3 of 8 0830

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: ✓ Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	12	6	>1.4
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	3.0	0.19
60 meters	5.5	0.34
90 meters	3.4	0.48
120 meters	6.1	0.35
150 meters	7.0	0.41
180 meters	4.9	0.73
210 meters	4.6	0.87
240 meters	5.2	0.56
270 meters	5.2	0.55
300 meters	6.1	>1.4
Average	5.1	0.59

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10263
Date: 7/2/11 Time: 0830

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.1
Width at narrowest point of the stream within 300 meter reach	3.0
Width at the widest point of the stream within 300 meter reach	7.0

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10263
Date: 7/2/11 Time: 0830

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: WWTP outfall, pipeline crossing

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

- [ ] Culverts
- [ ] Barbed wire
- [x] Utility pipe
- [ ] Fences
- [ ] Dams
- [ ] Other (specify): _____
- [x] Log jams
- [x] Thick vegetation
- [x] Rip rap @ bridge
- [ ] Low bridges
- [ ] Water control structure
- None

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

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

Comments: FM 127

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

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

Comments: snakes & turtles observed & many animal tracks

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

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

Comments: FM 127 WWTP – Pilgrims Pride u/s of bridge

Field Data Sheets – Basic RUAA Survey

Stream Name: TANKERSLEY CREEK Site: 10263
Date: 7/2/11 Time: 0830

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	absent	X rare	common	abundant
Odor:	none	rare	X common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	X sludge	solids	X fine sediments	none	other
Water Surface:	clear	scum	X foam	debris	oil

Other:
WWTP outfall - chlorine odor, very soft sediment

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	X Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: a couple of tires, mostly litter near bridge

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Saw many tracks & one bedding area, one snake & several turtles

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	10263.002.WAD
Start Date and Time	2011/07/02 09:10:47

Site Details

Site Name	TANK AT 127
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	2.6%
Velocity	0.8%	4.1%
Width	0.2%	0.2%
Method	2.4%	-
# Stations	3.0%	-
Overall	**4.0%**	**4.9%**

Summary

Averaging Int.	20	# Stations	17
Start Edge	REW	Total Width	8.000
Mean SNR	21.7 dB	Total Area	2.995
Mean Temp	82.51 °F	Mean Depth	0.374
Disch. Equation	Mid-Section	Mean Velocity	0.9869
		Total Discharge	**2.9555**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	09:10	9.00	None	0.280	0.0	0.0	0.0000	1.00	0.1014	0.070	0.0071	0.2
1	*09:10*	*8.50*	*0.6*	*0.300*	*0.6*	*0.120*	*0.1014*	*1.00*	*0.1014*	*0.150*	*0.0152*	*0.5*
2	09:12	8.00	0.6	0.260	0.6	0.104	1.0574	1.00	1.0574	0.130	0.1374	4.6
3	09:12	7.50	0.6	0.310	0.6	0.124	0.9764	1.00	0.9764	0.155	0.1514	5.1
4	09:13	7.00	0.6	0.310	0.6	0.124	1.0915	1.00	1.0915	0.155	0.1692	5.7
5	09:13	6.50	0.6	0.400	0.6	0.160	0.9409	1.00	0.9409	0.200	0.1882	6.4
6	09:14	6.00	0.6	0.500	0.6	0.200	0.9715	1.00	0.9715	0.250	0.2429	8.2
7	09:15	5.50	0.6	0.630	0.6	0.252	1.2897	1.00	1.2897	0.315	0.4062	13.7
8	09:15	5.00	0.6	0.610	0.6	0.244	1.4793	1.00	1.4793	0.305	0.4511	15.3
9	09:16	4.50	0.6	0.580	0.6	0.232	1.4321	1.00	1.4321	0.290	0.4153	14.1
10	09:16	4.00	0.6	0.500	0.6	0.200	1.2621	1.00	1.2621	0.250	0.3155	10.7
11	09:17	3.50	0.6	0.350	0.6	0.140	1.0197	1.00	1.0197	0.175	0.1785	6.0
12	09:18	3.00	0.6	0.400	0.6	0.160	0.6686	1.00	0.6686	0.200	0.1337	4.5
13	*09:19*	*2.50*	*0.6*	*0.300*	*0.6*	*0.120*	*0.5427*	*1.00*	*0.5427*	*0.150*	*0.0814*	*2.8*
14	09:21	2.00	0.6	0.200	0.6	0.080	0.5738	1.00	0.5738	0.100	0.0574	1.9
15	*09:22*	*1.50*	*0.6*	*0.200*	*0.6*	*0.080*	*0.0502*	*1.00*	*0.0502*	*0.100*	*0.0050*	*0.2*
16	09:22	1.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

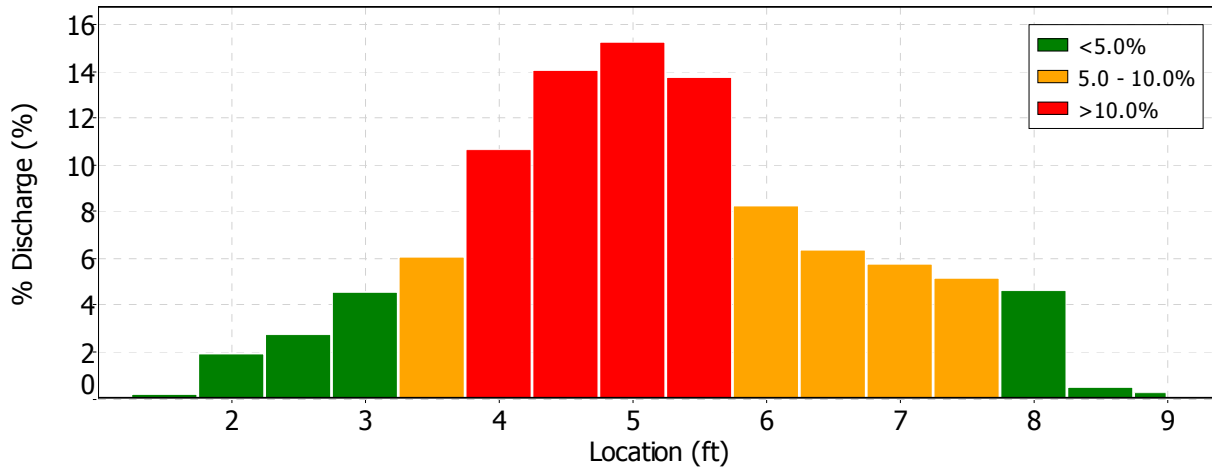
Water Monitoring Solutions

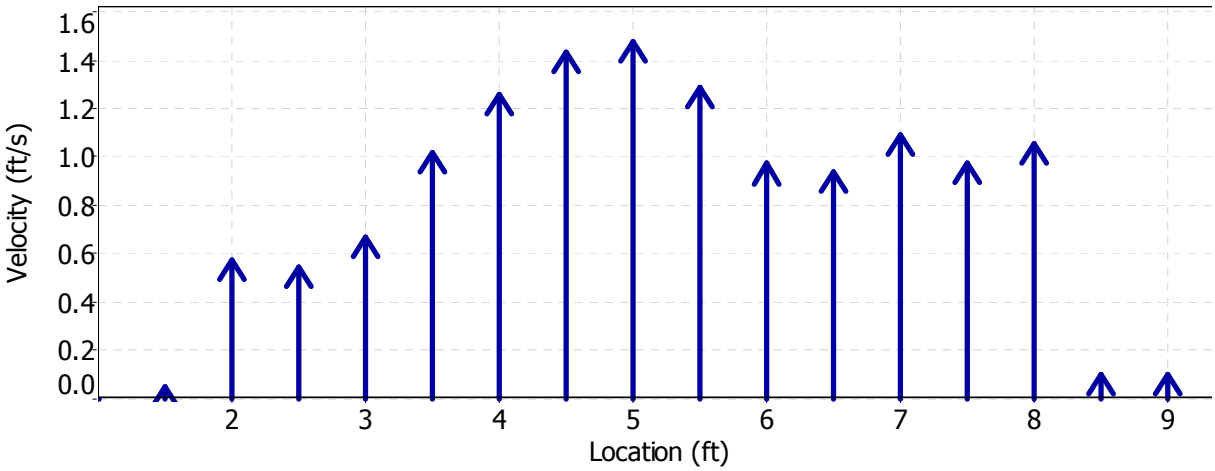
Discharge Measurement Summary

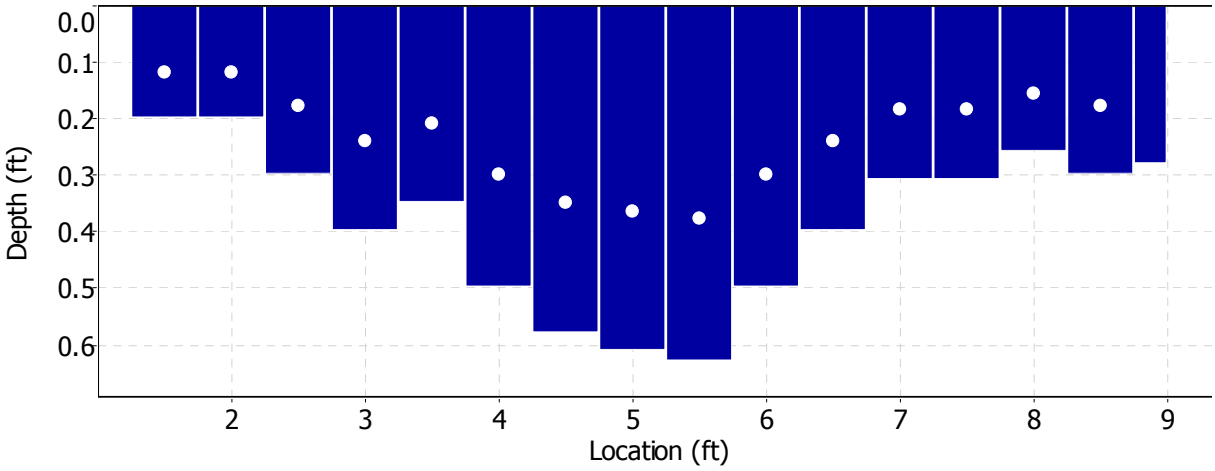
Date Generated: Tue Jul 5 2011

File Information	
File Name	10263.002.WAD
Start Date and Time	2011/07/02 09:10:47

Site Details	
Site Name	TANK AT 127
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information	
File Name	10263.002.WAD
Start Date and Time	2011/07/02 09:10:47

Site Details	
Site Name	TANK AT 127
Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
1	8.50	0.6	High angle: -48
13	2.50	0.6	High standard error: 0.039
15	1.50	0.6	High angle: -44

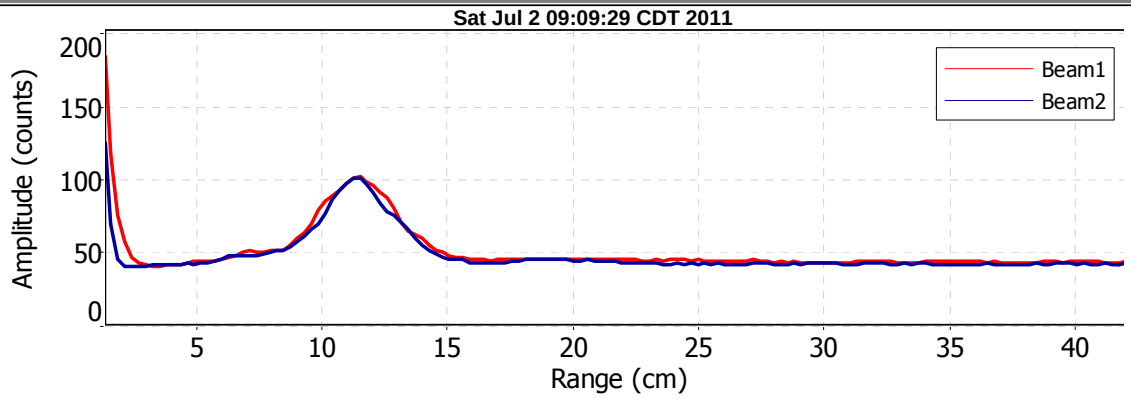
Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information		Site Details	
File Name	10263.002.WAD	Site Name	TANK AT 127
Start Date and Time	2011/07/02 09:10:47	Operator(s)	AROCHA

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R RUSHIN, L ROCHA WMS
Date & Time: 7/21/11 0950 - 0950	County Name: Titus
Stream Name: TANKERSLEY CREEK	
Segment No. or nearest downstream Segment No.: 0404B	
Description of Site: # 10261 @ FM 3417	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 5.9 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 36 °C Water Temp 28 °C 81.8°F

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

R Forest	____ Urban	____ Rip rap
L Shrub dominated corridor	____ Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	L,R Denuded/Eroded bank – bridge construction	

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Bridge construction @ site, no parking area, fences, steep banks

8. Dominant Primary Substrate

☐ Cobble ☒ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10261
Date: 7/2/.. Time: 0950

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Bridge construction, steep slopes, shallow, silty bottom
thick vegetation along corridor

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
FM 3417

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?
Yes, LBS park is <2 miles from site

C. Secondary Contact Water Recreation Evaluation:

- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 102161
Date: 7/2/11 Time: 0950

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).
Same as A7 & B2

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: No evidence of activity except construction

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).
too shallow, vegetation on banks, snags/limbs

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).
No parking area, steep banks, private property

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 102161
Date: 7/2/11 FDS Page 3 of 8 0950

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. None that meet criteria

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance Width	Depth (meters)
30 meters	4.6	0.35
60 meters	4.0	0.38
90 meters	3.7	0.31
120 meters	4.0	0.34
150 meters	4.3	0.43
180 meters	4.9	0.76
210 meters	7.0	0.95
240 meters	5.8	0.93
270 meters	6.1	0.77
300 meters	6.4	0.66
Average	5.1	0.59

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: ~~15512~~ 10261
Date: 7/2/11 Time: 0950

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.1
Width at narrowest point of the stream within 300 meter reach	3.7
Width at the widest point of the stream within 300 meter reach	7.0

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: ~~15512~~ 10261
Date: 7/2/11 Time: ~~1645~~ 0950

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

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

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

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

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

Comments: FM 3417

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

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

Comments: No parking area, thick vegetation

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

- [x] Roads
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [x] Other: Construction
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: FM 3417

Field Data Sheets – Basic RUAA Survey

Stream Name TANKERSLEY CREEK Site: 10361
Date: 7/2/11 Time: 0950

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	absent	X rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	X clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: Litter around bridge along with construction debris

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	10261.002.WAD
Start Date and Time	2011/07/02 10:35:31

Site Details

Site Name	TANK AT 3417
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	2.8%
Velocity	0.8%	1.9%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.0%	-
Overall	**3.0%**	**3.5%**

Summary

Averaging Int.	20	# Stations	25
Start Edge	LEW	Total Width	12.000
Mean SNR	37.7 dB	Total Area	8.475
Mean Temp	81.63 °F	Mean Depth	0.706
Disch. Equation	Mid-Section	Mean Velocity	0.6996
		Total Discharge	**5.9287**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	10:35	16.00	None	0.600	0.0	0.0	0.0000	1.00	0.1890	0.150	0.0283	0.5
1	*10:35*	*15.50*	*0.6*	*0.650*	*0.6*	*0.260*	*0.1890*	*1.00*	*0.1890*	*0.325*	*0.0614*	*1.0*
2	10:36	15.00	0.6	0.400	0.6	0.160	0.4012	1.00	0.4012	0.200	0.0802	1.4
3	*10:36*	*14.50*	*0.6*	*0.600*	*0.6*	*0.240*	*0.3136*	*1.00*	*0.3136*	*0.300*	*0.0941*	*1.6*
4	10:37	14.00	0.6	0.630	0.6	0.252	0.2602	1.00	0.2602	0.315	0.0819	1.4
5	10:38	13.50	0.6	0.700	0.6	0.280	0.3819	1.00	0.3819	0.350	0.1337	2.3
6	10:38	13.00	0.6	0.600	0.6	0.240	0.4606	1.00	0.4606	0.300	0.1382	2.3
7	*10:39*	*12.50*	*0.6*	*0.500*	*0.6*	*0.200*	*0.5594*	*1.00*	*0.5594*	*0.250*	*0.1398*	*2.4*
8	10:39	12.00	0.6	0.700	0.6	0.280	0.6660	1.00	0.6660	0.350	0.2331	3.9
9	*10:40*	*11.50*	*0.6*	*0.730*	*0.6*	*0.292*	*0.7201*	*1.00*	*0.7201*	*0.365*	*0.2628*	*4.4*
10	10:40	11.00	0.6	0.800	0.6	0.320	0.7976	1.00	0.7976	0.400	0.3190	5.4
11	10:41	10.50	0.6	0.750	0.6	0.300	0.9593	1.00	0.9593	0.375	0.3597	6.1
12	10:41	10.00	0.6	0.800	0.6	0.320	1.0000	1.00	1.0000	0.400	0.3999	6.7
13	10:42	9.50	0.6	0.850	0.6	0.340	1.0522	1.00	1.0522	0.425	0.4472	7.5
14	10:43	9.00	0.6	0.870	0.6	0.348	1.0262	1.00	1.0262	0.435	0.4465	7.5
15	10:43	8.50	0.6	0.940	0.6	0.376	1.0499	1.00	1.0499	0.470	0.4934	8.3
16	10:44	8.00	0.6	0.940	0.6	0.376	1.1765	1.00	1.1765	0.470	0.5529	9.3
17	10:44	7.50	0.6	0.940	0.6	0.376	1.0581	1.00	1.0581	0.470	0.4973	8.4
18	10:45	7.00	0.6	0.900	0.6	0.360	0.8927	1.00	0.8927	0.450	0.4017	6.8
19	10:45	6.50	0.6	0.600	0.6	0.240	0.8629	1.00	0.8629	0.300	0.2589	4.4
20	10:46	6.00	0.6	0.900	0.6	0.360	0.5207	1.00	0.5207	0.450	0.2343	4.0
21	*10:47*	*5.50*	*0.6*	*0.700*	*0.6*	*0.280*	*0.4472*	*1.00*	*0.4472*	*0.350*	*0.1565*	*2.6*
22	10:47	5.00	0.6	0.650	0.6	0.260	0.1978	1.00	0.1978	0.325	0.0643	1.1
23	10:48	4.50	0.6	0.500	0.6	0.200	0.1732	1.00	0.1732	0.250	0.0433	0.7
24	10:48	4.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

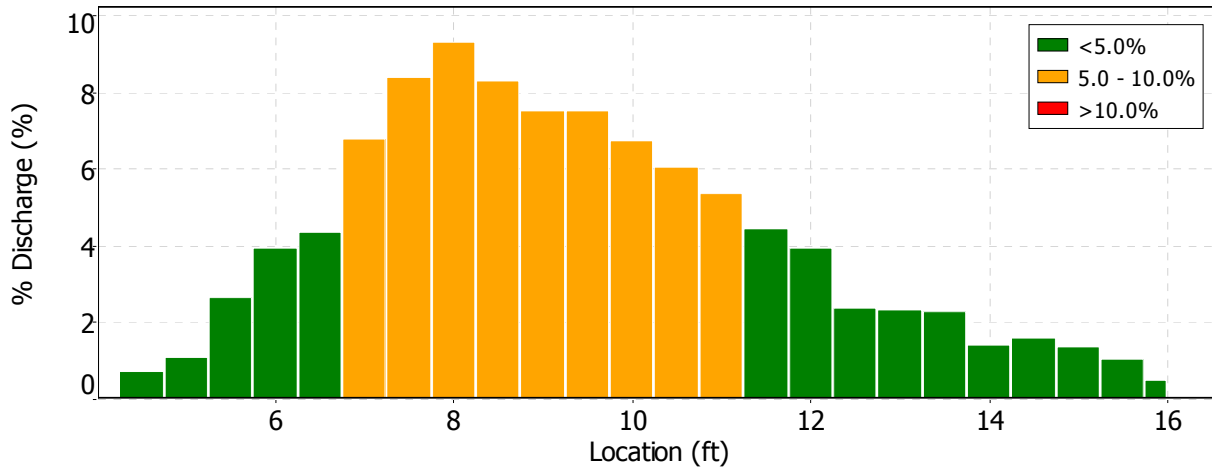
Water Monitoring Solutions

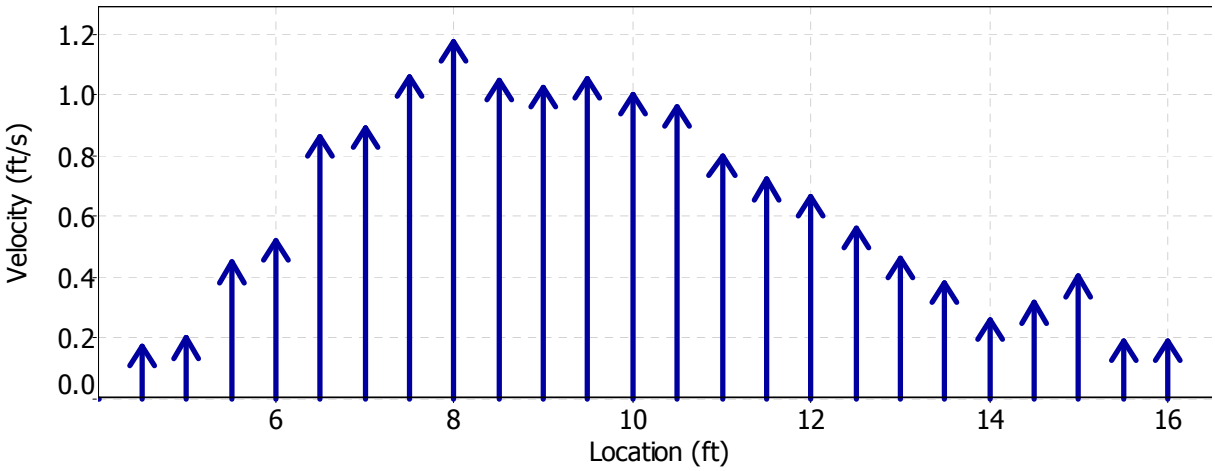
Discharge Measurement Summary

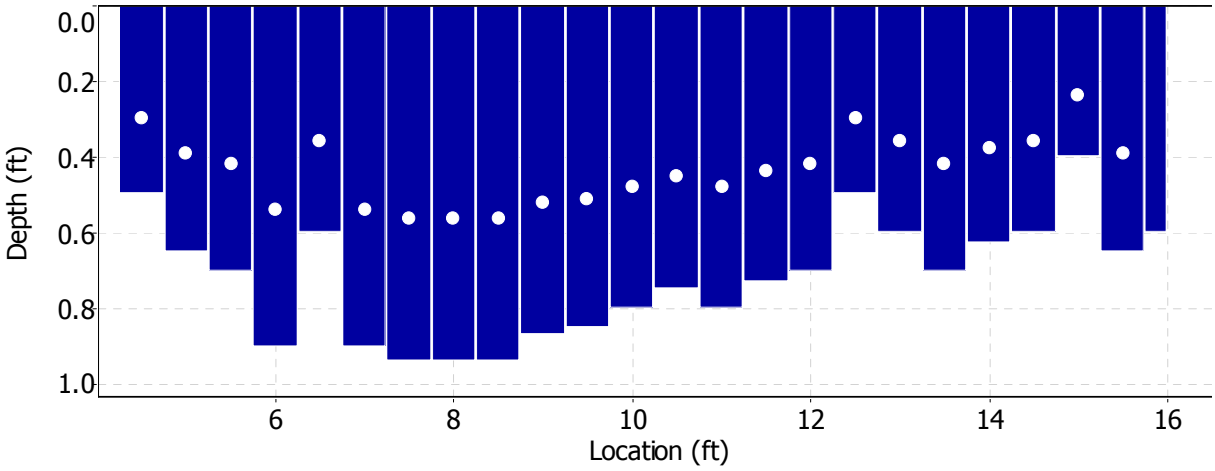
Date Generated: Tue Jul 5 2011

File Information	
File Name	10261.002.WAD
Start Date and Time	2011/07/02 10:35:31

Site Details	
Site Name	TANK AT 3417
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information	
File Name	10261.002.WAD
Start Date and Time	2011/07/02 10:35:31

Site Details	
Site Name	TANK AT 3417
Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
1	15.50	0.6	SNR (50.7) is different from typical SNR (37.7)
3	14.50	0.6	High standard error: 0.036
7	12.50	0.6	High standard error: 0.047
9	11.50	0.6	High angle: 22
21	5.50	0.6	High standard error: 0.037

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R RUSHIN, L AROCHA WMS
Date & Time: 7/2/11 16:58	County Name: Titus
Stream Name: HART CREEK	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: HART 01-C CR ~~2310~~ 3210	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. <0.01 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 35 °C Water Temp 26 °C

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

fences, very thick vegetation, poison ivy, steep banks, private property, no parking area

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: HART 01
Date: 7/2/11 Time: 1658

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
too shallow, steep banks, thick vegetation, poor clarity
snags in channel

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 3210

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?
Yes, Town Lake is < 2 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: HART01
Date: 7/2/11 Time: 1658

b. Check the number of individuals observed at the site.
X 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).
See A7 & B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X 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).
Same as B2, too shallow

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).
Same as A7, too shallow for fishing

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name HART @ CREEK Site: HART 01
Date: 7/2/11 FDS Page 3 of 8 1658

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. none that meet criteria

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	2.8	0.45
60 meters	4.9	0.44
90 meters	0.6	0.01
120 meters	4.3	0.82
150 meters	3.0	0.09
180 meters	3.0	0.26
210 meters	2.1	0.40
240 meters	2.4	0.19
270 meters	0.6	0.05
300 meters	3.7	0.39
Average	2.7	0.31

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: HART 01
Date: 7/2/11 Time: 1658

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	2.7
Width at narrowest point of the stream within 300 meter reach	0.6
Width at the widest point of the stream within 300 meter reach	4.3

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No

COMMENTS:
Stream is dry @ FM 1402 ~ 800 m u/s

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: HART CREEK Site: HART 01
Date: 7/2/11 Time: 1658

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)
Comments: _____

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

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

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

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

Comments: CR 3210

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

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

Comments: thick vegetation

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

- [x] Roads
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [ ] Other: _____ CR 3210
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: _____

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: HART 01
Date: 7/2/11 Time: 1658

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	X absent	rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	clear	X scum	foam	debris	oil

Other: bio film

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	X Common	Abundant
Small garbage in the channel	None	Rare	X Common	Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: tires @ bridge + litter - Mostly @ bridge

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Stream dry @ FM 1402 u/s of site

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information: R RUSHIN, L. AROCHA WMS	
Date & Time: 7/2/11 16:03	County Name: Titus
Stream Name: HART CREEK	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: # 10273 @ US 67	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. <0.01 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 35 °C Water Temp 26 °C

5. 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	LR Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation): fences, thick vegetation, private property, no parking area, poison ivy

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: 10273
Date: 7/2/11 Time: 1603

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Poor water clarity, logs/limbs in channel, soft silty sediments

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Fenced w/ barbed wire – U567 crossing

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?
Yes, Tawn Lake is < 3 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: 10273
Date: 7/2/11 Time: 1603

b. Check the number of individuals observed at the site.
X 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).
too narrow & shallow for fishing, private property
~~Path~~

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: No evidence

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).
fences, no parking area, private property
too shallow & fast
Same as A7 & B2

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).
Same as above

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: 10273
Date: 7/2/11 FDS Page 3 of 8 16:03

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	14	9.0	1.05
Pool 2	15	5.8	1.15
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	9.4	0.95
60 meters	5.2	1.03
90 meters	7.0	0.60
120 meters	9.0	0.49
150 meters	5.5	0.79
180 meters	6.7	0.69
210 meters	4.0	0.35
240 meters	2.4	0.38
270 meters	1.8	0.10
300 meters	4.0	0.54
Average	5.5	0.59

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: 10373
Date: 7/2/11 Time: 1603

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.5
Width at narrowest point of the stream within 300 meter reach	1.8
Width at the widest point of the stream within 300 meter reach	9.4

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: 10373
Date: 7/2/11 Time: 1603

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

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

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

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

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

Comments: US 67

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

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

Comments: _____

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

- [x] Roads
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [x] Other: cattle
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: US 67 - cattle have free access to stream

Field Data Sheets – Basic RUAA Survey

Stream Name HART CREEK Site: 10273
Date: 7/2/11 Time: 1603

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: absent rare common abundant
Algae Cover: absent rare common abundant
Odor: none rare common abundant
Color: clear green red brown black
Bottom Deposit: sludge solids fine sediments none other
Water Surface: clear scum foam debris oil
Other: bio film

8. Vertebrates Observed within 300 meter reach

Snakes	None	slight presence	moderate presence	large presence
Water Dependent Birds	None	slight presence	moderate presence	large presence
Alligators	None	slight presence	moderate presence	large presence

Comments: saw several snakes

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	large presence
Domesticated Pets	None	slight presence	moderate presence	large presence
Livestock	None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
Tracks Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	Common	Abundant
Small garbage in the channel	None	Rare	Common	Abundant
Bank Garbage	None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed: tires, fencing materials, general litter @ highway 3 crossing

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	10272.002.WAD
Start Date and Time	2011/07/02 16:48:00

Site Details

Site Name	HART AT 67
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	1.9%	0.0%
Velocity	45.9%	0.0%
Width	0.6%	0.6%
Method	9.4%	-
# Stations	12.2%	-
Overall	**48.4%**	**1.0%**

Summary

Averaging Int.	20	# Stations	5
Start Edge	REW	Total Width	10.000
Mean SNR	44.0 dB	Total Area	4.250
Mean Temp	77.91 °F	Mean Depth	0.425
Disch. Equation	Mid-Section	Mean Velocity	-0.0036
		Total Discharge	**-0.0153**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	16:47	0.00	None	0.450	0.0	0.0	0.0000	1.00	-0.0148	0.563	-0.0083	54.1
1	16:47	2.50	0.6	0.450	0.6	0.180	-0.0148	1.00	-0.0148	1.125	-0.0166	108.3
2	*16:48*	*5.00*	*0.6*	*0.400*	*0.6*	*0.160*	*-0.0043*	*1.00*	*-0.0043*	*1.000*	*-0.0043*	*27.8*
3	16:49	7.50	0.6	0.400	0.6	0.160	0.0089	1.00	0.0089	1.000	0.0089	-57.7
4	16:49	10.00	None	0.450	0.0	0.0	0.0000	1.00	0.0089	0.563	0.0050	-32.5

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

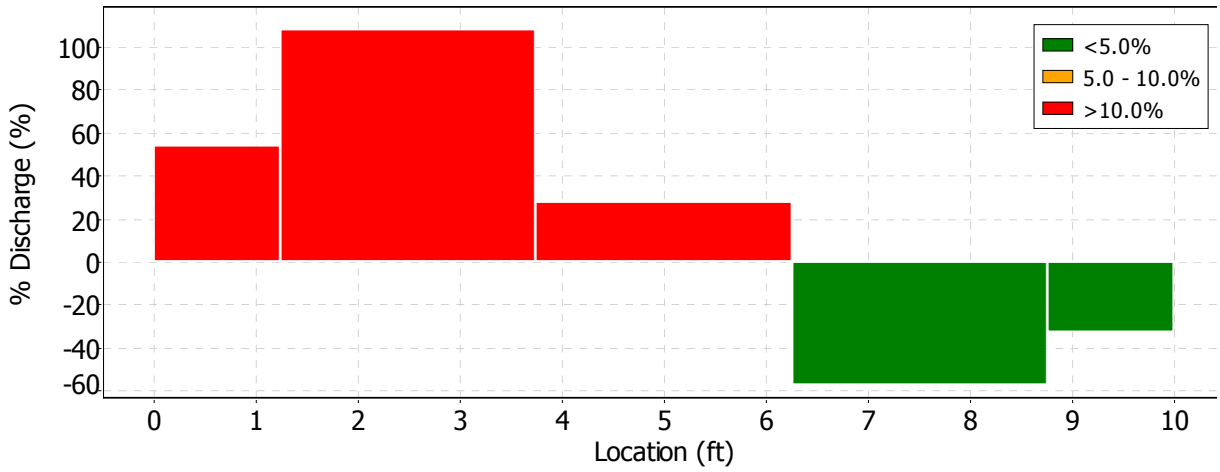
Water Monitoring Solutions

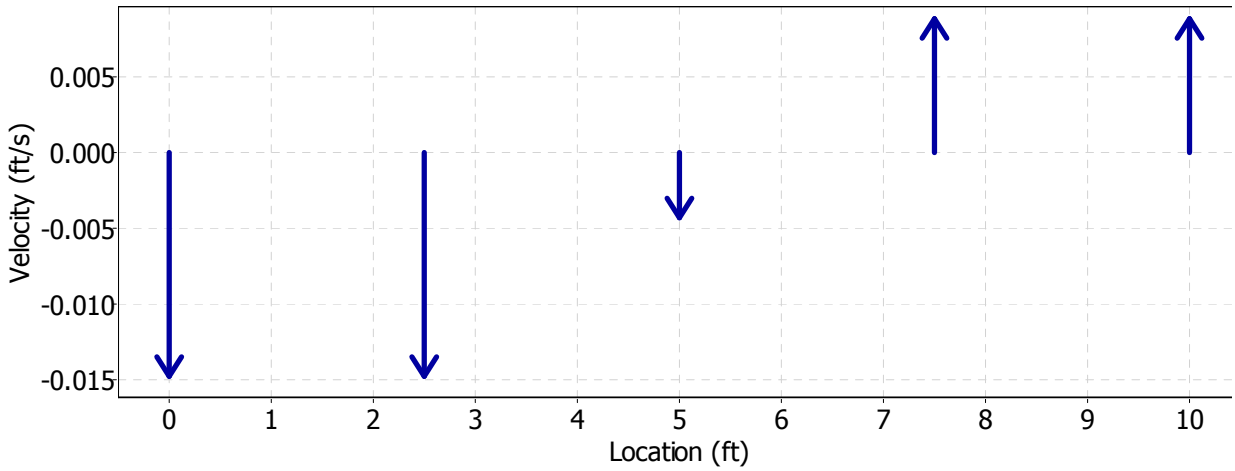
Discharge Measurement Summary

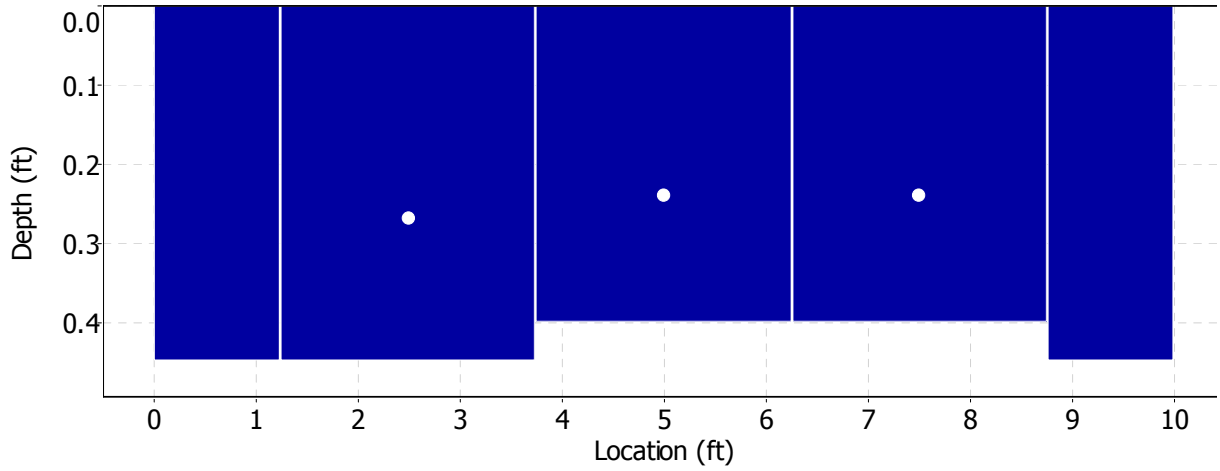
Date Generated: Tue Jul 5 2011

File Information	
File Name	10272.002.WAD
Start Date and Time	2011/07/02 16:48:00

Site Details	
Site Name	HART AT 67
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information		Site Details	
File Name	10272.002.WAD	Site Name	HART AT 67
Start Date and Time	2011/07/02 16:48:00	Operator(s)	AROCHA

Quality Control

St	Loc	%Dep	Message
2	5.00	0.6	SNR (29.2) is different from typical SNR (44.0)
		0.6	High SNR variation during measurement: 6.0,5.6

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R RUSHIN, L AROCHA WMS
Date & Time: 7/2/11 15:07	County Name: Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: # Hart 02 @ CR 4205	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.2 cfs est from #10272

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 34 °C Water Temp 29 °C

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

R Forest	____ Urban	____ Rip rap
LR Shrub dominated corridor	L Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep banks, barbed wire fences, thick vegetation, rip rap by bridge, on private property

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 2
Date: 7/2/11 Time: 15:07

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☑ No primary contact activities that commonly occur were observed

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).
Steep banks, narrow & shallow, poor clarity, soft sediments, snags, poison ivy, snakes

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 4205

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?
Yes Town Lake is about 5 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 2
Date: 7/2/11 Time: 15:07

b. Check the number of individuals observed at the site.
X 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).
B2 & A7

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access ☐ other
If other, list reasons: no evidence of 2° Rec

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).
see B2

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).
fences, private property, no parking, steep banks

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 2.
Date: 7/2/11 FDS Page 3 of 8 15:07

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. none that meet criteria

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	1.2	0.08
60 meters	7.0	0.44
90 meters	4.6	0.51
120 meters	5.8	0.62
150 meters	2.1	0.16
180 meters	0.3	0.01
210 meters	5.5	0.32
240 meters	1.8	0.17
270 meters	3.0	0.35
300 meters	6.4	0.62
Average	3.8	0.33

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: Hart 2
Date: 7/21/11 Time: 1507

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	3.8
Width at narrowest point of the stream within 300 meter reach	2.3
Width at the widest point of the stream within 300 meter reach	7.0

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 2
Date: 7/2/11 Time: 1507

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

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

Comments: CR 4205

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

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

Comments: _____

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: CR 4205, some dirt work has been done near R bank about 60m D/S of road

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: Hart 2
Date: 7/2/11 Time: 1507

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: X absent ☐ rare ☐ common ☐ abundant
Algae Cover: X absent ☐ rare ☐ common ☐ abundant
Odor: X none ☐ rare ☐ common ☐ abundant
Color: ☐ clear ☐ green ☐ red X brown ☐ black
Bottom Deposit: ☐ sludge ☐ solids X fine sediments ☐ none ☐ other
Water Surface: ☐ clear X scum ☐ foam ☐ debris ☐ oil
Other: oily bio film

8. Vertebrates Observed within 300 meter reach

Snakes	☐ None	☐ slight presence	X moderate presence	☐ large presence
Water Dependent Birds	X None	☐ slight presence	☐ moderate presence	☐ large presence
Alligators	X None	☐ slight presence	☐ moderate presence	☐ large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	☐ None	☐ slight presence	☐ moderate presence	X large presence
Domesticated Pets	X None	☐ slight presence	☐ moderate presence	☐ large presence
Livestock	X None	☐ slight presence	☐ moderate presence	☐ large presence
Feral Hogs	X None	☐ slight presence	☐ moderate presence	☐ large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings ☐ Bird nests

11. Garbage Observed

Large garbage in the channel	☐ None	X Rare	☐ Common	☐ Abundant
Small garbage in the channel	☐ None	X Rare	☐ Common	☐ Abundant
Bank Garbage	☐ None	X Rare	☐ Common	☐ Abundant

Briefly describe the kinds of garbage observed: ~~some~~ a couple of tires by bridge but nothing in channel d/s

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information: R Rushin, L Arocha WMS	
Date & Time: 7/2/11 14:02	County Name: Titus Co
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: #10272 @ SH 49	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.2 cfs meas.

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 39 °C Water Temp 36 °C 97.4F

5. 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	LR Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	L Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

Steep banks, thick vegetation, private property, fences no parking area

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10272
Date: 7/2/11 Time: 1402

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
narrow & shallow, poor clarity, silty bottom, vegetation in channel

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
SH 49

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?
Yes, Town Lake park is 5 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 7/2/11 Time: 1402

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).
Same as B2 too shallow to fish

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: No evidence of fishing or 2° contact

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).
See A7 & B2

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).
See A7

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 7/2/11 FDS Page 3 of 8 1402

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: ✓ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	18	5.5	1.20
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

	Distance width	Depth (meters)
30 meters	3.4	0.09
60 meters	4.0	0.35
90 meters	4.9	0.45
120 meters	4.0	0.66
150 meters	3.7	0.19
180 meters	4.3	0.93
210 meters	4.9	0.21
240 meters	4.3	0.32
270 meters	4.0	0.29
300 meters	4.3	0.26
Average	4.2	0.38

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 7/2/11 Time: 1902

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	4.2
Width at narrowest point of the stream within 300 meter reach	3.4
Width at the widest point of the stream within 300 meter reach	4.9

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 10272
Date: 7/2/11 Time: 1402

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: pipeline & log jam @ bridge

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

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

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

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

Comments: SH 49

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

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

Comments: _____

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

- [x] 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
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: SH 49

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10272
Date: 7/2/11 Time: 1402

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: absent rare common X abundant
Algae Cover: absent X rare common abundant
Odor: X none rare common abundant
Color: clear green red X brown black
Bottom Deposit: sludge solids X fine sediments none other
Water Surface: clear X scum foam debris oil
Other:
oily bio film in some areas

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	X slight presence	moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: some litter @ bridge

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	10273.002.WAD
Start Date and Time	2011/07/02 14:32:59

Site Details

Site Name	HART AT 49
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	4.3%
Velocity	5.4%	13.8%
Width	0.2%	0.2%
Method	3.7%	-
# Stations	3.6%	-
Overall	**7.5%**	**14.5%**

Summary

Averaging Int.	20	# Stations	14
Start Edge	LEW	Total Width	6.500
Mean SNR	42.4 dB	Total Area	4.000
Mean Temp	98.02 °F	Mean Depth	0.615
Disch. Equation	Mid-Section	Mean Velocity	0.0396
		Total Discharge	**0.1583**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:32	8.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	14:33	7.50	0.6	0.400	0.6	0.160	0.0079	1.00	0.0079	0.200	0.0016	1.0
2	*14:34*	*7.00*	*0.6*	*0.300*	*0.6*	*0.120*	*-0.0240*	*1.00*	*-0.0240*	*0.150*	*-0.0036*	*-2.3*
3	14:34	6.50	0.6	0.400	0.6	0.160	-0.0023	1.00	-0.0023	0.200	-0.0005	-0.3
4	*14:35*	*6.00*	*0.6*	*0.400*	*0.6*	*0.160*	*-0.0115*	*1.00*	*-0.0115*	*0.200*	*-0.0023*	*-1.5*
5	*14:36*	*5.50*	*0.6*	*0.500*	*0.6*	*0.200*	*0.0030*	*1.00*	*0.0030*	*0.250*	*0.0007*	*0.5*
6	*14:37*	*5.00*	*0.6*	*0.500*	*0.6*	*0.200*	*-0.0292*	*1.00*	*-0.0292*	*0.250*	*-0.0073*	*-4.6*
7	14:37	4.50	0.6	0.900	0.6	0.360	0.0220	1.00	0.0220	0.450	0.0099	6.3
8	*14:38*	*4.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0768*	*1.00*	*0.0768*	*0.500*	*0.0384*	*24.3*
9	*14:38*	*3.50*	*0.6*	*1.100*	*0.6*	*0.440*	*0.0801*	*1.00*	*0.0801*	*0.550*	*0.0440*	*27.8*
10	*14:39*	*3.00*	*0.6*	*1.100*	*0.6*	*0.440*	*0.0758*	*1.00*	*0.0758*	*0.550*	*0.0417*	*26.3*
11	*14:40*	*2.50*	*0.6*	*0.800*	*0.6*	*0.320*	*0.0715*	*1.00*	*0.0715*	*0.400*	*0.0286*	*18.1*
12	*14:41*	*2.00*	*0.6*	*0.600*	*0.6*	*0.240*	*0.0233*	*1.00*	*0.0233*	*0.300*	*0.0070*	*4.4*
13	14:41	1.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

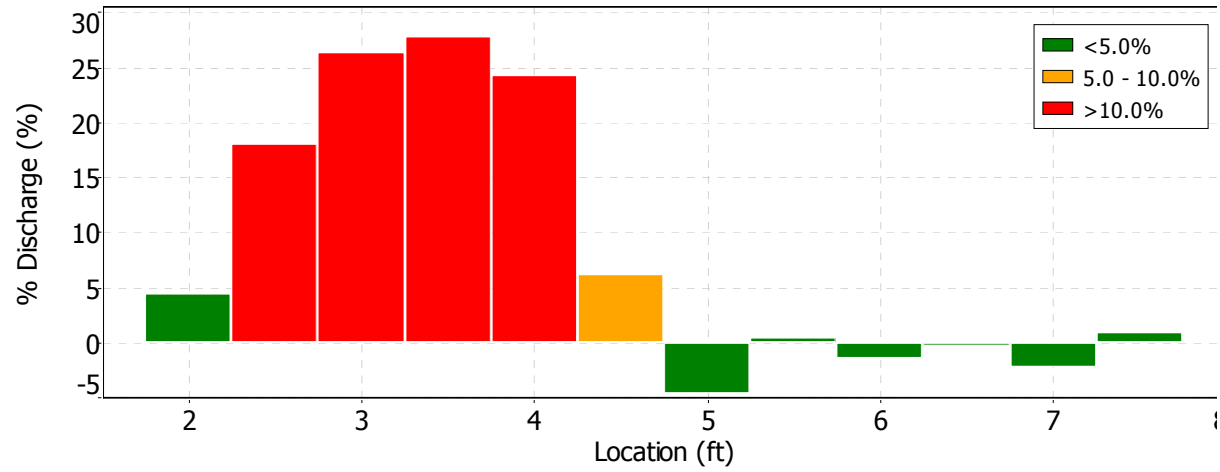
Water Monitoring Solutions

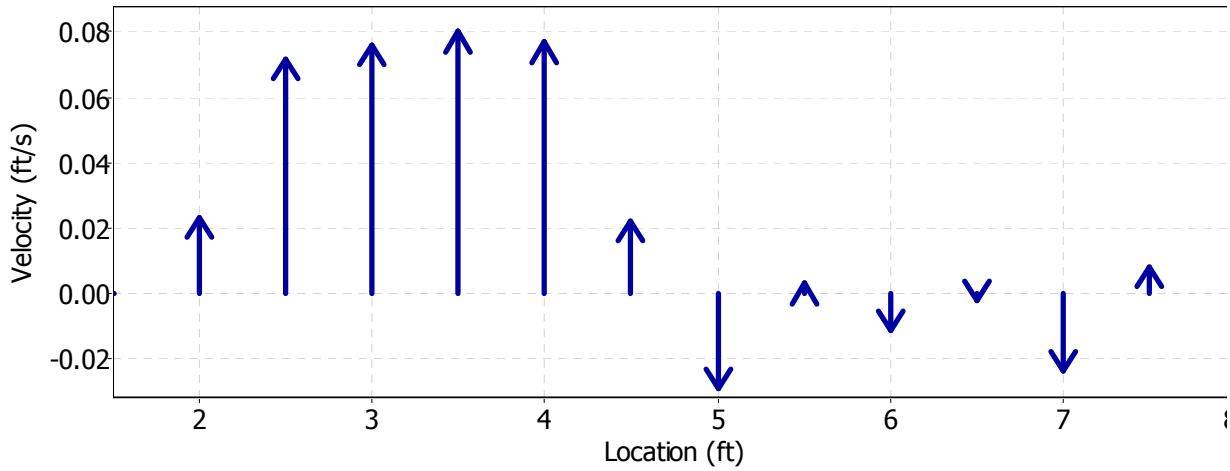
Discharge Measurement Summary

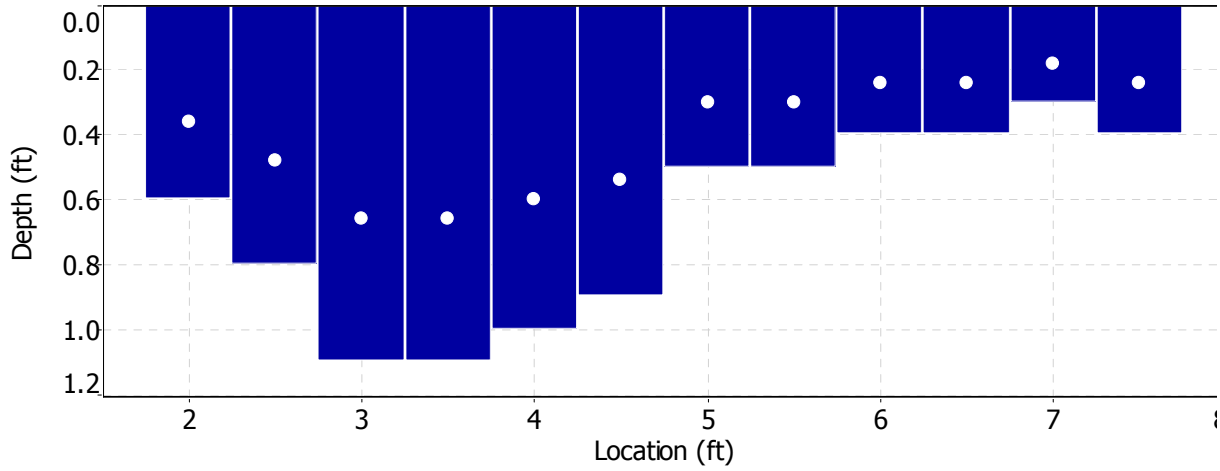
Date Generated: Tue Jul 5 2011

File Information	
File Name	10273.002.WAD
Start Date and Time	2011/07/02 14:32:59

Site Details	
Site Name	HART AT 49
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information		Site Details	
File Name	10273.002.WAD	Site Name	HART AT 49
Start Date and Time	2011/07/02 14:32:59	Operator(s)	AROCHA

Quality Control

St	Loc	%Dep	Message
2	7.00	0.6	High angle: 174
4	6.00	0.6	High differences in beam SNR: 64.0,32.6
		0.6	High SNR variation during measurement: 5.2,18.9
5	5.50	0.6	High number of spikes: 3
		0.6	High differences in beam SNR: 43.4,19.3
		0.6	SNR (31.4) is different from typical SNR (42.4)
		0.6	High SNR variation during measurement: 7.3,6.5
6	5.00	0.6	High angle: -159
		0.6	High SNR variation during measurement: 4.7,6.0
8	4.00	0.6	High angle: 27
		0.6	High SNR variation during measurement: 8.6,9.0
9	3.50	0.6	High angle: 21
		0.6	SNR (31.2) is different from typical SNR (42.4)
		0.6	High SNR variation during measurement: 10.8,12.0
		0.6	High standard error: 0.010
10	3.00	0.6	High SNR variation during measurement: 8.2,7.7
11	2.50	0.6	High SNR variation during measurement: 8.2,8.2
12	2.00	0.6	High SNR variation during measurement: 3.9,5.2

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin, L. Arocha WMS
Date & Time: 7/2/11 1257	County Name: Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404-C	
Description of Site: H10271 CCR 4410 (SE 28)	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. ~~0.68~~ 0.2 cfs 7/31/11 estimated

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 38 °C Water Temp 28 °C 82 F

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

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

6. Ease of bank access to the water body: (Easy) (Moderately easy) Moderately difficult Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation): No parking, fenced, private property, no trespassing sign, shallow & narrow

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271
Date: 7/2/11 Time: 1257

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	X No primary contact activities that commonly occur were observed
☐ 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: X 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).
Shallow, narrow, soft sediment, poor clarity, lots of garbage & other debris in channel, no parking area

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 4410

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?
Yes Town Lake is ~5 miles

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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 X 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
X No secondary contact recreation activities were observed
☐ Other secondary contact activities: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271
Date: 7/2/11 Time: 1257

b. Check the number of individuals observed at the site.
X 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).
See B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X limited public access other
If other, list reasons: No evidence of 2° contact

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).
Same as A7 & B2

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).
private property & fencing on both sides of road, thick vegetation

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271 1257
Date: 7/2/11 17

E. Stream Channel and Substantial Pools
Please check the following which best describes the river or stream: ☑ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why. No pools that meet criteria

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	2.4	0.10
60 meters	3.0	0.25
90 meters	3.4	0.21
120 meters	1.8	0.05
150 meters	2.1	0.16
180 meters	4.0	0.19
210 meters	3.4	0.21
240 meters	3.7	0.13
270 meters	1.5	0.01
300 meters	3.4	0.22
Average	2.9	0.15

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271
Date: 7/2/11 Time: 1257

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	2.9
Width at narrowest point of the stream within 300 meter reach	1.5
Width at the widest point of the stream within 300 meter reach	4.0

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10271
Date: 7/2 Time: 1257

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

bridge

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

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

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

Comments: CR 4410

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

- [x] Private Property
- [x] No trespass sign
- [x] Wildlife
- [x] 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).

- [x] 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
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: CR 4410

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 102-71
Date: 7/2/11 Time: 1257

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: X absent rare common abundant
Algae Cover: X absent rare common abundant
Odor: X none rare common abundant
Color: clear green red X brown black
Bottom Deposit: sludge solids X fine sediments none other
Water Surface: clear X scum foam debris oil
Other:
some areas w/ oily bio film on surface

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	X large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments: saw a lot of animal tracks.

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	Common	X Abundant
Small garbage in the channel	None	Rare	Common	X Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: tires, hot water heater, bumper, car parts, cans, bottles, plastic bags

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

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

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R Rushin, L. Arocha WMS
Date & Time: 7/2/11 1130	County Name: Titus
Stream Name: Hart Creek	
Segment No. or nearest downstream Segment No.: 0404C	
Description of Site: # 02666 @ CR 4550 (SE12)	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 1.85 cfs

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 34 °C Water Temp 28 °C 82 °F

5. 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
LR Shrub dominated corridor	LR Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): ____
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

private property, steep banks, thick vegetation, no parking area, poison ivy

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 102166
Date: 7/2/11 Time: 1130

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Private property fences, too shallow & narrow, steep banks, turbid water, snags & snakes

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
CR 4550

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?
Yes, LBS park is 6 miles from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 103166
Date: 7/2/11 Time: 1130

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).
see B2

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: landowners told us no one fishes here

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).
too shallow, see B2

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).
Private property, fenced off with barbed wire, no where to park

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 10266
Date: 7/2/11 FDS Page 3 of 8 1130

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: ☒ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	14	9	1.02
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	4.6	0.53
60 meters	5.2	0.72
90 meters	3.2	1.02
120 meters	5.8	0.76
150 meters	4.6	0.35
180 meters	5.5	0.68
210 meters	3.4	0.24
240 meters	3.0	0.12
270 meters	5.2	0.46
300 meters	5.2	0.24
Average	5.1	0.51

Field Data Sheets – Basic RUAA Survey

Stream Name Hart Creek Site: 102166
Date: 7/2/11 Time: 1130

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	5.1
Width at narrowest point of the stream within 300 meter reach	3.0
Width at the widest point of the stream within 300 meter reach	8.2

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☒ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 102666
Date: 7/2/11 Time: 1130

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: WWTP u/s of site 1.8 km

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

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

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

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

Comments: CR 4550

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

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

Comments: _____

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

- [x] Roads
- [ ] Rope swings
- [ ] Dock/platform
- [ ] Foot paths/prints
- [ ] Other: _____
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [x] NPDES Discharge City of Mt. Pleasant
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: CR 4550

Field Data Sheets – Basic RUAA Survey

Stream Name: Hart Creek Site: 102666
Date: 7/2/11 Time: 1130

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	X rare	common	abundant
Algae Cover:	X absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	clear	X scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	X moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	None	X slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments: Livestock have had access to stream, none observed in stream

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	Rare	X Common	Abundant
Small garbage in the channel	None	Rare	X Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: several tires & other large items in stream @ bridge, litter is common @ bridge

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

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

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	10266.WAD
Start Date and Time	2011/07/02 12:20:40

Site Details

Site Name	4550
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.5%	6.5%
Velocity	0.5%	5.2%
Width	0.2%	0.2%
Method	2.6%	-
# Stations	3.9%	-
Overall	**4.8%**	**8.4%**

Summary

Averaging Int.	20	# Stations	13
Start Edge	REW	Total Width	6.000
Mean SNR	32.2 dB	Total Area	1.825
Mean Temp	81.93 °F	Mean Depth	0.304
Disch. Equation	Mid-Section	Mean Velocity	1.0116
		Total Discharge	**1.8462**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:20	1.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:20	1.50	0.6	0.250	0.6	0.100	0.7152	1.00	0.7152	0.125	0.0894	4.8
2	*12:22*	*2.00*	*0.6*	*0.300*	*0.6*	*0.120*	*0.7231*	*1.00*	*0.7231*	*0.150*	*0.1084*	*5.9*
3	12:23	2.50	0.6	0.500	0.6	0.200	1.0404	1.00	1.0404	0.250	0.2601	14.1
4	*12:24*	*3.00*	*0.6*	*0.550*	*0.6*	*0.220*	*1.0997*	*1.00*	*1.0997*	*0.275*	*0.3024*	*16.4*
5	12:24	3.50	0.6	0.550	0.6	0.220	1.2454	1.00	1.2454	0.275	0.3424	18.5
6	12:25	4.00	0.6	0.280	0.6	0.112	1.3688	1.00	1.3688	0.140	0.1915	10.4
7	12:26	4.50	0.6	0.220	0.6	0.088	1.3678	1.00	1.3678	0.110	0.1506	8.2
8	12:26	5.00	0.6	0.250	0.6	0.100	1.2218	1.00	1.2218	0.125	0.1527	8.3
9	12:27	5.50	0.6	0.350	0.6	0.140	0.8780	1.00	0.8780	0.175	0.1537	8.3
10	12:28	6.00	0.6	0.200	0.6	0.080	0.9472	1.00	0.9472	0.100	0.0948	5.1
11	*12:29*	*6.50*	*0.6*	*0.200*	*0.6*	*0.080*	*0.0023*	*1.00*	*0.0023*	*0.100*	*0.0002*	*0.0*
12	12:29	7.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

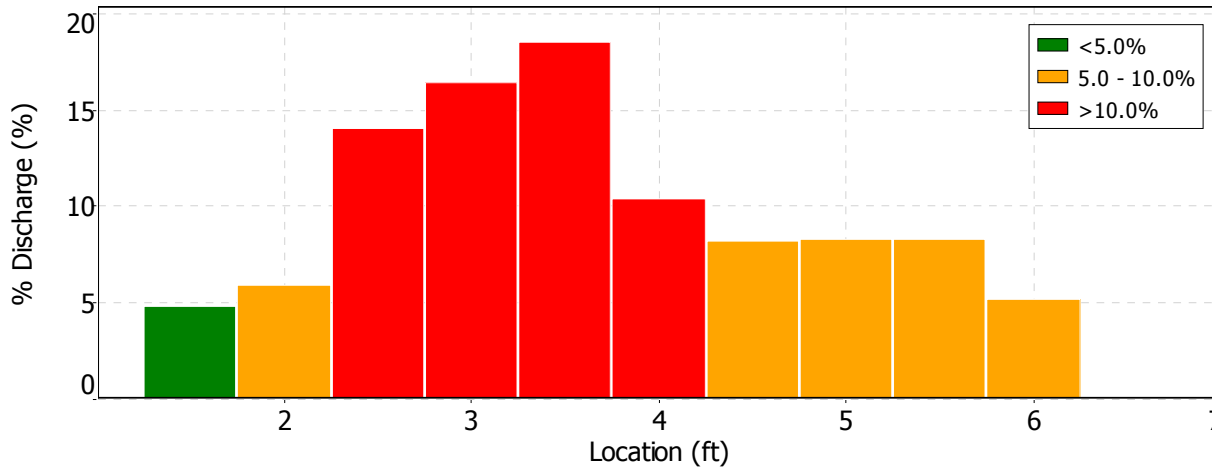
Water Monitoring Solutions

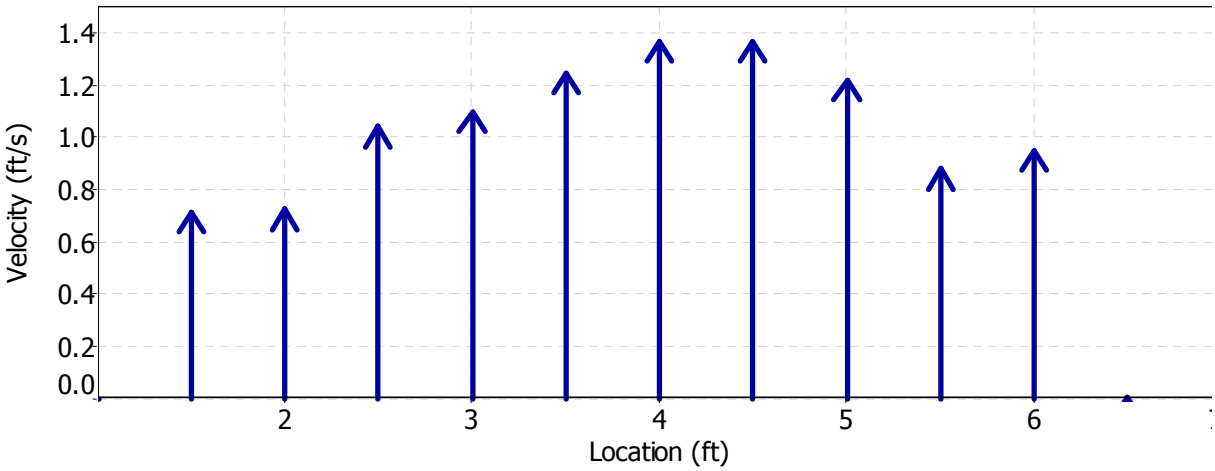
Discharge Measurement Summary

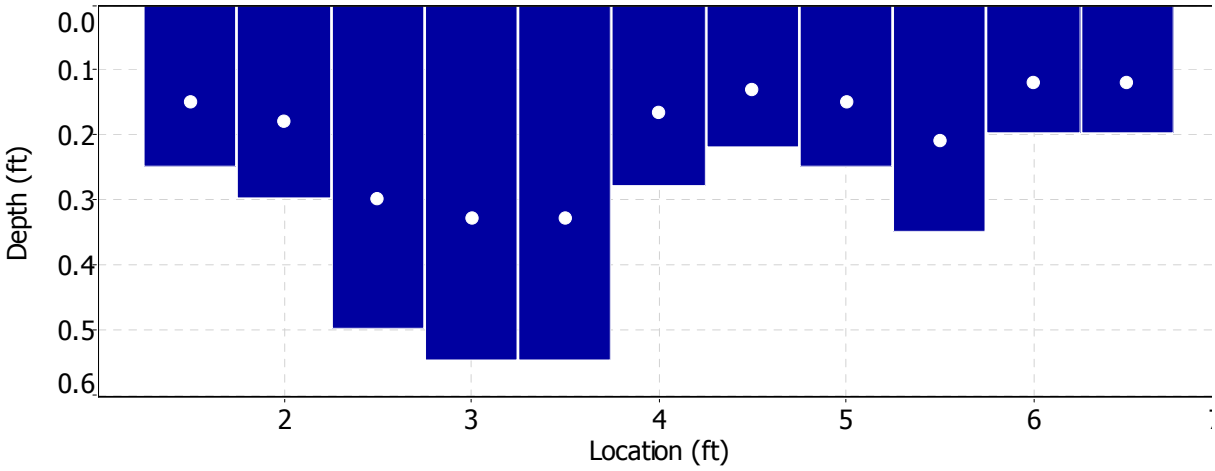
Date Generated: Tue Jul 5 2011

File Information	
File Name	10266.WAD
Start Date and Time	2011/07/02 12:20:40

Site Details	
Site Name	4550
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information	
File Name	10266.WAD
Start Date and Time	2011/07/02 12:20:40

Site Details	
Site Name	4550
Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
2	2.00	0.6	High angle: 27
4	3.00	0.6	High angle: 25
11	6.50	0.6	SNR (51.3) is different from typical SNR (32.2)

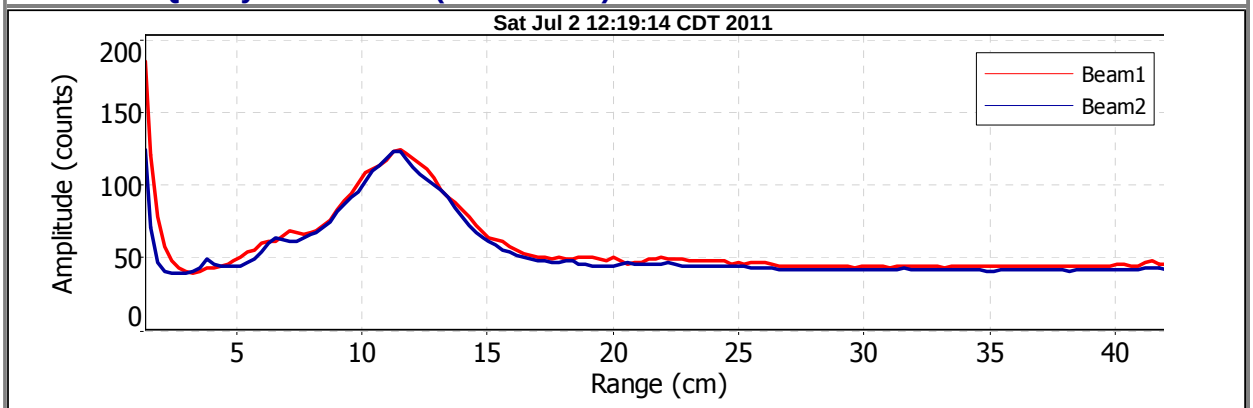
Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information		Site Details	
File Name	10266.WAD	Site Name	4550
Start Date and Time	2011/07/02 12:20:40	Operator(s)	AROCHA

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R Rushin, L. Arocha WMS
Date & Time: 7/1/11 0725	County Name: Titus / Camp
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: # BCC1 @ below LBS spillway	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.2 cfs est. too deep to measure flow

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 23 °C Water Temp 25.5 °C

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

Steep bank, area washed due to releases from LBS dam
Access to site controlled by security gate, TCEWSD staff only

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC 1
Date: 7/1/15 Time: 0729

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Access to site controlled by security gate, patrolled by security, only accessible to TCFWSD staff

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
None see B2 above

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?
Yes, LBS park 500m from site

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC1
Date: 7/1/11 Time: 0725

b. Check the number of individuals observed at the site.
X 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).
same as primary - gated & fenced & limited to staff

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

4. If infrequently, what is the reason? ☐ physical characteristics of the water body X 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).
fishing from a boat is done by staff on occassion - public is not allowed below the dam

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).
security patrolled, concerns about safety below dam, no roads thick vegetation, trail was cut for this study

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC 1
Date: 7/1/11 0725

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ Wadeable X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name Big Cypress Creek Site: BCC1
Date: 7/1/11 Time: 0825

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	~~74~~ 44
2	42
3	38
4	36
5	38
6	40
7	38
8	51
9	56
10	50
Avg	43

Depth > 2.4m

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC1
Date: 7/1/11 Time: 0825

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Releases from Ft. Sherman dam

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

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

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
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] Power Line Corridor
- [ ] Parks (national/city/county/state)
- [ ] Public Property
- [ ] Other: _____
- [x] None of the Above

Comments: _____

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

- [x] Private Property
- [x] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [x] No public access
- [x] No roads
- [x] 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: _____
- [x] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: RTV path cut for this study

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: BCC 1
Date: 7/11/11 Time: 0725

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	✓ absent	rare	common	abundant
Algae Cover:	✓ absent	rare	common	abundant
Odor:	✓ none	rare	common	abundant
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	None	✓ slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	✓ moderate presence	large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	✓ None	✓ slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ✓ Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	Rare	Common	Abundant
Small garbage in the channel	✓ None	Rare	Common	Abundant
Bank Garbage	None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

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

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R Rushin, L Arocha, WMS
Date & Time: 7/1/11 08:10	County Name: Titus / Camp
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: # 10309 @ 100 m above Tankersley Confluence	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 0.2 cfs Measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 26 °C Water Temp 26.0 °C

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

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

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

located on private property, no roads, steep banks, vines & vegetation, poison ivy, need 4WD to get to site

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☑ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 7/1/10 Time: 0810

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
too shallow, lots of debris in channel, soft sediment, murky water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
None, fenced & gated, no roads

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?
Yes, LBS park

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 7/1/14 Time: 0810

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).
Same as B2 & A7

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).
too shallow & narrow to support good population of sport fish

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).
Landowner may fish from banks @ site once or twice per year
Same as A7 & B2

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: 10309
Date: 7/1/11 0810

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: Y Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

no pools that meet criteria

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

beaver dam @160m

Distance	width	Depth (meters)
30 meters	4.5	0.34
60 meters	7.0	0.72
90 meters	4.6	0.39
120 meters	4.9	0.79
150 meters	6.1	0.22
180 meters	7.0	0.93
210 meters	8.0	0.90
240 meters	7.0	0.76
270 meters	8.0	0.98
300 meters	9.0	0.92
Average	6.6	0.61

Field Data Sheets – Basic RUAA Survey

Stream Name Big Cypress Creek Site: 10309
Date: 7/1/11 Time: 0810

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	6.6
Width at narrowest point of the stream within 300 meter reach	4.5
Width at the widest point of the stream within 300 meter reach	9.0

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☑ No

COMMENTS: lots of snags, logs, limbs in channel, soft bottom beaver dam caused pooling, water had oily surface film

2. Non-wadeable Streams

If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	6.6
2	
3	
4	
5	
6	
7	
8	
9	
10	

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 7/1/11 Time: 0810

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

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

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

~ Dam @ LBS

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

- [x] Private Property
- [ ] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [x] No public access
- [x] No roads
- [x] 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
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence
- [x] Other: pasture

Comments: pasture - somewhat managed. was access point to stream, but not in study reach - about 200 m d/s of Reach

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10309
Date: 7/1/11 Time: 0810

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	✓ rare	common	abundant
Algae Cover:	✓ absent	rare	common	abundant
Odor:	✓ none	rare	common	abundant
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	clear	✓ scum	foam	debris	oil

Other: scum/oily bio film u/s of beaver dam @ ~160m from Tankersley Creek confluence

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	✓ None	slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	✓ large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	None	✓ slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ✓ Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	Rare	Common	Abundant
Small garbage in the channel	✓ None	Rare	Common	Abundant
Bank Garbage	✓ None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Site near public park on LBS

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	10309.002.WAD
Start Date and Time	2011/07/01 09:00:16

Site Details

Site Name	BCC AT TANK
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.4%	1.8%
Velocity	7.7%	23.4%
Width	0.2%	0.2%
Method	2.5%	-
# Stations	1.8%	-
Overall	**8.4%**	**23.5%**

Summary

Averaging Int.	20	# Stations	28
Start Edge	LEW	Total Width	13.500
Mean SNR	41.6 dB	Total Area	10.720
Mean Temp	79.03 °F	Mean Depth	0.794
Disch. Equation	Mid-Section	Mean Velocity	0.0180
		Total Discharge	**0.1932**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	09:00	14.50	None	0.500	0.0	0.0	0.0000	1.00	0.0016	0.125	0.0002	0.1
1	09:00	14.00	0.6	0.500	0.6	0.200	0.0016	1.00	0.0016	0.250	0.0004	0.2
2	*09:01*	*13.50*	*0.6*	*0.600*	*0.6*	*0.240*	*0.0568*	*1.00*	*0.0568*	*0.300*	*0.0170*	*8.8*
3	*09:01*	*13.00*	*0.6*	*0.630*	*0.6*	*0.252*	*0.0627*	*1.00*	*0.0627*	*0.315*	*0.0197*	*10.2*
4	*09:02*	*12.50*	*0.6*	*0.760*	*0.6*	*0.304*	*0.0814*	*1.00*	*0.0814*	*0.380*	*0.0309*	*16.0*
5	09:03	12.00	0.6	0.760	0.6	0.304	-0.0049	1.00	-0.0049	0.380	-0.0019	-1.0
6	09:03	11.50	0.6	0.850	0.6	0.340	0.0174	1.00	0.0174	0.425	0.0074	3.8
7	09:04	11.00	0.6	0.950	0.6	0.380	-0.0059	1.00	-0.0059	0.475	-0.0028	-1.5
8	09:05	10.50	0.6	1.010	0.6	0.404	0.0433	1.00	0.0433	0.505	0.0219	11.3
9	*09:05*	*10.00*	*0.6*	*1.010*	*0.6*	*0.404*	*0.0115*	*1.00*	*0.0115*	*0.505*	*0.0058*	*3.0*
10	09:06	9.50	0.6	1.000	0.6	0.400	0.0112	1.00	0.0112	0.500	0.0056	2.9
11	*09:06*	*9.00*	*0.6*	*1.100*	*0.6*	*0.440*	*0.0075*	*1.00*	*0.0075*	*0.550*	*0.0042*	*2.1*
12	*09:07*	*8.50*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0233*	*1.00*	*0.0233*	*0.500*	*0.0116*	*6.0*
13	*09:07*	*8.00*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0325*	*1.00*	*0.0325*	*0.500*	*0.0162*	*8.4*
14	*09:08*	*7.50*	*0.6*	*0.900*	*0.6*	*0.360*	*0.0318*	*1.00*	*0.0318*	*0.450*	*0.0143*	*7.4*
15	*09:08*	*7.00*	*0.6*	*1.000*	*0.6*	*0.400*	*-0.0010*	*1.00*	*-0.0010*	*0.500*	*-0.0005*	*-0.3*
16	09:09	6.50	0.6	1.000	0.6	0.400	0.0089	1.00	0.0089	0.500	0.0044	2.3
17	09:10	6.00	0.6	1.000	0.6	0.400	0.0085	1.00	0.0085	0.500	0.0043	2.2
18	*09:11*	*5.50*	*0.6*	*0.850*	*0.6*	*0.340*	*0.0538*	*1.00*	*0.0538*	*0.425*	*0.0229*	*11.8*
19	*09:11*	*5.00*	*0.6*	*0.760*	*0.6*	*0.304*	*0.0531*	*1.00*	*0.0531*	*0.380*	*0.0202*	*10.5*
20	09:12	4.50	0.6	0.760	0.6	0.304	-0.0144	1.00	-0.0144	0.380	-0.0055	-2.8
21	09:13	4.00	0.6	0.800	0.6	0.320	-0.0151	1.00	-0.0151	0.400	-0.0060	-3.1
22	*09:13*	*3.50*	*0.6*	*0.700*	*0.6*	*0.280*	*0.0253*	*1.00*	*0.0253*	*0.350*	*0.0088*	*4.6*
23	09:14	3.00	0.6	0.620	0.6	0.248	0.0085	1.00	0.0085	0.310	0.0026	1.4
24	*09:15*	*2.50*	*0.6*	*0.650*	*0.6*	*0.260*	*-0.0259*	*1.00*	*-0.0259*	*0.325*	*-0.0084*	*-4.4*
25	*09:15*	*2.00*	*0.6*	*0.580*	*0.6*	*0.232*	*-0.0148*	*1.00*	*-0.0148*	*0.290*	*-0.0043*	*-2.2*
26	*09:16*	*1.50*	*0.6*	*0.400*	*0.6*	*0.160*	*0.0203*	*1.00*	*0.0203*	*0.200*	*0.0041*	*2.1*
27	09:16	1.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

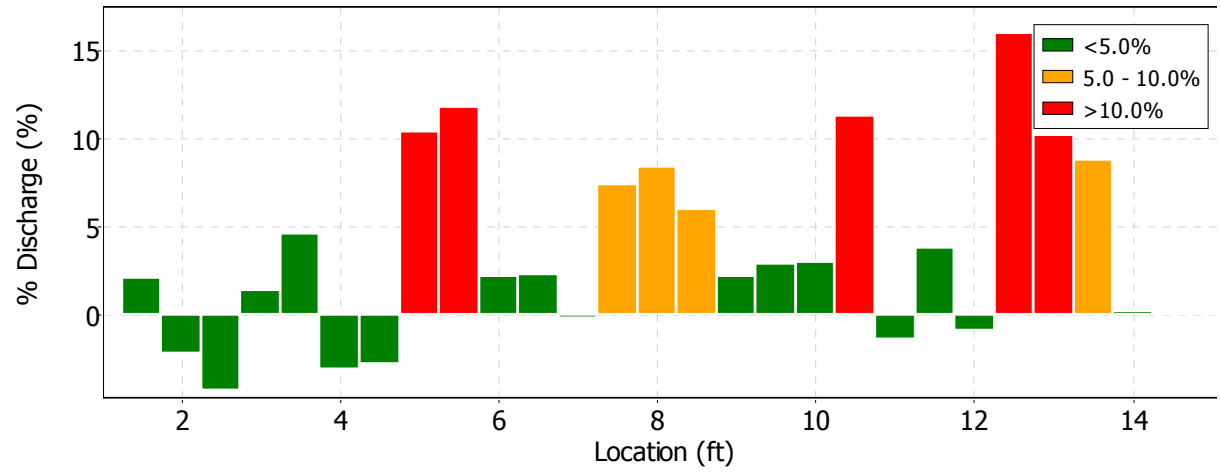
Water Monitoring Solutions

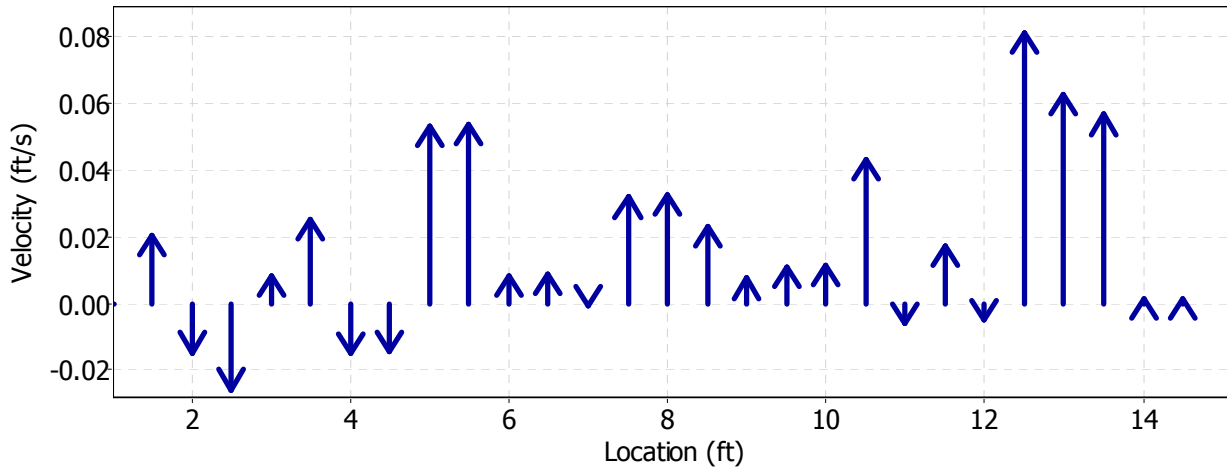
Discharge Measurement Summary

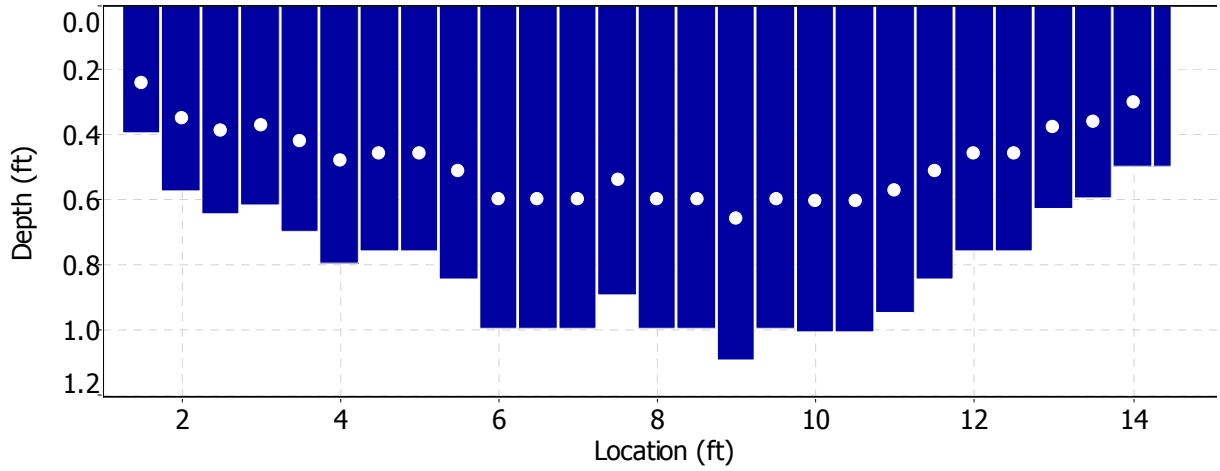
Date Generated: Tue Jul 5 2011

File Information	
File Name	10309.002.WAD
Start Date and Time	2011/07/01 09:00:16

Site Details	
Site Name	BCC AT TANK
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information		Site Details	
File Name	10309.002.WAD	Site Name	BCC AT TANK
Start Date and Time	2011/07/01 09:00:16	Operator(s)	AROCHA

Quality Control

St	Loc	%Dep	Message
2	13.50	0.6	High SNR variation during measurement: 4.7,5.2
3	13.00	0.6	High angle: 27
4	12.50	0.6	High angle: 42
9	10.00	0.6	High SNR variation during measurement: 4.7,5.2
11	9.00	0.6	High standard error: 0.016
12	8.50	0.6	High angle: 60
13	8.00	0.6	High angle: 67
14	7.50	0.6	High angle: 63
15	7.00	0.6	High SNR variation during measurement: 4.7,5.2
18	5.50	0.6	High angle: 31
		0.6	High SNR variation during measurement: 6.9,7.3
19	5.00	0.6	High angle: 31
22	3.50	0.6	High angle: 26
24	2.50	0.6	High angle: 166
25	2.00	0.6	High SNR variation during measurement: 12.0,8.2
26	1.50	0.6	High angle: -27
		0.6	High SNR variation during measurement: 5.6,6.0

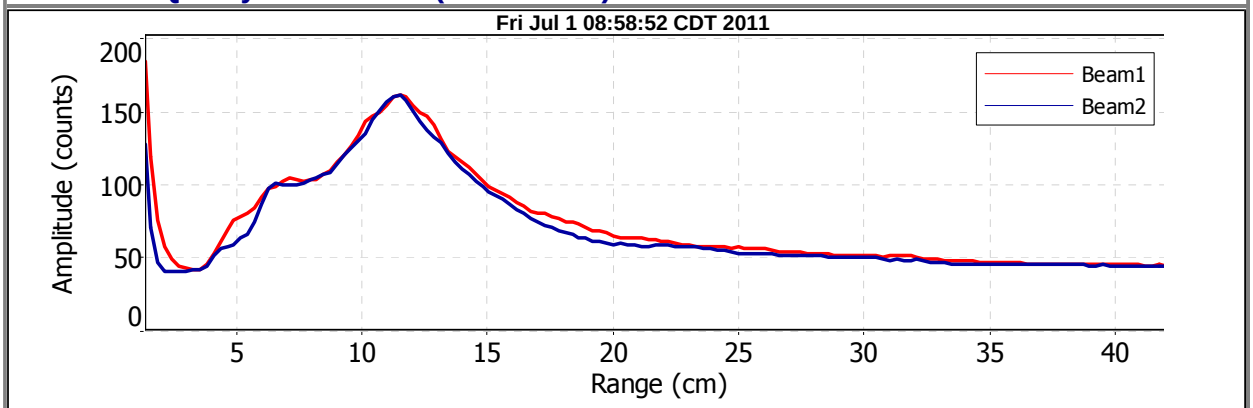
Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information		Site Details	
File Name	10309.002.WAD	Site Name	BCC AT TANK
Start Date and Time	2011/07/01 09:00:16	Operator(s)	AROCHA

Automatic Quality Control Test (BeamCheck)



- Noise level check - Pass
- SNR check - Pass
- Peak location check - Pass
- Peak shape check - Pass

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin L. Arocha WMS
Date & Time: 7/1/11 16:33	County Name: Titus / Camp Co.
Stream Name: Big Cypress Creek	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: 10310 @ US 271	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 54 cfs USGS gage #07344493

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 38 °C Water Temp 29 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

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

No road from US 271 to stream, steep road ~~bank~~ embankment down to stream – requires 4WD

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10310
Date: 7/1/15 Time: 1633

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
Difficult to access bank, Require 4WD vehicle, non-wadable, log jams

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
None

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? Yes, LBS

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Bee Cypress Creek Site: 10310
Date: 7/1/11 Time: 1633

b. Check the number of individuals observed at the site.
X 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).
Steep bank from roadway, see B2

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

4. If infrequently, what is the reason? X physical characteristics of the water body X 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).
No place to launch boat, narrow & shallow in places, thick vegetation along banks

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).
No road from highway embankment to stream, steep embankment, difficult to launch boat

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10310
Date: 7/1/11 FDS Page 3 of 8 1633

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ Wadeable X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10310
Date: 7/1/15 Time: 1633

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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)	Depth m
1	8	0.95
2	16	0.95
3	19	1.90
4	10	0.91
5	9	0.39
6	14	1.20
7	14	0.82
8	17	2.04
9	13	2.20
10	9	0.68
Avg		

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10310
Date: 7/1/11 Time: 1633

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

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

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

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [x] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved) US 27
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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
- [x] Wildlife
- [x] Steep slopes
- [ ] No public access
- [x] No roads to site from US 27
- [ ] 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
- [x] Other: tagging
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [x] Fishing Tackle
- NPDES Discharge
- Gates on corridor
- Children's toys
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: see photo

Field Data Sheets – Basic RUAA Survey

Stream Name: Big Cypress Creek Site: 10310
Date: 7/1/14 Time: 1633

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation: absent rare X common abundant
Algae Cover: absent X rare common abundant
Odor: X none rare common abundant
Color: clear green red X brown black
Bottom Deposit: sludge solids X fine sediments none other
Water Surface: clear X scum foam debris oil
Other:
Some bio film

8. Vertebrates Observed within 300 meter reach

Snakes	None	X slight presence	moderate presence	large presence
Water Dependent Birds	X None	slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	X slight presence	moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	None	X slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks X Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	None	X Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	X Rare	Common	Abundant

Briefly describe the kinds of garbage observed: Some common litter near highway

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

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

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	R RUSHIN, L. AROCHA WMS
Date & Time: 7/1/11 1010	County Name: Titus / Camp Co
Stream Name: BIG CYPRESS CREEK	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: BCC 2 @ HART CONFLUENCE	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☐ no flow ☑ flow ☐ 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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 3.7 cfs measured

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 31 °C Water Temp 26 °C

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

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

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

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

Fenced, controlled access gate, security patrols area, had to be escorted while on property, TCEWSD board approved access for this study

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☒ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

thick forested area,

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: BCC 2
Date: 7/1/11 Time: 1010

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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	☒ No primary contact activities that commonly occur were observed
☐ 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).
Shallow, narrow, turbid, murky water, soft sediments steep banks, thick vegetation

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
None, see A7

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?
Yes, LBS park

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC 2
Date: 7/1/11 Time: 1010

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).
See A7 & B2

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).
Same as B2

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).
Private property, fenced controlled access gate, patrolled, no roads to site, thick vegetation

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC 2
Date: 7/1/11 FDS Page 3 of 8 1010

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	20	9	1.24
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance width	Depth (meters)
30 meters 8	0.32
60 meters 5	0.39
90 meters 6	0.58
120 meters 6	0.50
150 meters 4	0.26
180 meters 9	0.51
210 meters 5	0.75
240 meters 8	0.80
270 meters 9	1.24
300 meters 10	0.44
Average 7	0.58

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: BCC 2
Date: 7/1/11 Time: 1010

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	7
Width at narrowest point of the stream within 300 meter reach	4
Width at the widest point of the stream within 300 meter reach	10

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☑ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: BCC2
Date: 7/1/11 Time: 1010

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

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

Comments: security patrolled property, no road to site

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

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

Comments: unpaved roads on private property, TCFWSD cut RTV path to site for this project

Field Data Sheets – Basic RIAA Survey

Stream Name: BIG CYPRESS CREEK Site: BCC2
Date: 7/1/11 Time: 1010

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	✓ rare	common	abundant	
Algae Cover:	✓ absent	rare	common	abundant	
Odor:	✓ none	rare	common	abundant	
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other: Some oily bio film in a few places

8. Vertebrates Observed within 300 meter reach

Snakes	None	slight presence	moderate presence	✓ large presence
Water Dependent Birds	✓ None	slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	✓ large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	✓ moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ✓ Fecal droppings ✓ Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	Rare	Common	Abundant
Small garbage in the channel	✓ None	Rare	Common	Abundant
Bank Garbage	✓ None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Property is a conservation area for TCFWSD. No hunting allowed on property. - approx 3,000 Acres.

Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information

File Name	BCC2.002.WAD
Start Date and Time	2011/07/01 11:05:22

Site Details

Site Name	BCC AT HART
Operator(s)	AROCHA

System Information

Sensor Type	FlowTracker
Serial #	P3026
CPU Firmware Version	3.7
Software Ver	2.11

Units (English Units)

Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	1.5%
Velocity	1.6%	5.3%
Width	0.1%	0.1%
Method	2.2%	-
# Stations	2.2%	-
Overall	**3.6%**	**5.6%**

Summary

Averaging Int.	20	# Stations	23
Start Edge	REW	Total Width	13.000
Mean SNR	35.6 dB	Total Area	16.767
Mean Temp	78.37 °F	Mean Depth	1.290
Disch. Equation	Mid-Section	Mean Velocity	0.2213
		Total Discharge	**3.7100**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	11:05	1.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*11:05*	*1.50*	*0.6*	*0.400*	*0.6*	*0.160*	*0.2756*	*1.00*	*0.2756*	*0.200*	*0.0551*	*1.5*
2	11:05	2.00	0.6	0.730	0.6	0.292	0.4741	1.00	0.4741	0.365	0.1730	4.7
3	11:06	2.50	0.6	1.360	0.6	0.544	0.4718	1.00	0.4718	0.680	0.3208	8.6
4	11:07	3.00	0.6	1.600	0.6	0.640	0.5030	1.00	0.5030	0.800	0.4024	10.8
5	11:07	3.50	0.6	1.720	0.6	0.688	0.4360	1.00	0.4360	0.860	0.3750	10.1
6	11:08	4.00	0.6	1.900	0.6	0.760	0.4157	1.00	0.4157	0.950	0.3949	10.6
7	11:08	4.50	0.6	2.000	0.6	0.800	0.4186	1.00	0.4186	1.000	0.4186	11.3
8	*11:09*	*5.00*	*0.6*	*2.080*	*0.6*	*0.832*	*0.3484*	*1.00*	*0.3484*	*1.040*	*0.3624*	*9.8*
9	11:10	5.50	0.6	2.100	0.6	0.840	0.3186	1.00	0.3186	1.050	0.3345	9.0
10	*11:11*	*6.00*	*0.6*	*1.950*	*0.6*	*0.780*	*0.2953*	*1.00*	*0.2953*	*0.975*	*0.2879*	*7.8*
11	*11:11*	*6.50*	*0.6*	*1.950*	*0.6*	*0.780*	*0.0659*	*1.00*	*0.0659*	*0.975*	*0.0643*	*1.7*
12	*11:12*	*7.00*	*0.6*	*1.950*	*0.6*	*0.780*	*0.1424*	*1.00*	*0.1424*	*0.975*	*0.1388*	*3.7*
13	*11:12*	*7.50*	*0.6*	*1.900*	*0.6*	*0.760*	*0.1368*	*1.00*	*0.1368*	*0.950*	*0.1300*	*3.5*
14	*11:13*	*8.00*	*0.6*	*1.800*	*0.6*	*0.720*	*0.0942*	*1.00*	*0.0942*	*0.900*	*0.0847*	*2.3*
15	*11:14*	*8.50*	*0.6*	*1.670*	*0.6*	*0.668*	*0.1972*	*1.00*	*0.1972*	*0.835*	*0.1646*	*4.4*
16	*11:14*	*9.00*	*0.6*	*1.500*	*0.6*	*0.600*	*0.0607*	*1.00*	*0.0607*	*0.750*	*0.0455*	*1.2*
17	11:15	9.50	0.6	1.400	0.6	0.560	0.0167	1.00	0.0167	0.700	0.0117	0.3
18	*11:15*	*10.00*	*0.6*	*1.230*	*0.6*	*0.492*	*-0.0289*	*1.00*	*-0.0289*	*0.922*	*-0.0266*	*-0.7*
19	*11:16*	*11.00*	*0.6*	*0.770*	*0.6*	*0.308*	*-0.0594*	*1.00*	*-0.0594*	*0.770*	*-0.0457*	*-1.2*
20	*11:17*	*12.00*	*0.6*	*0.770*	*0.6*	*0.308*	*0.0141*	*1.00*	*0.0141*	*0.770*	*0.0109*	*0.3*
21	*11:17*	*13.00*	*0.6*	*0.300*	*0.6*	*0.120*	*0.0240*	*1.00*	*0.0240*	*0.300*	*0.0072*	*0.2*
22	11:17	14.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

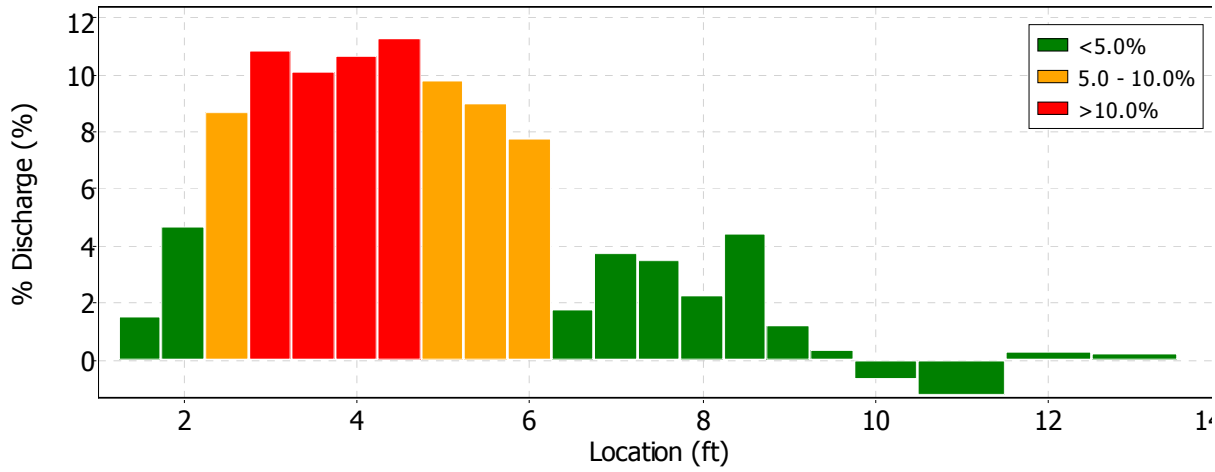
Water Monitoring Solutions

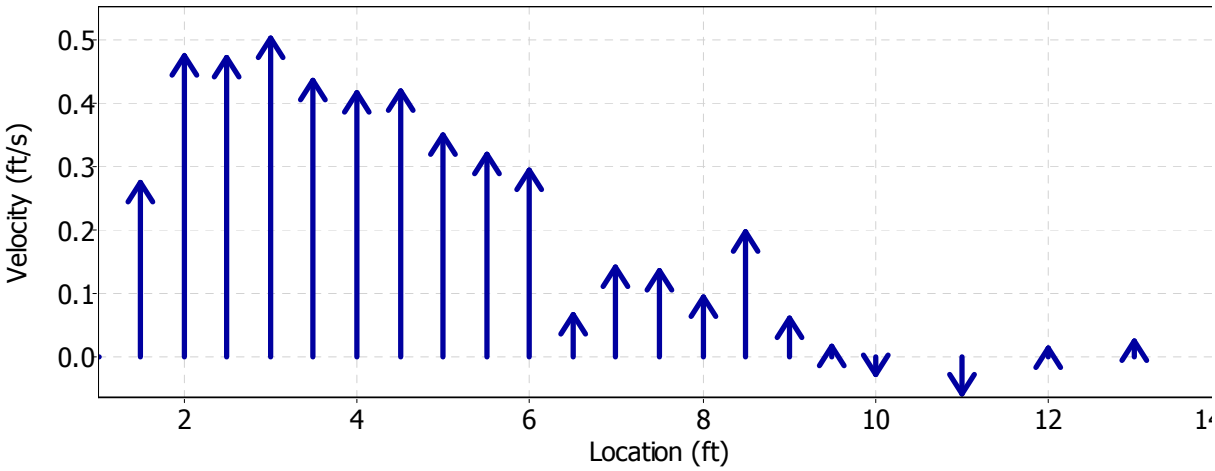
Discharge Measurement Summary

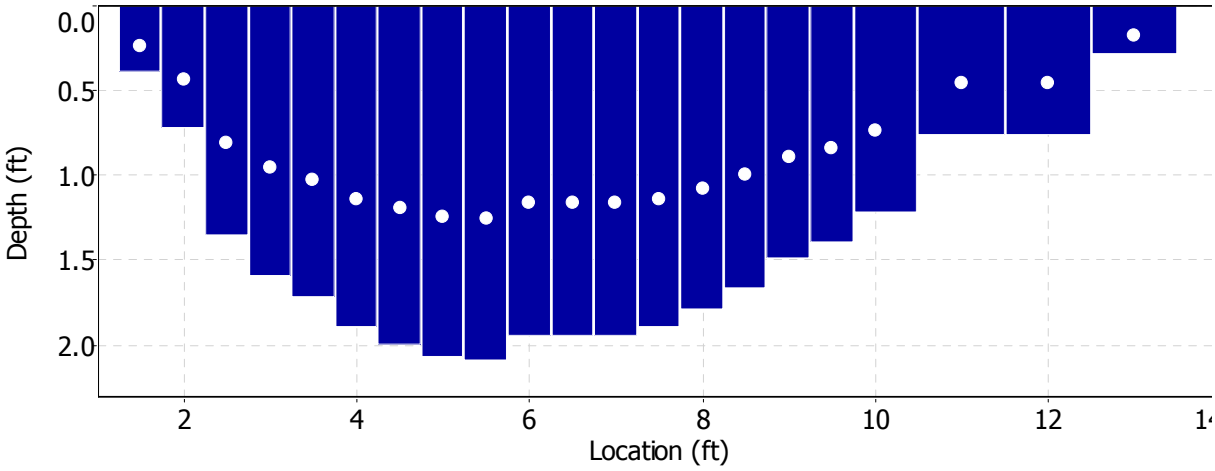
Date Generated: Tue Jul 5 2011

File Information	
File Name	BCC2.002.WAD
Start Date and Time	2011/07/01 11:05:22

Site Details	
Site Name	BCC AT HART
Operator(s)	AROCHA







Water Monitoring Solutions

Discharge Measurement Summary

Date Generated: Tue Jul 5 2011

File Information	
File Name	BCC2.002.WAD
Start Date and Time	2011/07/01 11:05:22

Site Details	
Site Name	BCC AT HART
Operator(s)	AROCHA

Quality Control

St	Loc	% Dep	Message
1	1.50	0.6	High standard error: 0.025
8	5.00	0.6	High angle: 21
10	6.00	0.6	High angle: 24
11	6.50	0.6	High angle: 32
		0.6	High SNR variation during measurement: 4.7,5.2
12	7.00	0.6	High angle: 38
13	7.50	0.6	High angle: 33
14	8.00	0.6	High angle: 33
		0.6	High SNR variation during measurement: 8.2,7.7
15	8.50	0.6	High angle: 35
16	9.00	0.6	High angle: 48
		0.6	High SNR variation during measurement: 6.5,5.6
18	10.00	0.6	High angle: 171
19	11.00	0.6	High angle: -170
		0.6	SNR (50.7) is different from typical SNR (35.6)
20	12.00	0.6	SNR (54.2) is different from typical SNR (35.6)
21	13.00	0.6	High angle: 24

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information: BROSHIN, LAROCHA WMS	
Date & Time: 7/1/11 12:04	County Name: Titus / Camp Co.
Stream Name: BIG CYPRESS CREEK	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: BCC 3 @ WALKERS CONFLUENCE	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. _____ cfs too deep to measure

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 33 °C Water Temp 26 °C

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

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

6. Ease of bank access to the water body: Easy (Moderately easy) Moderately difficult Difficult

7. Please describe access opportunities or explain why the site is not easily accessible (Attach photos for documentation): Private property, controlled access gate, security patrols area. TCFWSD board had to approve access for this study, no roads to site. TCFWSD out RTV trail to site for the study

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☒ Silt ☐ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC3
Date: 7/1/11 Time: 12:04

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).
turbid water, soft sediment, thick vegetation, log jams & debris in the water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
No public access, see A7

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?
Yes, LBS

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC3
Date: 7/1/11 Time: 1204

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).
Same as B2 & A7

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).
Same as B2

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).
See A7

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC 3
Date: 7/1/11 FDS Page 3 of 8 1204

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: X Wadeable L 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	13	16	1.45
Pool 2	33	15	1.98
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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	width	Depth (meters)
30 meters	8	0.54
60 meters	10	0.41
90 meters	11	0.59
120 meters	10	0.66
150 meters	12	0.61
180 meters	14	1.45
210 meters	15	1.98
240 meters	17	0.69
270 meters	16	1.25
300 meters	15	1.50
Average	12.8	0.97

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC 3
Date: 7/1/11 Time: 1204

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.

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	12.8
Width at narrowest point of the stream within 300 meter reach	8
Width at the widest point of the stream within 300 meter reach	17

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☑ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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	

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: BCC3
Date: 7/1/11 Time: 1204

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

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

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [ ] Bridge crossing
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [ ] Roads (paved/unpaved)
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

- [x] Private Property
- [x] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [x] No public access
- [x] No roads
- [x] 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: _____
- [x] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [ ] Fishing Tackle
- NPDES Discharge
- Gates on corridor
- [ ] Children's toys
- Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: RTV path cut to site specifically for this work

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC3
Date: 7/1/11 Time: 1204

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	✓ rare	common	abundant
Algae Cover:	✓ absent	rare	common	abundant
Odor:	✓ none	rare	common	abundant
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other:
some areas with oily bio film

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	✓ None	slight presence	moderate presence	large presence
Alligators	None	✓ slight presence	moderate presence	large presence

Comments: tracks from alligator - did not see one

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	moderate presence	✓ large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	✓ moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ✓ Fecal droppings ✓ Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	Rare	Common	Abundant
Small garbage in the channel	✓ None	Rare	Common	Abundant
Bank Garbage	✓ None	Rare	Common	Abundant

Briefly describe the kinds of garbage observed:

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside (CA) of the stream reach evaluated).
Area is Conservation Area for TCFWSD #1, no hunting allowed, access is limited to employees only
CA is approx 3000 AC

Field Data Sheets – Basic RUAA Survey
(should be completed for each site)

Data Collectors & Contact Information:	B RUSHIN, L AROCHA WMS
Date & Time: 7/1/11 1515	County Name: Titus/Camp Co.
Stream Name: BIG CYPRESS CREEK	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: #10308 @ SH 11	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. 7.17 cfs 7/1/11 USGS Gage # 07344500

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 35 °C Water Temp 27 °C

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

L R Forest	____ Urban	____ Rip rap
____ Shrub dominated corridor	____ Pasture	____ Concrete
____ Herbaceous marsh	____ Row crops	Other (specify): bridge crossing
____ Mowed/maintained corridor	____ Denuded/Eroded bank	

6. Ease of bank access to the water body: Easy Moderately easy (Moderately difficult) Difficult

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

very steep bank from road / bridge to stream - need 4WD to get near stream, no parking area, steep bank & thick vegetation

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☑ Silt ☑ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: 10308
Date: 7/1/11 Time: 1515

B. Primary Contact Water Recreation Evaluation:
- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
✓ No primary contact activities that commonly occur were observed

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).
very turbid water, steep banks, vines, briars, poison ivy, thick vegetation, not very deep, soft sediments

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
private property on both sides of the right of way, fencing, public access only at bridge SH 11

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? Yes, LBS is LOR is

C. Secondary Contact Water Recreation Evaluation:
- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: 10308
Date: 7/1/11 Time: 1515

b. Check the number of individuals observed at the site.
X 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).
Same as A7 & B2

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? X Unknown ☐ Never ☐ Daily ☐ Monthly ☐ Yearly

4. If infrequently, what is the reason? X physical characteristics of the water body X 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).
Same as B2

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).
Same as A7

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: 10308
Date: 7/1/11 FDS Page 3 of 8 1515

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: 10308
Date: 7/1/11 Time: 1515

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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)	Depth (m)
1	14	1.45
2	14	0.86
3	6	0.79
4	10	2.00
5	11	0.00
6	11	1.00
7	7	0.71
8	5	1.14
9	8	1.09
10	13	2.20
Avg	9.9	1.18

1 pool - 15m long x 2.2m deep x 13m wide

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: 10308
Date: 7/1/11 Time: 1515

F. Additional RUAA Information

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
- [x] 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 [x] No (If yes, please provide supporting documentation and photos.)

Comments: _____

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

- [ ] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [ ] Other (specify): _____
- [x] Log jams
- [x] Thick vegetation
- [x] Rip rap @ bridge
- [ ] Low bridges
- [ ] Water control structure
- None

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

- [ ] Campgrounds
- [ ] Playgrounds
- [x] Rural area
- [ ] Residential
- [ ] National forests
- [ ] Urban/suburban location
- [ ] Golf Course
- [ ] Sports Field
- [ ] Stairs/walkway
- [ ] Boating access (ramps)
- [ ] Beach
- [x] Bridge crossing SH 11
- [ ] Commercial boating
- [ ] Trails/paths (hiking/biking)
- [ ] Paved parking lot
- [ ] Unimproved parking lot
- [x] Roads (paved/unpaved) SH 11
- [ ] Populated area
- [ ] Docks or rafts
- [ ] Commercial outfitter
- [ ] Nearby school
- [ ] 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).

- [x] Private Property
- [ ] No trespass sign
- [x] Wildlife
- [x] Steep slopes
- [ ] No public access
- [x] No roads to stream from SH 11
- [x] 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
- [x] Other: tracks from tractor – shredding right of way by SH 11 bridge
- [ ] RV/ATV Tracks
- [ ] Camping Sites
- [ ] Fire pit/ring
- [x] Fishing Tackle
- [ ] NPDES Discharge
- [ ] Gates on corridor
- [ ] Children's toys
- [ ] Remnant's of Kid's play
- [ ] Organized event
- [ ] No Human Presence

Comments: one rod holder was noticed – placed in bank d/s of bridge appeared to have been there for a long time

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: 10308
Date: 7/1/11 Time: 1515

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	✓ absent	rare	common	abundant	
Algae Cover:	✓ absent	rare	common	abundant	
Odor:	✓ none	rare	common	abundant	
Color:	clear	green	red	✓ brown	black
Bottom Deposit:	sludge	solids	✓ fine sediments	none	other
Water Surface:	✓ clear	scum	foam	debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	None	✓ slight presence	moderate presence	large presence
Water Dependent Birds	✓ None	slight presence	moderate presence	large presence
Alligators	✓ None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	None	slight presence	✓ moderate presence	large presence
Domesticated Pets	✓ None	slight presence	moderate presence	large presence
Livestock	✓ None	slight presence	moderate presence	large presence
Feral Hogs	None	slight presence	✓ moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
✓ Tracks ✓ Fecal droppings Bird nests

11. Garbage Observed

Large garbage in the channel	✓ None	Rare	Common	Abundant
Small garbage in the channel	None	✓ Rare	Common	Abundant
Bank Garbage	None	✓ Rare	Common	Abundant

Briefly describe the kinds of garbage observed: drink bottles/cans, plastic shopping bags

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

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

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	R Rushin L Arocha WMS
Date & Time: 7/1/11 14:05	County Name: Upshur Co.
Stream Name: BIG CYPRESS CREEK	
Segment No. or nearest downstream Segment No.: 0404	
Description of Site: BCC4 @ CR 2231 - SAND CROSSING	

At any point during the Basic RUAA Survey it becomes apparent that primary contact recreation is clearly the use for the water body the investigator should stop conducting the UAA.

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 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 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. Streamflow

Use USGS gage data (if a gage is located at a site or within a quarter mile of a site) or use the Stream Flow (Discharge) Measurement Form and follow the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1, RG-415. If USGS gage data is used for a site, include that information as an attachment and list the streamflow on the sampling date below. If the stream flow taken at one site is representative of the flow at another site(s), then that flow can be used as the observed flow and should be documented below. If the stream flow measured at one site is different from another site, then stream flow should be taken at both sites. N/A cfs too deep to wade for flow back water for LOP

4. Water Quality Data (Field Parameters)

Field parameters should be collected in accordance with the procedures outlined in the most recent TCEQ Surface Water Quality Monitoring Procedures, Volume 1.

Air Temp 34 °C Water Temp 29 °C

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

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

6. Ease of bank access to the water body: (Easy) Moderately easy Moderately difficult Difficult

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

located next to country road, limited unimproved parking on road side, many footpaths, easy to enter stream

8. Dominant Primary Substrate

☐ Cobble ☐ Sand ☐ Silt ☑ Mud/Clay ☐ Gravel ☐ Bedrock ☐ Rip rap ☐ Concrete

Field Data Sheets – Basic RUAA Survey

Stream Name: BIG CYPRESS CREEK Site: BCC4
Date: 7/1/11 Time: 1405

B. Primary Contact Water Recreation Evaluation:

- Primary contact recreation draft definition: 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.

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
☐ Wading-Adults
☐ Swimming
☐ Water skiing
☐ Diving
☐ Tubing
☐ Surfing
☐ Whitewater-kayaking, canoeing, rafting
☐ Other: _____
☐ frequent public swimming-created by publicly owned land or commercial operations
☒ No primary contact activities that commonly occur were observed

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).

vegetation on water surface, turbid water, many logs/limbs & stumps in the swampy area

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

Yes, next to road

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?

Yes, LOP - USACE park & boat ramp is within 2-3 miles d/s of site

C. Secondary Contact Water Recreation Evaluation:

- 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 water body and/or (2) limited public access.

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: _____

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC4
Date: 7/1/11 Time: 1405

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).
None

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).
None

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).
None

D. Noncontact Recreation Evaluation

Noncontact recreation applies to water bodies where recreation activities do not involve a significant risk of water ingestion, 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.
N/A

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC4
Date: 7/1/11 1405

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: _ Wadeable X 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 base flow conditions (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 the 30 meters, 150 meters, and 300 meters.
Photos #s (30 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 (if > 10 pools only measure 10 pools), the width (at the widest point), and the deepest depth. A substantial pool is considered a pool greater than 10 meters in length for the purposes of a Basic RUAA Survey. If depth and/or width measurements were not attainable, explain why.

	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 approximately every 30 meters to calculate an average depth at the thalweg (at least 10 measurements needed). If depth and/or width measurements were not attainable, explain why.

Distance	Depth (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 – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC 4
Date: 7/1/11 Time: 1405

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.

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	

d) Is there sufficient water within a 300 meter stream reach during base flow conditions to support primary contact recreation? ☐ Yes ☐ No
COMMENTS:

2. Non-wadeable Streams
If accessible, take 10 width measurements which represent typical widths of the 300 meter reach. If the water is too deep and not accessible record the estimated average width of the water body.

Also, take photos facing upstream, downstream, left bank, and right bank at .
Photos #s (30 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)	Depth ~~@ all~~ RR 7/1/11
1	45	2.25 ~~transects >2.4m~~
2	39	>2.4
3	38	>2.4
4	47	1.59
5	47	2.25
6	31	>2.4
7	37	1.95
8	59	>2.4
9	54	>2.4
10	29	2.1
Avg	42.6	2.26

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC4
Date: 7/1/11 Time: 1405

F. Additional RUAA Information

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
- [x] None
- [ ] Other: _____

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

Comments: Lake O' the Pines is immediately downstream

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

- [ ] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [ ] Other (specify): surface vegetation
- [x] Log jams
- [ ] Thick vegetation
- [ ] Rip rap
- [ ] Low bridges
- [ ] Water control structure
- [x] None

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

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

Comments: parking along road side - unimproved area but not a parking lot

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
- [x] None of the Above
- [ ] Other: _____

Comments: _____

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

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

Comments: _____

Field Data Sheets – Basic RUAA Survey

Stream Name BIG CYPRESS CREEK Site: BCC4
Date: 7/1/11 Time: 1405

7. Check all water characteristics that apply (Attach photos).

Aquatic Vegetation:	absent	rare	common	X abundant
Algae Cover:	absent	rare	common	abundant
Odor:	X none	rare	common	abundant
Color:	clear	X green	red	X brown	black
Bottom Deposit:	sludge	solids	X fine sediments	none	other
Water Surface:	clear	scum	foam	X debris	oil

Other:

8. Vertebrates Observed within 300 meter reach

Snakes	X None	slight presence	moderate presence	large presence
Water Dependent Birds	X None	X slight presence	moderate presence	large presence
Alligators	X None	slight presence	moderate presence	large presence

Comments:

9. Mammals Observed within 300 meter reach

Wild	X None	slight presence	moderate presence	large presence
Domesticated Pets	X None	slight presence	moderate presence	large presence
Livestock	X None	slight presence	moderate presence	large presence
Feral Hogs	X None	slight presence	moderate presence	large presence

Comments:

10. Evidence of wild animals or evidence of birds, cattle, hogs, etc.
X Tracks ☐ Fecal droppings X Bird nests

11. Garbage Observed

Large garbage in the channel	X None	Rare	Common	Abundant
Small garbage in the channel	None	X Rare	Common	Abundant
Bank Garbage	None	Rare	X Common	Abundant

Briefly describe the kinds of garbage observed: drink cans, plastic shopping bags, fishing tackle

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

13. Please document any other relevant information regarding recreational activities and the water body in general (for example, area outside of the stream reach evaluated).
Site is commonly used for fishing & launching small boats for hunting & fishing

APPENDIX B

Photographic Record – Contact Sheets

Note: *Unless noted otherwise, all people in photos are WMS or NETMWD staff*

Tankersley Creek photos May 30 - June 1, 2011

16468 PP WWTP (3).JPG

16468 PP WWTP (1).JPG

16468 PP WWTP (2).JPG

10261 30m D.JPG

10261 30m L.JPG

10261 30m R.JPG

10261 30m U.JPG

10261 150m D.JPG

10261 150m L.JPG

10261 150m R.JPG

10261 150m U.JPG

10261 300m D.JPG

10261 300m L.JPG

10261 300m R.JPG

10261 300m U.JPG

10261 animal tracks.JPG

10261 construction.JPG

10261 construction (2).JPG

10261 construction (3).JPG

10261 construction (4).JPG

10261 thick vegetation.JPG

10263 30m D.JPG

10263 30m L.JPG

10263 30m R.JPG

10263 30m U.JPG

10263 150m D.JPG

10263 150m L (1).JPG

10263 150m L (outfall).JPG

10263 150m R.JPG

10263 150m U.JPG

10263 300m D.JPG

10263 300m L.JPG

10263 300m R.JPG

10263 300m U.JPG

10263 animal trail (2).JPG

Tankersley Creek photos May 30 - June 1, 2011

10263 beavers (2).JPG

0263 debris, soft sediment.JP

10263 fence.JPG

10263 pipeline.JPG

10263 pipeline (2).JPG

10263 WWTP outfall.JPG

10264 30m D.JPG

10264 30m L.JPG

10264 30m R.JPG

10264 30m U.JPG

10264 150m D.JPG

10264 150m L.JPG

10264 150m R.JPG

10264 150m U.JPG

10264 300m D.JPG

10264 300m L.JPG

10264 300m R.JPG

10264 300m U.JPG

10264 debris.JPG

10264 debris in channel.JPG

10264 fence, power line.JPG

10264 flow @ bridge.JPG

thick vegetation, steep slopes

hick vegetation, steep slopes

15512 30m D.JPG

15512 30m L.JPG

15512 30m R.JPG

15512 30m U.JPG

15512 150m D.JPG

15512 150m L.JPG

15512 150m R.JPG

15512 150m U.JPG

15512 300m D.JPG

15512 300m L.JPG

15512 300m R.JPG

Tankersley Creek photos May 30 - June 1, 2011

15512 300m U.JPG

15512 fence.JPG

15513 30m D.JPG

15513 30m U.JPG

15513 150m D.JPG

15513 150m L.JPG

15513 150m R.JPG

15513 150m U.JPG

15513 300m D.JPG

15513 300m L.JPG

15513 300m R.JPG

15513 300m U.JPG

15513 fence.JPG

15513 no trespass.JPG

Tank1 Locked gate.JPG

Tank1 Locked gate (1).JPG

Tankersley Creek RUAA July 1-2, 2011

s in Tankersley watershed (3)

s in Tankersley watershed (2)

10261 30m D.JPG

10261 30m L.JPG

10261 30m R.JPG

10261 30m U.JPG

10261 150m D.JPG

10261 150m L.JPG

10261 150m R.JPG

10261 150m U.JPG

10261 300m D.JPG

10261 300m L.JPG

10261 300m R.JPG

10261 300m U.JPG

10263 30m D.JPG

10263 30m L.JPG

10263 30m R.JPG

10263 30m U.JPG

10263 150m D.JPG

10263 150m L.JPG

10263 150m R.JPG

10263 150m U.JPG

10263 300m D.JPG

10263 300m L.JPG

10263 300m R.JPG

10263 300m U.JPG

10263 animal trail.JPG

10263 bedding area.JPG

10263 fence.JPG

10263 piling in channel.JPG

10263 plastic bag.JPG

10263 tracks.JPG

10264 30m D.JPG

10264 30m L.JPG

10264 30m R.JPG

Tankersley Creek RUAA July 1-2, 2011

10264 30m U.JPG

10264 150m D.JPG

10264 150m L.JPG

10264 150m R.JPG

10264 150m U.JPG

10264 300m D.JPG

10264 300m L.JPG

10264 300m R.JPG

10264 300m U.JPG

10264 animal tracks.JPG

10264 beaver dam.JPG

10264 e fence.JPG

10264 low flow.JPG

10264 veg-log jam.JPG

15512 30m D.JPG

15512 30m L.JPG

15512 30m R.JPG

15512 30m U.JPG

15512 150m D.JPG

15512 150m L.JPG

15512 150m R.JPG

15512 150m U.JPG

15512 300m D.JPG

15512 300m L.JPG

15512 300m R.JPG

15512 300m U.JPG

15512 fence.JPG

15512 survey.JPG

15512 trot line.JPG

15513 30m D.JPG

15513 30m L.JPG

15513 30m R.JPG

15513 30m U.JPG

15513 150m D.JPG

15513 150m L.JPG

Tankersley Creek RUAA July 1-2, 2011

15513 150m R.JPG

15513 150m U.JPG

15513 300m D.JPG

15513 300m L.JPG

15513 300m R.JPG

15513 300m U.JPG

15513 bird nest.JPG

Hart Creek photos May 31 - June 1, 2011

Hart2 no trespassing (2).JPG

10266 30m D.JPG

10266 30m L.JPG

10266 30m R.JPG

10266 30m U.JPG

10266 150m D.JPG

10266 150m L.JPG

10266 150m R.JPG

10266 150m U.JPG

10266 300m D.JPG

10266 300m L.JPG

10266 300m R.JPG

10266 300m U.JPG

10266 fences, vegetation.JPG

)266 fences, vegetation (2).JP

)266 fences, vegetation (3).JP

)266 fences, vegetation (4).JP

10271 30m D.JPG

10271 30m L.JPG

10271 30m R.JPG

10271 30m U.JPG

10271 150m D.JPG

10271 150m L.JPG

10271 150m R.JPG

10271 150m U.JPG

10271 300m D.JPG

10271 300m L.JPG

10271 300m R.JPG

10271 300m U.JPG

10271 garbage.JPG

10271 garbage (2).JPG

10271 garbage (3).JPG

10271 no trespassing.JPG

10271 scat.JPG

10272 30m D.JPG

Hart Creek photos May 31 - June 1, 2011

10272 30m L.JPG

10272 30m R.JPG

10272 30m U.JPG

10272 150m D.JPG

10272 150m L.JPG

10272 150m R.JPG

10272 150m U.JPG

10272 300m D.JPG

10272 300m L.JPG

10272 300m R.JPG

10272 300m U.JPG

10272 debris.JPG

10272 fence.JPG

10272 fence (2).JPG

10272 pipeline.JPG

10272 riparian zone.JPG

10273 30m D.JPG

10273 30m L.JPG

10273 30m R.JPG

10273 30m U.JPG

10273 150m D.JPG

10273 150m L.JPG

10273 150m R.JPG

10273 150m U.JPG

10273 300m D.JPG

10273 300m L.JPG

10273 300m R.JPG

10273 300m U.JPG

10273 denuded, livestock.JPG

10273 fence.JPG

10273 pipeline, stagnant.JPG

Hart1 30m D.JPG

Hart1 30m L.JPG

Hart1 30m R.JPG

Hart1 30m U.JPG

Hart Creek photos May 31 - June 1, 2011

Hart1 150m D.JPG

Hart1 150m L.JPG

Hart1 150m R.JPG

Hart1 150m U.JPG

Hart1 300m D.JPG

Hart1 300m L.JPG

Hart1 300m R.JPG

Hart1 300m U.JPG

Hart1 fence vegetation.JPG

Hart1 steep bank.JPG

Hart1 U @ FM1402.JPG

Hart1 unique geology.JPG

Hart1 unique geology (2).JPG

Hart1 unique geology (3).JPG

Hart1 unique geology (4).JPG

Hart2 30m D.JPG

Hart2 30m L.JPG

Hart2 30m R.JPG

Hart2 30m U.JPG

Hart2 150m D.JPG

Hart2 150m L.JPG

Hart2 150m R.JPG

Hart2 150m U.JPG

Hart2 300m D.JPG

Hart2 300m L.JPG

Hart2 300m R.JPG

Hart2 300m U.JPG

Hart2 bridge.JPG

Hart2 bridge (2).JPG

Hart2 bridge (3).JPG

Hart2 log jam.JPG

Hart2 no trespassing.JPG

Hart2 survey.JPG

Hart Creek RUAA July 2, 2011

Town Lake recreating.JPG

10266 30m D.JPG

10266 30m L.JPG

10266 30m R.JPG

10266 30m U.JPG

10266 150m D.JPG

10266 150m L.JPG

10266 150m R.JPG

10266 150m U.JPG

10266 300m D.JPG

10266 300m L.JPG

10266 300m R.JPG

10266 300m U.JPG

10266 gar.JPG

10266 tracks.JPG

10266 tracks (2).JPG

10271 30m D.JPG

10271 30m L.JPG

10271 30m R.JPG

10271 30m U.JPG

10271 150m D.JPG

10271 150m L.JPG

10271 150m R.JPG

10271 150m U.JPG

10271 300m D.JPG

10271 300m L.JPG

10271 300m R.JPG

10271 300m U.JPG

10271 fence.JPG

10271 fence (2).JPG

10271 fence (3).JPG

10271 garbage.JPG

10271 garbage (2).JPG

10271 tracks.JPG

10271 tracks (2).JPG

Hart Creek RUAA July 2, 2011

10271 tree in channel.JPG

10272 30m D.JPG

10272 30m L.JPG

10272 30m R.JPG

10272 30m U.JPG

10272 150m D.JPG

10272 150m L.JPG

10272 150m R.JPG

10272 150m U.JPG

10272 300m D.JPG

10272 300m L.JPG

10272 300m R.JPG

10272 300m U.JPG

10272 clam trail.JPG

10273 30m D.JPG

10273 30m L.JPG

10273 30m R.JPG

10273 30m U.JPG

10273 150m D.JPG

10273 150m L.JPG

10273 150m R.JPG

10273 150m U.JPG

10273 300m D.JPG

10273 300m L.JPG

10273 300m R.JPG

10273 300m U.JPG

10273 large snake.JPG

10273 large snake (2).JPG

10273 log jam.JPG

Hart1 30m D.JPG

Hart1 30m L.JPG

Hart1 30m R.JPG

Hart1 30m U.JPG

Hart1 150m D.JPG

Hart1 150m L.JPG

Hart Creek RUAA July 2, 2011

Hart1 150m R.JPG

Hart1 150m U.JPG

Hart1 300m D.JPG

Hart1 300m L.JPG

Hart1 300m R.JPG

Hart1 300m U.JPG

Hart1 tracks.JPG

Hart2 30m D.JPG

Hart2 30m L.JPG

Hart2 30m R.JPG

Hart2 30m U.JPG

Hart2 150m D.JPG

Hart2 150m L.JPG

Hart2 150m R.JPG

Hart2 150m U.JPG

Hart2 300m D.JPG

Hart2 300m L.JPG

Hart2 300m R.JPG

Hart2 300m U.JPG

Hart2 snake.JPG

Hart2 snake (2).JPG

Big Cypress Creek photos May 30 - June 1, 2011

BCC @ Power line (3).JPG

BCC2 (35).JPG

BCC @ Power line (1).JPG

10308 30m D.JPG

10308 30m L.JPG

10308 30m R.JPG

10308 30m U.JPG

10308 150m D.JPG

10308 150m L.JPG

10308 150m R.JPG

10308 150m U.JPG

10308 300m D .JPG

10308 300m L.JPG

10308 300m R.JPG

10308 300m U.JPG

10309 30m D.JPG

10309 30m L.JPG

10309 30m R.JPG

10309 30m U.JPG

10309 150m D.JPG

10309 150m L.JPG

10309 150m R.JPG

10309 150m U.JPG

10309 300m D.JPG

10309 300m L.JPG

10309 300m R.JPG

10309 300m U.JPG

10309 beaver dam.JPG

10309 beaver dam (1).JPG

10309 big cat tracks.JPG

10309 big cat tracks (2).JPG

10309 big cat tracks (3).JPG

10310 30m D.JPG

10310 30m L.JPG

10310 30m R.JPG

Big Cypress Creek May 30 - June 1, 2011

10310 30m U.JPG

10310 150m D.JPG

10310 150m L.JPG

10310 150m R.JPG

10310 150m U.JPG

10310 300m D .JPG

10310 300m L.JPG

10310 300m R.JPG

10310 300m U.JPG

BCC1 30m D.JPG

BCC1 30m L.JPG

BCC1 30m R.JPG

BCC1 30m U.JPG

BCC1 150m D.JPG

BCC1 150m L.JPG

BCC1 150m R.JPG

BCC1 150m U.JPG

BCC1 300m D.JPG

BCC1 300m L.JPG

BCC1 300m R.JPG

BCC1 300m U.JPG

C1 water released from LBS.J

BCC2 30m D.JPG

BCC2 30m L.JPG

BCC2 30m R.JPG

BCC2 30m U.JPG

BCC2 150m D.JPG

BCC2 150m L.JPG

BCC2 150m R.JPG

BCC2 150m U.JPG

BCC2 300m D.JPG

BCC2 300m L.JPG

BCC2 300m R.JPG

BCC2 300m U.JPG

BCC2 Flow Measurement.JPG

Big Cypress Creek May 30 - June 1, 2011

BCC2 Hart Creek.JPG

BCC2 Hart Creek (1).JPG

BCC2 RTV to site.JPG

BCC2 snake.JPG

BCC3 30m D.JPG

BCC3 30m L.JPG

BCC3 30m R.JPG

BCC3 30m U.JPG

BCC3 150m D.JPG

BCC3 150m L.JPG

BCC3 150m R.JPG

BCC3 150m U.JPG

BCC3 300m D.JPG

BCC3 300m L.JPG

BCC3 300m R.JPG

BCC3 300m U.JPG

:C3 @ Walkers confluence.JF

:C3 Walkers confluence DS.JF

BCC4 30m D.JPG

BCC4 30m L.JPG

BCC4 30m R.JPG

BCC4 30m U.JPG

BCC4 150m D.JPG

BCC4 150m L.JPG

BCC4 150m R.JPG

BCC4 150m U.JPG

BCC4 300m D.JPG

BCC4 300m L.JPG

BCC4 300m R.JPG

BCC4 300m U.JPG

BCC4 fire pit.JPG

BCC4 fishing tackle.JPG

BCC4 human.JPG

Big Cypress Creek RUAA July 1, 2011

security gate to BCC2&3.JPG

10308 30m .JPG

10308 30m D.JPG

10308 30m L.JPG

10308 30m R.JPG

10308 30m U.JPG

10308 150m D.JPG

10308 150m L.JPG

10308 150m R.JPG

10308 150m U.JPG

10308 300m D.JPG

10308 300m L.JPG

10308 300m R.JPG

10308 300m U.JPG

10308 fishing line.JPG

10308 pilings in channel.JPG

10309 30m D.JPG

10309 30m L.JPG

10309 30m R.JPG

10309 30m U.JPG

10309 150m D.JPG

10309 150m L.JPG

10309 150m R.JPG

10309 150m U.JPG

10309 300m D.JPG

10309 300m L.JPG

10309 300m R.JPG

10309 300m U.JPG

10309 beaver dam.JPG

309 Tankersley confluence.JF

10310 30m D.JPG

10310 30m L.JPG

10310 30m R.JPG

10310 30m U.JPG

10310 150m D.JPG

Big Cypress Creek RUAA July 1, 2011

10310 150m L.JPG

10310 150m R.JPG

10310 150m U.JPG

10310 300m D.JPG

10310 300m L.JPG

10310 300m R.JPG

10310 300m U.JPG

10310 tagging.JPG

BCC1 30m D.JPG

BCC1 30m L.JPG

BCC1 30m R.JPG

BCC1 30m U.JPG

BCC1 150m D.JPG

BCC1 150m L.JPG

BCC1 150m R.JPG

BCC1 150m U.JPG

BCC1 300m D.JPG

BCC1 300m L.JPG

BCC1 300m R.JPG

BCC1 300m U.JPG

BCC1 gate.JPG

BCC1 LBS release.JPG

BCC1 trail to site.JPG

BCC2 30m D.JPG

BCC2 30m L.JPG

BCC2 30m R.JPG

BCC2 30m U.JPG

BCC2 150m D.JPG

BCC2 150m L.JPG

BCC2 150m R.JPG

BCC2 150m U.JPG

BCC2 300m D.JPG

BCC2 300m L.JPG

BCC2 300m R.JPG

BCC2 300m U.JPG

Big Cypress Creek RUAA July 1, 2011

BCC2 confluence.JPG

BCC2 logs.JPG

BCC2 sanke.JPG

BCC2 tracks.JPG

BCC2 tracks (2).JPG

BCC3 30m D.JPG

BCC3 30m L.JPG

BCC3 30m R.JPG

BCC3 30m U.JPG

BCC3 150m D.JPG

BCC3 150m L.JPG

BCC3 150m R.JPG

BCC3 150m U.JPG

BCC3 300m D.JPG

BCC3 300m L.JPG

BCC3 300m R.JPG

BCC3 300m U.JPG

BCC4 30m D.JPG

BCC4 30m L.JPG

BCC4 30m R.JPG

BCC4 30m U.JPG

BCC4 150m D.JPG

BCC4 150m L.JPG

BCC4 150m R.JPG

BCC4 150m U.JPG

BCC4 300m D.JPG

BCC4 300m L.JPG

BCC4 300m R.JPG

BCC4 300m U.JPG

Big Cypress Creek, Tankersley Creek, & Hart Creek RUAA Sampling Methods May 30 - July 2, 2011

methods (2).JPG

10264 methods.JPG

10266 flow measurement.JPG

)266 flow measurement (2).JP

)266 flow measurement (3).JP

)266 flow measurement (4).JP

10266 methods.JPG

10271 methods.JPG

10271 RUAA methods.JPG

)271 velocity measurement.JP

10309 methods.JPG

Hart1 methods.JPG

methods.JPG

Miscellaneous photos May 30 - June 1, 2011

Tankersley Lake .JPG

.ake Bob Sandlin Park (1).JPG

.ake Bob Sandlin Park (2).JPG

.ake Bob Sandlin Park (3).JPG

.ake Bob Sandlin Park (4).JPG

.ake Bob Sandlin Park (5).JPG

.ake Bob Sandlin Park (6).JPG

.ake Bob Sandlin Park (7).JPG

.ake Bob Sandlin Park (8).JPG

No Tresspassing .JPG

No Tresspassing (1).JPG

No Tresspassing (2).JPG

No Tresspassing (3).JPG

No Tresspassing (4).JPG

APPENDIX C

Rainfall Data

Stream Flow Data

Total Daily Precipitation (in) USGS Gage 07344489	May	June	July
1	0.31	0	0
2	1.16	0	0
3	0	0	0
4	0	0.31	0
5	0	0.18	
6	0	0	
7	0	0	
8	0	0	
9	0	0	
10	0	0	
11	0.35	0	
12	0	0	
13	0	0	
14	0	0	
15	0	0	
16	0	0	
17	0	0	
18	0	0	
19	0	0	
20	0.33	0	
21	0.01	0.41	
22	0.02	0.11	
23	0.02	0	
24	0	0	
25	0.02	0	
26	0	0	
27	0	0	
28	0	1.05	
29	0	0	
30	0	0.03	
31	0		
Totals	**2.22**	**2.09**	**0**

Mean Daily Discharge (cfs) at 10308 USGS Gage 07344500	May	June	July
1	15	7	8
2	13	8.3	6.5
3	27	9	5.9
4	27	9.1	5.4
5	17	9	
6	13	9.2	
7	11	9.6	
8	10	9.1	
9	8.3	9.5	
10	7.1	9.7	
11	9.1	9.1	
12	11	9.4	
13	14	8.4	
14	11	6.3	
15	9.1	7	
16	7.6	9.1	
17	6.4	9.9	
18	8.9	11	
19	9.4	11	
20	9.3	9.8	
21	9.7	8.2	
22	12	9.5	
23	8.4	13	
24	7.3	13	
25	9	13	
26	9.2	13	
27	8.9	9.8	
28	9.1	EQ	
29	9.9	EQ	
30	9.1	36	
31	7.8		
Average	**11.1**	**10.6**	**6.5**

Mean Daily Discharge (cfs) at 10310 USGS Gage 07344493	May	June	July
1	5.2	5.1	6.5
2	6.2	5.4	5.7
3	13	5.5	4.2
4	9	5.8	3.1
5	7.7	4.1	
6	7.2	3.3	
7	6.6	5.5	
8	4.7	6	
9	3.7	5.8	
10	6.4	5	
11	6.7	5.2	
12	8	3.2	
13	7.4	2.4	
14	5.9	4.9	
15	4.2	5.3	
16	3.4	5.3	
17	5.8	5.6	
18	6.3	5.3	
19	6.3	3.9	
20	6.4	3.2	
21	6.5	5.3	
22	4.5	6.4	
23	3.8	6.3	
24	5.7	6.3	
25	6.2	5.8	
26	5.7	3.9	
27	5.3	3.6	
28	5.1	5.9	
29	3.5	14	
30	3.1	7.3	
31	3.1		
Average	**5.9**	**5.4**	**4.9**

APPENDIX D

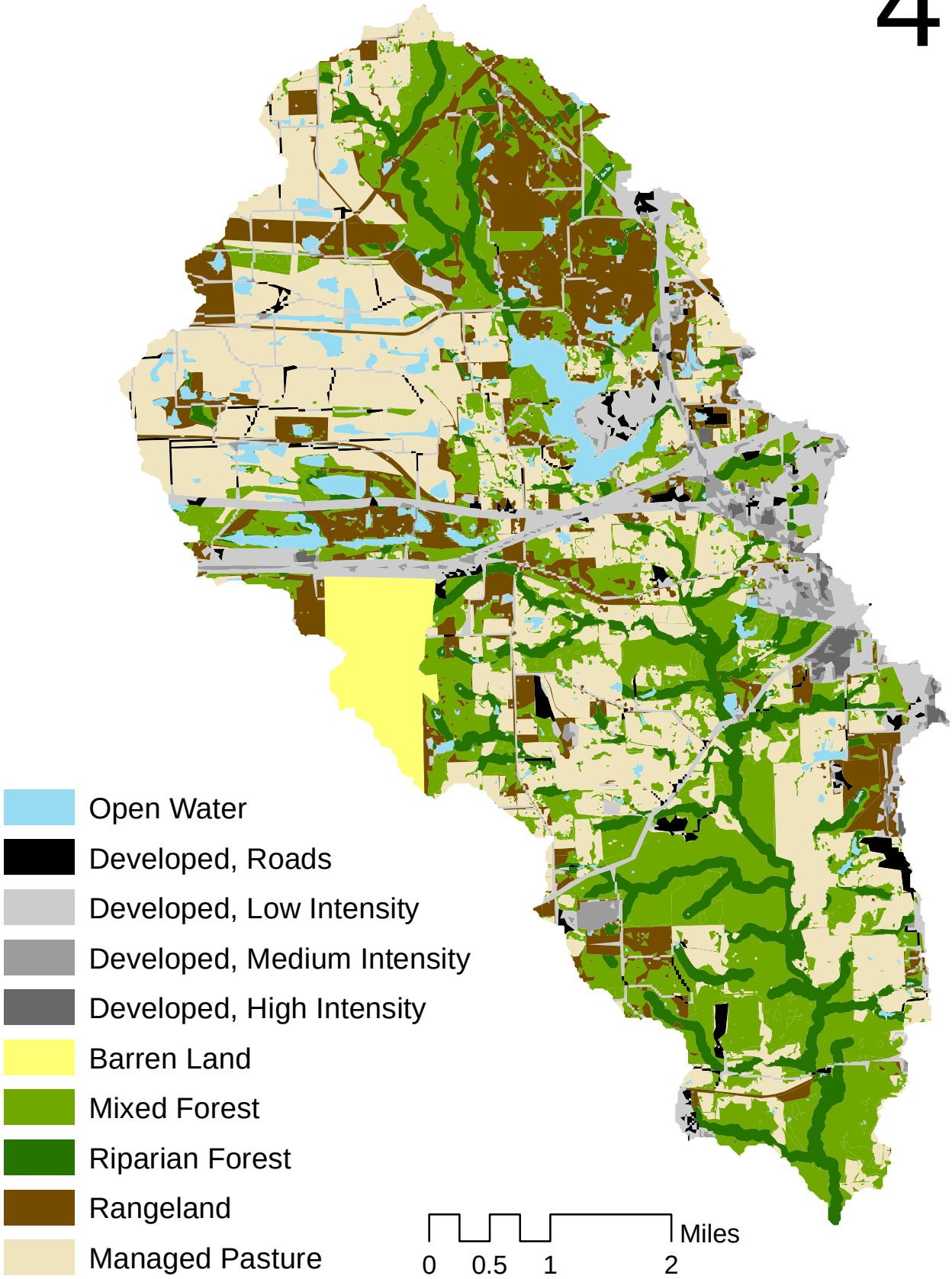
Maps of the Watershed

Segment 0404B – Tankersley Creek (unclassified)

TCEQ ID	Station Name	Site Description	Latitude (N)	Longitude (W)	Distance to Previous Station (km)
		Segment and AU_03 upper boundary			
Tank01	Tankersley Creek at Private Road Crossing	Tankersley Creek at Private Road about 1.1 km northwest of CR 1140	33.20812	95.04005	1.4
15512	Tankersley Creek at FM 1734	Tankersley Creek at FM 1734, 880 M NNW of Tankersley Lake Headwaters, NW of Mt. Pleasant	33.18858	95.02696	4.1
		AU_03 lower / AU_02 upper boundary at upper end of Tankersley Lake			0.4
		AU_02 lower / AU_01 upper boundary at Tankersley Lake dam			4.5
15513	Tankersley Creek at US 67	Tankersley Creek at US 67 approximately 200 m downstream of IH 30, west of Mt. Pleasant	33.16425	95.01290	0.5
10264	Tankersley Creek at FM 899	Tankersley Creek at FM 899, west of Mt. Pleasant	33.15537	95.00370	1.8
10263	Tankersley Creek at FM 127	Tankersley Creek at FM 127, 3 km SW of Mt. Pleasant	33.13837	94.99770	2.5
10261	Tankersley Creek at FM 3417	Tankersley Creek at FM 3417, 5.7 km south of Mt. Pleasant	33.09589	94.98650	5.8
		Segment and AU_01 lower boundary at Big Cypress Creek confluence			2.4

Tankersley Creek Land Use

4

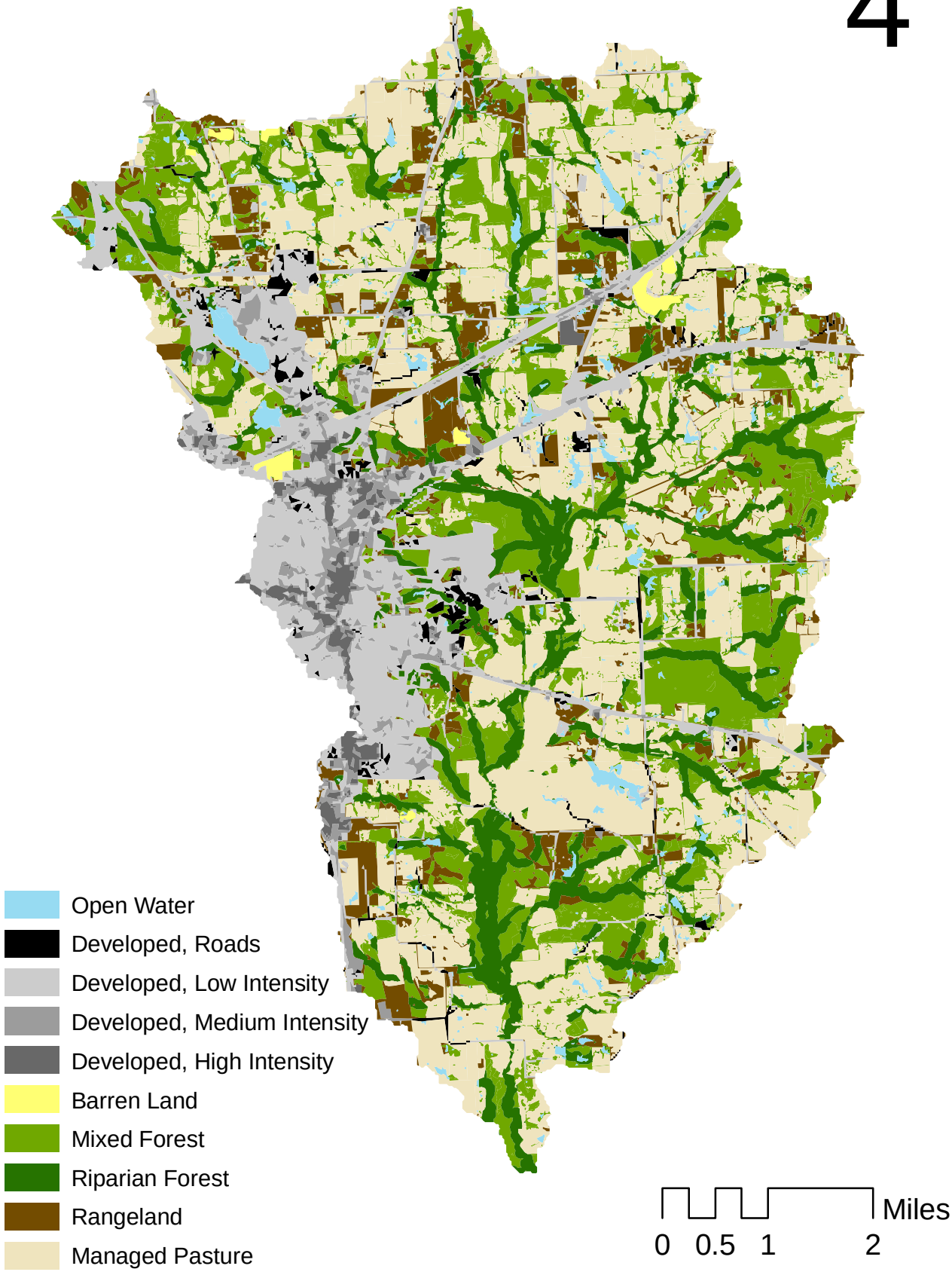


Segment 0404C –Hart Creek (unclassified)

TCEQ ID	Station Name	Site Description	Latitude (N)	Longitude (W)	Distance to Previous Station (km)
		Segment and AU_01 upper boundary			
Hart01	Hart Creek at CR 3210	Hart Creek at Titus CR 3210 approximately 0.9 km upstream of IH 30	33.19424	94.95120	1.0
10273	Hart Creek at US 67	Hart Creek at US 67, NE of Mt. Pleasant	33.17605	94.94210	2.3
Hart02	Hart Creek at CR 4205	Hart Creek at CR 4205, east of Mt. Pleasant	33.15419	94.93270	2.7
10272	Hart Creek at SH 49	Hart Creek at SH 49, SSE of Mt. Pleasant	33.14232	94.93840	1.8
10271	Hart Creek at CR 4410 (CR SE 28)	Hart Creek at Titus CR 4410 south of Mt. Pleasant, approximately 10.3 km upstream of confluence with Big Cypress Creek	33.12635	94.94500	2.2
10266	Hart Creek at CR 4550 (CR SE 12)	Hart Creek at Titus CR 4550, 3.8 km upstream of confluence with Big Cypress Creek, south of Mt. Pleasant	33.09419	94.94440	3.9
		Segment and AU_01 lower boundary at Big Cypress Creek confluence			3.3

Hart Creek Land Use

4

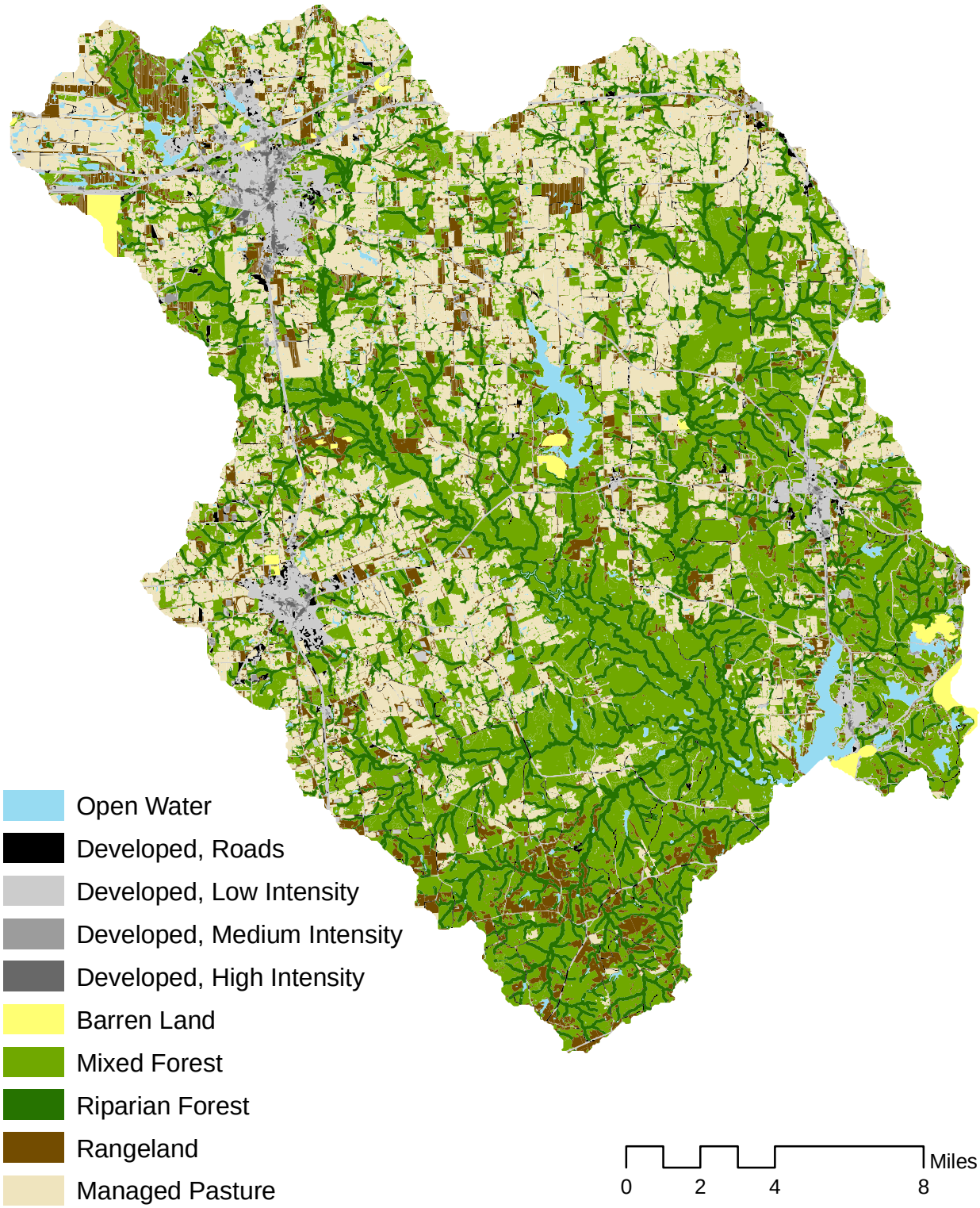


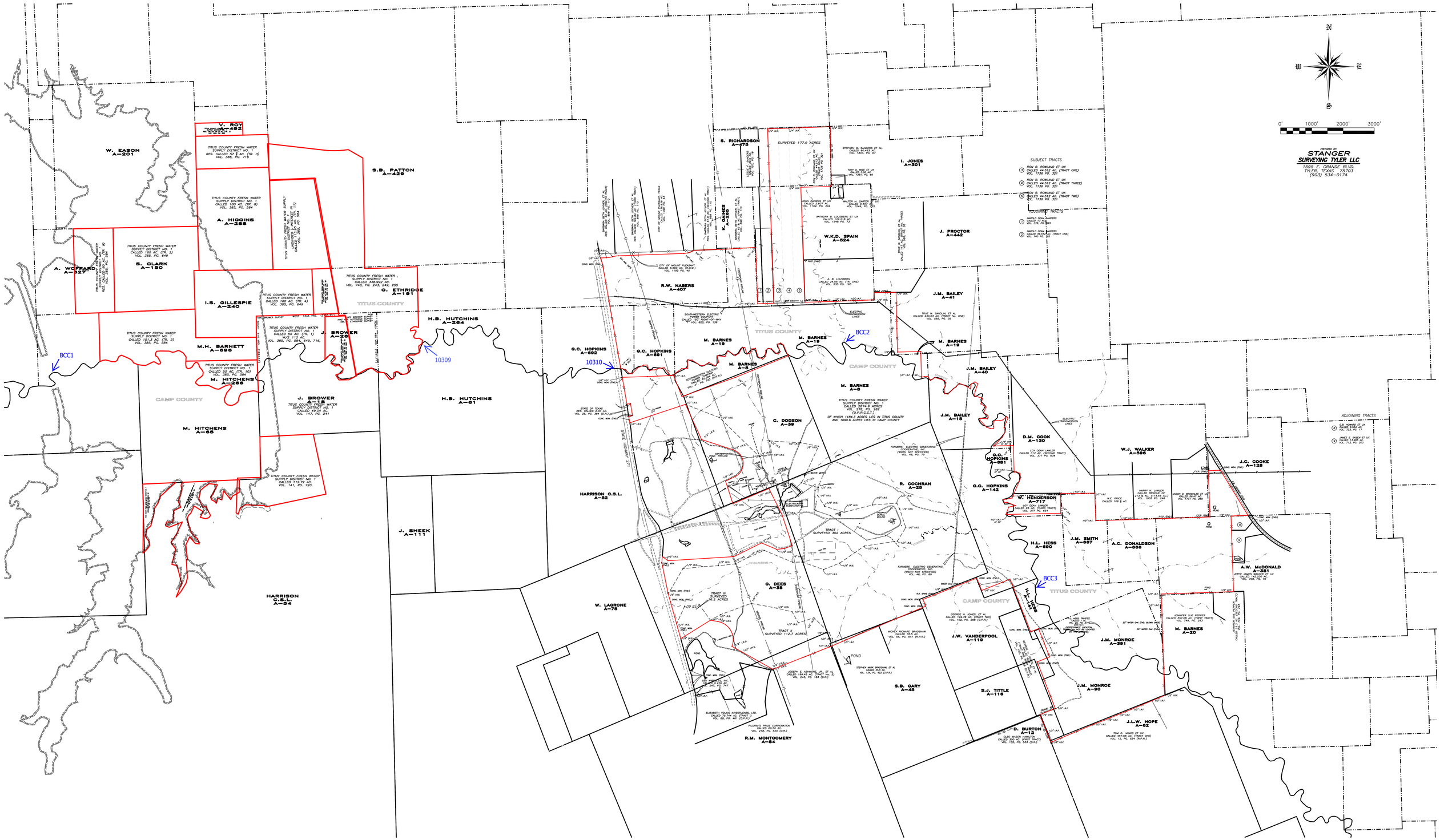
Segment 0404 –Big Cypress Creek (classified)

TCEQ ID	Station Name	Site Description	Latitude (N)	Longitude (W)	Distance to Previous Station (km)
		Segment and AU_02 upper boundary at Fort Sherman Dam			
BCC1	Big Cypress Creek below Lake Bob Sandlin Spillway	Big Cypress Creek 100 m below the spillway at Lake Bob Sandlin	33.075042	94.995213	1.0
10309	Big Cypress Creek above Tankersley Creek	Big Cypress Creek 100 m upstream of Tankersley Creek confluence, south of Mt. Pleasant	33.076157	94.984631	1.8
10310	Big Cypress Creek at US 271	Big Cypress Creek at US 271, 6.9 km north of Pittsburg	33.072987	94.965431	3.1
BCC2	Big Cypress Creek at Hart Creek	Big Cypress Creek at the confluence with Hart Creek south of Mt. Pleasant	33.074390	94.940690	3.5
BCC3	Big Cypress Creek at Walkers Creek	Big Cypress Creek at the confluence with Walkers Creek confluence, south of Mt. Pleasant	33.052610	94.921280	5.8
10308	Big Cypress Creek at SH 11	Big Cypress Creek bridge on SH 11 east of Pittsburg	33.019730	94.883558	8.3
		AU_02 lower / AU_01 upper boundary at unnamed tributary NHD RC 11140305002717			13.7
BCC4	Big Cypress Creek at CR 2231	Big Cypress Creek at CR 2231 (Sand Crossing) approximately 2.2 km upstream of US 259	32.912700	94.735410	20.8
		Segment and AU_01 lower boundary at 1.0 km downstream of US 259			3.2

Big Cypress Creek Land Use

4





COMPOSITE MAP OF ABSTRACTS

SHOWING

J. BROWER SURVEY, ABSTRACT NO. 26
S. CLARK SURVEY, ABSTRACT NO. 150
G. ETHRIDGE SURVEY, ABSTRACT NO. 191
I.S. GILLESPIE SURVEY, ABSTRACT NO. 240
H.B. HUTCHINS SURVEY, ABSTRACT NO. 264
M. HITCHINS SURVEY, ABSTRACT NO. 266
A. HIGGINS SURVEY, ABSTRACT NO. 288
S.B. PATTON SURVEY, ABSTRACT NO. 429
V. ROY SURVEY, ABSTRACT NO. 492
A WOFFARD SURVEY, ABSTRACT NO. 627
M.H. BARNETT SURVEY, ABSTRACT NO. 696
TITUS COUNTY, TEXAS

J. BROWER SURVEY, ABSTRACT NO. 18
HARRISON C.S.L. SURVEY, ABSTRACT NO. 54
M. HITCHINS SURVEY, ABSTRACT NO. 65

CAMP COUNTY, TEXAS

COMPOSITE MAP OF SURVEYS

SHOWING

R.W. NABERS SURVEY, ABSTRACT NO. 407,
G.C. HOPKINS SURVEY, ABSTRACT NO. 692
G.C. HOPKINS SURVEY, ABSTRACT NO. 691
M. BARNES SURVEY, ABSTRACT NO. 19
G.C. HOPKINS SURVEY, ABSTRACT NO. 681
H.L. HESS SURVEY, ABSTRACT NO. 690
J.M. SMITH SURVEY, ABSTRACT NO. 667
A.C. DONALDSON SURVEY, ABSTRACT NO. 666
A.W. McDONALD SURVEY, ABSTRACT NO. 381
J.G. COOKE SURVEY, ABSTRACT NO. 128
J.M. MONROE SURVEY, ABSTRACT NO. 391
S. RICHARDSON SURVEY, ABSTRACT NO. 475
W.K.D. SPAIN SURVEY, ABSTRACT NO. 524
TITUS COUNTY, TEXAS

HARRISON COUNTY SCHOOL LAND SURVEY, ABSTRACT NO. 52
C. DODSON SURVEY, ABSTRACT NO. 39
M. BARNES SURVEY, ABSTRACT NO. 8
J.M. BAILEY SURVEY, ABSTRACT NO. 15
R. COCHRAN SURVEY, ABSTRACT NO. 25
G.C. HOPKINS SURVEY, ABSTRACT NO. 142
G. DEES SURVEY, ABSTRACT NO. 38
H.L. HESS SURVEY, ABSTRACT NO. 141
J.M. MONROE SURVEY, ABSTRACT NO. 90
S.J. TITTLE SURVEY, ABSTRACT NO. 116
CAMP COUNTY, TEXAS

TITUS COUNTY FRESH WATER SUPPLY DISTRICT NO. 1

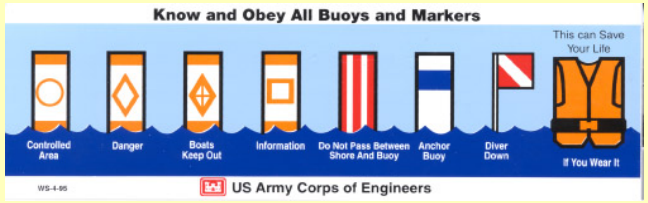
COMPOSITE MAP OF PROPERTIES ALONG BIG CYPRESS CREEK IN TITUS AND CAMP COUNTIES

NOTE:

- THIS MAP IS A COMPOSITE DEED SKETCH OF PROPERTIES OWNED BY TITUS COUNTY FRESH WATER SUPPLY DISTRICT NO. 1 ALONG BIG CYPRESS CREEK IN TITUS AND CAMP COUNTIES. THE MAP IS FOR REFERENCE PURPOSES ONLY AND NOT INTENDED TO REPRESENT A BOUNDARY SURVEY.

DRAWN BY: C.R.W. CHECKED BY: C.R.W.
FILE: 2010\T100474\COMPOSITE MAP\TCFWSD-WALKERS CREEK BOUNDARY
FILE: 2010\T100790\COMPOSITE MAP\TCFWSD-LAKE BOB SANDLIN
REVISE 11-08-10

LAKE O' the PINES



BCC4

TO HOLLY SPRINGS

Cypress Creek

Lone Star Ramp

CEDAR SPRINGS

TO AVINGER

TO GILMER

Twin Cypress Marina

Cedar Springs Park

Oak Valley Ramp

Mims Chapel Ramp

Hanson's Retreat at Sunrise Cove

Meddlin Creek

Pine Hill Ramp

ORE CITY

Sandy Creek

Pop's Landing Ramp

Oak Ridge Ramp

TO LONGVIEW

Alley Creek

Alley Creek Park

Lakeshore Estates Ramps

West

East

Johnson Creek

Johnson Creek Park

Bullfrog Marina

TO LASSATER

Hurricane Creek

Hurricane Creek Park

TO JEFFERSON

Johnson Creek Marina

Pine Harbor Ramp

Holiday Harbor Ramp

Big Cypress Marina

Island View Marina

Lakeside Park

Buckhorn Creek Park

Overlook

Outlet

Project Office

Cypress Creek

Ferrels Bridge Dam

Shady Grove Park

Woodie's Ramp

Copeland Creek Ramp

Arms Creek

Tejas Ramp

Copeland Creek

JACKSON

Brushy Creek

Brushy Creek Park

y BOAT RAMP

r SWIM BEACH

CORPS PARKS

COMMERCIAL CONCESSIONS

LIMITED RECREATION USE

BOAT LANE

STUMPS

PARK INFORMATION ON BACK

1 0.5 0 1 2 3 Miles

US Army Corps of Engineers
Fort Worth District

JULY 2006

3

APPENDIX F

Contact Information 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: Tankersley Creek (0404B)

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)	☒ Yes ☐ No Date Notified: 6-1-2009 Name: Walt Sears, NETMWD [Performing Entity]
Texas Parks and Wildlife Department region staff	☒ Yes ☐ No Date Notified: 8-25-2009 Name: Adam Whisenant
TCEQ region staff	☒ Yes ☐ No Date Notified: 8-25-2009 Name: Mike Prater
Texas State Soil and Water Conservation Board Statewide Resource Management Group srm-team@tsswcb.state.tx.us	☒ Yes ☐ No Date Notified: 6-1-2009 Name: Aaron Wendt [Funding Entity]

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	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Municipal Government/Jurisdiction	☒ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
County Government/Jurisdiction	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Local Recreation Groups	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
Conservation Groups	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Local Soil and Water Conservation Districts	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas AgriLife Extension Service (local County Extension Agent)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
USDA Natural Resources Conservation Service (local field staff)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Watershed Groups	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Long-term Landowners/Adjacent Landowners	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas Stream Team (formerly Texas Watch)	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
Canoe Clubs	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
City Commissioners Office	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Real estate agents	☐ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
Local non-profits	☐ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
City/county offices (Engineer, Health, Law Enforcement)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Flood control districts	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Councils of Governments	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas Parks and Wildlife Department Game Warden	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Other: Pilgrim's Pride Corp., TAD, USDA-FSA, TSSWCB Region, Titus County FWSD, Northeast Texas Community College, USEPA	☒ Yes	☐ No	☐ Entity Not Contacted	☐ 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:
   No one was aware of any contact recreation occurring.

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: No one was aware of any primary contact recreation occurring.

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: No one was aware of any contact recreation occurring

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: No one was aware of any contact recreation occurring

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: No one was aware of noncontact recreation occurring except possibly by hunters or farmers.

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.
   Lake O' the Pines

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.

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 Local Contacts Made:

Name: Anthony Rasnor
Entity: City Of Mount Pleasant, Utilities Director
Date Notified: 8-25-2009

Name: Melissa Berry
Entity: USDA NRCS, Mt. Pleasant Service Center
Date Notified: 8-25-2009

Name: Darren Turley
Entity: Texas Association of Dairymen
Date Notified: 8-25-2009

Name: Johnny French
Entity: Sulphur-Cypress Soil & Water Conservation District #419.
Date Notified: 8-25-2009

Name: Roy Darville
Entity: Caddo Lake Instituite (Watershed Group)
Date Notified: 8-25-2009

Name: C.W. Forsyth, Jr.
Entity: Sulphur-Cypress Soil & Water Conservation District #419
Date Notified: 8-25-2009

Name: Kenny Rollins
Entity: Texas AgriLife Extension Service (Titus County)
Date Notified: 8-25-2009

Name: Syble Buck
Entity: Sulphur-Cypress Soil & Water Conservation District #419
Date Notified: 8-25-2009

Name: Paul Prange
Entity: Ark-Tex Council of Governments
Date Notified: 8-25-2009

Name: Wayne Minor
Entity: Titus County Shefiff Dept., Environmental Enforcemnet
Date Notified: 8-25-2009

Name: Darrell Grubbs
Entity: Titus County Freshwater Supply District #1, General Manager
Date Notified: 8-25-2009

Name: Vernon Rowe
Entity: Pilgrim's Pride Corporation
Date Notified: 8-25-2009

Name: Mary Hearron
Entity: Northeast Texas Community College
Date Notified: 8-25-2009

Name: Max Berry
Entity: TSSWCB (Mount Pleasant Regional Office)
Date Notified: 8-25-2009

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: Hart Creek (0404C)

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)	☒ Yes ☐ No Date Notified: 6-1-2009 Name: Walt Sears, NETMWD [Performing Entity]
Texas Parks and Wildlife Department region staff	☒ Yes ☐ No Date Notified: 8-25-2009 Name: Adam Whisenant
TCEQ region staff	☒ Yes ☐ No Date Notified: 8-25-2009 Name: Mike Prater
Texas State Soil and Water Conservation Board Statewide Resource Management Group srm-team@tsswcb.state.tx.us	☒ Yes ☐ No Date Notified: 6-1-2009 Name: Aaron Wendt [Funding Entity]

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	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Municipal Government/Jurisdiction	☒ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
County Government/Jurisdiction	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Local Recreation Groups	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
Conservation Groups	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Local Soil and Water Conservation Districts	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas AgriLife Extension Service (local County Extension Agent)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
USDA Natural Resources Conservation Service (local field staff)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Watershed Groups	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Long-term Landowners/Adjacent Landowners	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas Stream Team (formerly Texas Watch)	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
Canoe Clubs	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
City Commissioners Office	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Real estate agents	☐ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
Local non-profits	☐ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
City/county offices (Engineer, Health, Law Enforcement)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Flood control districts	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Councils of Governments	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas Parks and Wildlife Department Game Warden	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Other: Pilgrim's Pride Corp., TAD, USDA-FSA, TSSWCB Region, Titus County FWSD, Northeast Texas Community College, USEPA	☒ Yes	☐ No	☐ Entity Not Contacted	☐ 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:
   No one was aware of any contact recreation occurring.

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: No one was aware of any primary contact recreation occurring.

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: No one was aware of any contact recreation occurring

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: No one was aware of any contact recreation occurring .

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: No one was aware of noncontact recreation occurring except possibly by hunters or farmers.

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.
   Lake O' the Pines

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.

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 Local Contacts Made:

Name: Anthony Rasnor
Entity: City Of Mount Pleasant, Utilities Director
Date Notified: 8-25-2009

Name: Melissa Berry
Entity: USDA NRCS, Mt. Pleasant Service Center
Date Notified: 8-25-2009

Name: Darren Turley
Entity: Texas Association of Dairymen
Date Notified: 8-25-2009

Name: Johnny French
Entity: Sulphur-Cypress Soil & Water Conservation District #419.
Date Notified: 8-25-2009

Name: Roy Darville
Entity: Caddo Lake Instituite (Watershed Group)
Date Notified: 8-25-2009

Name: C.W. Forsyth, Jr.
Entity: Sulphur-Cypress Soil & Water Conservation District #419
Date Notified: 8-25-2009

Name: Kenny Rollins
Entity: Texas AgriLife Extension Service (Titus County)
Date Notified: 8-25-2009

Name: Syble Buck
Entity: Sulphur-Cypress Soil & Water Conservation District #419
Date Notified: 8-25-2009

Name: Paul Prange
Entity: Ark-Tex Council of Governments
Date Notified: 8-25-2009

Name: Wayne Minor
Entity: Titus County Shefiff Dept., Environmental Enforcemnet
Date Notified: 8-25-2009

Name: Darrell Grubbs
Entity: Titus County Freshwater Supply District #1, General Manager
Date Notified: 8-25-2009

Name: Vernon Rowe
Entity: Pilgrim's Pride Corporation
Date Notified: 8-25-2009

Name: Mary Hearron
Entity: Northeast Texas Community College
Date Notified: 8-25-2009

Name: Max Berry
Entity: TSSWCB (Mount Pleasant Regional Office)
Date Notified: 8-25-2009

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: Big Cypress Creek (0404)

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)	☒ Yes ☐ No Date Notified: 6-1-2009 Name: Walt Sears, NETMWD [Performing Entity]
Texas Parks and Wildlife Department region staff	☒ Yes ☐ No Date Notified: 8-25-2009 Name: Adam Whisenant
TCEQ region staff	☒ Yes ☐ No Date Notified: 8-25-2009 Name: Mike Prater
Texas State Soil and Water Conservation Board Statewide Resource Management Group srm-team@tsswcb.state.tx.us	☒ Yes ☐ No Date Notified: 6-1-2009 Name: Aaron Wendt [Funding Entity]

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	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Municipal Government/Jurisdiction	☒ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
County Government/Jurisdiction	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Local Recreation Groups	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
Conservation Groups	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Local Soil and Water Conservation Districts	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas AgriLife Extension Service (local County Extension Agent)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
USDA Natural Resources Conservation Service (local field staff)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Watershed Groups	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Long-term Landowners/Adjacent Landowners	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas Stream Team (formerly Texas Watch)	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
Canoe Clubs	☐ Yes	☐ No	☐ Entity Not Contacted	☒ Entity Not in Project Area
City Commissioners Office	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Real estate agents	☐ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
Local non-profits	☐ Yes	☐ No	☒ Entity Not Contacted	☐ Entity Not in Project Area
City/county offices (Engineer, Health, Law Enforcement)	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Flood control districts	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Councils of Governments	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Texas Parks and Wildlife Department Game Warden	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area
Other: Pilgrim's Pride Corp., TAD, USDA-FSA, TSSWCB Region, Titus County FWSD, Northeast Texas Community College, USEPA	☒ Yes	☐ No	☐ Entity Not Contacted	☐ Entity Not in Project Area

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- 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:
   No one was aware of any primary contact recreation occurring in any of these streams.

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: No one was aware of any primary contact recreation occurring in any of these streams.

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: People occasionally fish in these streams.

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: People occasionally fish in these streams.

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: No one was aware of noncontact recreation occurring except possibly by hunters or farmers.

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.
   Lake O' the Pines

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.

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 Local Contacts Made:

Name: Anthony Rasnor
Entity: City Of Mount Pleasant, Utilities Director
Date Notified: 8-25-2009

Name: Melissa Berry
Entity: USDA NRCS, Mt. Pleasant Service Center
Date Notified: 8-25-2009

Name: Darren Turley
Entity: Texas Association of Dairymen
Date Notified: 8-25-2009

Name: Johnny French
Entity: Sulphur-Cypress Soil & Water Conservation District #419.
Date Notified: 8-25-2009

Name: Roy Darville
Entity: Caddo Lake Instituite (Watershed Group)
Date Notified: 8-25-2009

Name: C.W. Forsyth, Jr.
Entity: Sulphur-Cypress Soil & Water Conservation District #419
Date Notified: 8-25-2009

Name: Kenny Rollins
Entity: Texas AgriLife Extension Service (Titus County)
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Date Notified: 8-25-2009

Name: Darrell Grubbs
Entity: Titus County Freshwater Supply District #1, General Manager
Date Notified: 8-25-2009

Name: Vernon Rowe
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