Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 1

Data Collectors & Contact Information:	Ramirez, Blackney, Shepard, Strouhal
Date & Time: 5/1/11 1608-1705	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 1 (Bostik Rd @ San Bernard River)	

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.

29.85485
96.45522

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 No 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 32 °C Water Temp ~~not taken~~ sample error °C Secchi 0.15 m

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

R/L 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

at bridge/road only

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

Road crossing, easy slopes to stream bed

8. Dominant Primary Substrate

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

50/50

E = MM 6/6/11

QC = AM 6-7-11

QC2 MES 7/8/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 1
Date: 5/1/11 Time: 1608-1705

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).
Lack of water, no flow, stagnant pools, thick vegetation on banks, steep banks not at road

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
can access from road 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? No

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: _____

E-mail 6/6/11
AN: DL
6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 1
Date: 5/1/11 Time: 1608-1705

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) ☒ Not applicable

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).
very little water, no flow, no 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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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).
steep banks, debris, (barbed wire fences on each bank - parallel to stream upstream)

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).
but can walk through stream bed
- Site is public, ample access

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~~ MS 7/8/11

E-MM 6/6/11
AM = QC
6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 1
Date: 5/1/11 FDS Page 3 of 8 1608 - 1705

E. Stream Channel and Substantial Pools
Please check the following which best describes the river or stream: X Wadeable ☐ Non-wadeable
Only pools

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	7.2	0.6
Pool 2	2.7	1.5	0.1
Pool 3	6.9	3.3	0.4
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	

E-MM 6/6/11
QC: AR
6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 1
Date: 5/17/11 Time: 1608 - 1705

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? X Yes ☐ No
COMMENTS: Children wading

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	

E-MM 6/6/11
6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 1
Date: 5/1/11 Time: 1608-1705

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: culverts

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

- [x] Culverts
- [ ] Barbed wire
- [ ] Utility pipe
- [ ] Fences
- [ ] Dams
- [ ] Other (specify): _____
- [ ] 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
- [ ] 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
- [ ] Wildlife
- [x] Steep slopes
- [ ] No public access
- [ ] No roads
- [ ] Fence
- [ ] Barge/ship traffic
- [ ] Industrial
- [ ] None of the Above
- [x] Other: vegetation on banks

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: No real human presence

E-MH 6/6/11
QC-MH 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 1
Date: 5/1/11 Time: 1608-1705

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 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	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	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 ☐ 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: bottles, cans

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).

E-mail 6/6/11
QC: AM 6-7-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard Above Tidal Date: 5/1/11

Site: 1 Site

Description: Bostik Rd. @ San Bernard River

Time Begin: 1608 Time End: 1705 Meter Type:

Observers: M. Shepard Stream Width*: Section Width (W):

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow, only pools

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 2

Data Collectors & Contact Information:	Shepard, Ramirez, Strouhal, Blackney
Date & Time: 5/11/11 1312-1551	County Name: Colorado/Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Cat Spring @ San Bernard River Site 2	

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.

29.82359
96.37859

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☑ no flow ~~☒ low~~ LM 5/23/11 ☐ 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 no flow only pools

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 25 °C

secchi 0.62 m

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

R/L 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):

bridge crossing

8. Dominant Primary Substrate

_Cobble ☒ Sand _Silt _Mud/Clay _Gravel _Bedrock _Rip rap _Concrete

E-MM+EH 6/6/11

QC: AM 6-7-11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River (AT) Site: 2
Date: 5/17/11 Time: 1512-1551

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).
Pools too small

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

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

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: _____

E-MM+EH 6/6/11
QC: AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River (AT) Site: 2
Date: 5/1/11 Time: 1512 - 1551

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) no people

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).
pools too small

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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).
pools too small

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).
N/A

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.
none

E-MMEH 6/6/11

QC: LM 7/1/11 QC: AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 2
Date: 5-1-11 FDS Page 3 of 8 1512 - 1551

E. Stream Channel and Substantial Pools
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 1 Downstream 2 Left Bank 3 Right Bank 4
Photos #s (150 meters) Upstream 5 Downstream 6 Left Bank 7 Right Bank 8
Photos #s (300 meters) Upstream 9 Downstream 10 Left Bank 11 Right Bank 12

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	5.3	3.0	0.2
Pool 2	12.1	1.1	0.1
Pool 3	6.6	7.5	0.3
Pool 4	42.4	12.9	0.6
Pool 5	45	6.6	0.5
Pool 6	15.7	4.4	0.85
Pool 7	56	11.5	1.0
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	

QC2: LM 7/11/11

E-Mail EH 6/6/11
QC AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 2
Date: 5/1/11 Time: 1512 - 1551

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: children wading

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	

E-mail EH 6/6/11
QC 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 2
Date: 5-1-11 Time: 1520 1551

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
- ☒ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☒ 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).

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

Comments: _____

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

- ☐ Roads
- ☐ Rope swings
- ☐ Dock/platform
- ☐ Foot paths/prints
- ☒ Other: graffitti
- ☒ 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: _____

I-MMaEH 6/6/11

QC2: LM 7/11/11 QC-AN 6/7/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River Site: 2
Date: 5/1/11 Time: 1512 to 1551

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 Deer ~~[illegible]~~ RB

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: hoe

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).
N/A

E-MM&EH 6/6/11
QC 6-7-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/1/11

Site: Site 2 Site

Description: Cat Spring @ San Bernard River

Time Begin: 1512 Time End: 1551 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: No flow - only pools

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 3

Data Collectors & Contact Information:	Shepard, Ramirez, Blackney, Stroubal
Date & Time: 5/1/11 1410 – 1455	County Name: Colorado / Austin
Stream Name:	San Bernard River Above Tidal
Segment No. or nearest downstream Segment No.:	1302
Description of Site:	Site 3 (FM 949 @ San Bernard River)

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.

29.82456
-96.34233

A. Stream Characteristics:

1. Check the following channel flow status that applies.

~~MCB~~ X dry X no flow ☐ low ☐ normal ☐ high ☐ flooded

5/1/11

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

X 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.

X 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 No flow only pools

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 30 °C

No secchi - sampler error

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

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

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

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

Can pull off side of road & down under bridge

8. Dominant Primary Substrate

_Cobble X Sand _Silt _Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

DRC AM 6-2-11

DC2: LM 7/11/11

EH 6/6/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: 3
Date: 5/1/11 Time: 1410-1455

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).
Very little water, in turbid, stagnant pools thick vegetation on banks.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
ample access from road/bridge crossing. fenced across upstream.

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

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: _____

EH 6/6/11
QC 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 3
Date: 5/11/11 Time: 1410 – 1455

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) ☒ N/A

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 water, thick vegetation on banks, no ramp for boats.

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above)

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).
there is ample access

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

EH 6/6/11
QC AM 6-7-11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 3
Date: 5/1/11 1410 FDS Page 3 of 8 1410 – 1455

E. Stream Channel and Substantial Pools
Please check the following which best describes the river or stream: X Wadeable ☐ Non-wadeable
Pools only

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 ✓ 1 at electric fence
Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ 2
Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ 3

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	15.7	4.0	0.5
Pool 2	3.6	1.9	0.19
Pool 3	18.2	3.8	0.15
Pool 4	6.2	4.6	0.5
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	

EH 6/6/11

QC2: LM 7/11/11 QC Am 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 3
Date: 5/1/11 Time: 1410 – 1455

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? X Yes ☐ No
COMMENTS:
children wading

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	

EH 6/6/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 3
Date: 5/1/11 Time: 1410 – 1455

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
- ☒ None
- ☐ Other: _____

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

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

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

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

- ☐ Campgrounds
- ☐ Playgrounds
- ☒ Rural area
- ☐ Residential
- ☐ National forests
- ☐ Urban/suburban location
- ☐ Golf Course
- ☐ Sports Field
- ☐ Stairs/walkway
- ☐ Boating access (ramps)
- ☐ Beach
- ☒ Bridge crossing
- ☐ Commercial boating
- ☐ 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 (at bridge)
- ☐ 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 (electric)
- ☐ Barge/ship traffic
- ☐ Industrial
- ☐ None of the Above
- ☒ Other: thick vegetation on banks

Comments: _____

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

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

Comments: _____

EH 6/6/11

QC AM 6-7-11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 3
Date: 5/1/11 Time: 1410 – 1455

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 (musty)
Color: ☐ clear ☐ green ☐ red ☑ brown ☐ black
Bottom Deposit: ☐ sludge ☐ solids ☐ fine sediments ☐ none ☑ other (leaf litter
Water Surface: ☐ clear ☑ scum ☐ foam ☐ debris ☐ oil
Other: lots of decaying leaf litter

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: vulture – strong putrid smell (dead animal?)

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: beer bottles, cans, tire, scrap metal

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).
main channel is almost completely dry with small intermittent pools

EH 6/6/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard Above Tidal Date: 5/1/11

Site: 3 Site

Description: FM 949 @ San Bernard River

Time Begin: 1410 Time End: 1455 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: No flow - only pools

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

EH 6/6/11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 4

Data Collectors & Contact Information:	D. Ramirez, M. Shepard, R. Blackney, J. Strouhal
Date & Time: 5-1-11 /1400 ← 1344	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 4 (Sealy Rd @ San Bernard River)	

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.

29.77981
96.31488

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☒ no flow ~~☒ low~~ ☐ normal ☐ high ☐ flooded

MES 5/2/11

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 n/a no flow only lg. pool

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 29 °C secchi 1.012m 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):

low water crossing /easy access

8. Dominant Primary Substrate

_Cobble ☒Sand _Silt _Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

EH 6/6/11

QC: LM 7/11/11 DC Am 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 4
Date: 5-1-11 Time: 1344 – 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 ☐ 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).
Vegetation, turbid water, some large debris, stagnant water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
low water 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? NO

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: _____

EH 6/6/11
QC AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 4
Date: 5-1-11 Time: 1344 - 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) ☒ None

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).
Vegetation on banks

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above)

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).
Ample public access

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

EH 6/6/11
QC AM 6-7-11

QC2:LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name Sun Bernard (AT) Site: 4
Date: 5-1-11 FDS Page 3 of 8 1344 - 140

E. Stream Channel and Substantial Pools
Please check the following which best describes the river or stream: X Wadeable ☐ Non-wadeable
But only pools (Large pools)

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	250	18.5	1.18
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	

EH 6/6/11

QC AW 6-7-11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 4
Date: 5/1/11 Time: 1314 - 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	
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? X 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	

EH 6/6/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 4
Date: 5/1/11 Time: 1344 - 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
- ☒ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☒ 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: large, clear sandy area (on R bank)
- ☐ 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: Fenced to bridge - upstream side

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
- ☐ No Human Presence

Comments: _____

EH 6/6/11

DC2: LM 7/11/11

QC AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name_____ Site: _____
Date: _____ Time: _____

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 → oily sheen
Other:
under-water algae - common

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	(3 deer)
Domesticated Pets	☐ None	☐ slight presence	☒ moderate presence	☐ large presence	(1 dog)
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
cow patty

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: styrofoam on bank, shoe in water, small appliance

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).
Outside 300m reach, river is narrower and more vegetated (see photos at 300/0m and 300m)

EH 6/6/11
QC AM 6-7-11

Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5-1-11
Site: 4 Site
Description: Sealy Rd @ San Bernard River
Time Begin: 1344 Time End: 1400 Meter Type:
Observers: D. Ramirez Stream Width*: Section Width (W):
Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

No flow only a big pool

EH 6/6/11
QC 6-7-11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 5

Data Collectors & Contact Information:	M. Shepard, D. Ramirez, Blackney, Strouhal
Date & Time: 5/1/11 1222 to 1320	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 5 IH 10 @ San Bernard River	

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.

29.74868
-96.29613

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☒ no flow ~~☒ low~~ ☐ normal ☐ high ☐ flooded

MES 5/2/11

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 n/a noflow only pools

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 Secchi >1.2m 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): ___
___ 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):

Easy to access

8. Dominant Primary Substrate

_Cobble _Sand ☒Silt _Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

EH 6/6/11

QC AM 6-7-11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River (AT) Site: 5
Date: 5/11/11 Time: 1222 – 1320

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).
Small, intermittent pools. Main channel mostly dried up. No flow.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Accessible by foot via public 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? No

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: _____

EH 6/6/11

QLM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (M) Site: 5
Date: 5/1/11 Time: 1222-1320

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) N/A

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 before)

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 N/A

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 before)

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).
Ample public access.

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.

Rewritten MES 8/17/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 5
Date: 5/1/11 ~~1222~~ FDS Page 3 of 8 1222 - 1320

E. Stream Channel and Substantial Pools
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.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	15	4.3	0.1
Pool 2	~~7~~ 7	4.8	0.41
Pool 3	7.3	1.6	0.04
Pool 4	19	5	0.39
Pool 5	30.3	3.95	0.85
Pool 6	12	3.1	0.26
Pool 7			
Pool 8			
Pool 9			
Pool 10			

JS

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	~~0.41~~
Average	

NED 5/24/11

JS

EH 6/6/11

QC: LM 7/11/11

QC AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 5
Date: 5/1/11 ~~1222~~ Time: 1222 - 1320

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? X Yes ☐ No
COMMENTS: Children wading

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	

EH 6/6/11

DC 6-1-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 5
Date: 5/1/11 Time: 1222 - 1320

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
- ☒ None
- ☐ Other: _____

NES 5/1/11

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☒ 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).

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

Comments: _____

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

- ☐ Roads
- ☐ Rope swings
- ☐ Dock/platform
- ☐ Foot paths/prints
- ☐ 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
- ☒ Other: chair underbridge

Comments: _____

6/6/11

QC ZLM 7/11/11 QC AM 6-7-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: 5
Date: 5/1/11 Time: 1222

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: X clear ☐ green ☐ red ☐ brown ☐ black
Bottom Deposit: ☐ sludge ☐ solids ☐ fine sediments X none ☐ other
Water Surface: ☐ clear ☐ scum ☐ foam ☐ debris X oil
Other: oily sheen on some pools

8. Vertebrates Observed within 300 meter reach

Snakes	☐ None	X slight presence	☐ moderate presence	☐ large presence (1)
Water Dependent Birds	X None	☐ slight presence	☐ moderate presence	☐ large presence
Alligators	X None	☐ slight presence	☐ moderate presence	☐ large presence

Comments: frogs

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 X Fecal droppings ☐ Bird nests
canine tracks

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: plastic bag

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).
~~none~~ MES 5/24/11 Area looks more like a floodplain than a true, defined river channel.

6/6/11

DL AM 6-7-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/1/11

Site: Site 17 Site

Description: IH 10 @ San Bernard River

Time Begin: 1222 Time End: 1320 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: No flow - only pools

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

EH 6/6/11

AM 6-7-11

(6)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	D. Ramirez M. Shepard, J. Strouhal, R. Blackekney
Date & Time: 5-1-11, 1058 - 1200	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: FM 3013 @ San Bernard River Site 6	

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.

29.66065
-96.24348

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ☒ no flow ☒ low ☐ normal ☐ high ☐ flooded

MES 5/2/11

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 ~~No flow - only pools~~ flow Not completed - stream ended @ 270 m

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 Secchi 0.466 m Water Temp 24.5 °C

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

R Forest	Urban	Rip rap
L,R 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):

fence w/ gate - gate was unlocked otherwise easy access

8. Dominant Primary Substrate

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

QC2: LM 7/11/11

QC Bw 6/14/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard Above Site: (Fm 3013) #6
Date: 5-1-11 Time: 1058 – 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).
Fence w/ gate otherwise ample access

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
bridge crossing w/ road alongside

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

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 San Bernard Site: (3013) #6
Date: 5-1-11 Time: 1058 – 1200

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) X N/A

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~~ No place for boat but ample area for fishing, etc.

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above

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).
barbed wire fence w/gate (unlocked at time of site visit)
No tresspass sign

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.
easy access

QC2: LM 7/11/4 QC RM 6/4/4

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: (FM 3013) #6
Date: 5/11/11 1058 - 1200

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.

	Length (meters)	Width (meters)	Depth (meters)
Pool 1	>300	25	>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.

→ water was actually one large pool, stopped at ~270 m

Distance	Depth (meters)
30 meters	>1.4
60 meters	1.2
90 meters	0.26
120 meters	1.1
150 meters	0.93
180 meters	0.66
210 meters	0.29
240 meters	1.08
270 meters	0.36
300 meters	0
Average	0.748

→ 1.4 was used for calculation

MES 7/8/11

fishing bobber farthest upstream

QC'd M 7/11/11 QC 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard Site: (FM 3013) #6
Date: 5/1/11 Time: 1058-1200

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	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River Above Tolu Site: (Fm 3013) #6
Date: 5/1/11 Time: 1058 – 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
- ☒ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☒ Other (specify): Natural-looking berm
- ☐ 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
- ☐ 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).

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

Comments: fence w/ gate - unlocked at time of visit

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

- ☐ Roads
- Rope swings
- ☐ Dock/platform
- ☒ Foot paths/prints
- ☒ Other: graffitti
- ☐ 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: Barefoot prints w/in channel

QC: LM 7/11/11 QC 6/9/11

Field Data Sheets – Basic RUAA Survey #6

Stream Name San Bernard River Above Tiba | Site: (Fm 3013)
Date: 5/1/11 Time: 1058 – 1200

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 (1)
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 swallows

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: bottle, plastic bag, pr of socks, beer bottle, way up on bank, trash bags hanging on fence

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).

N/A

Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: San Bernard River above tidal Date: 5-1-11
Site: (SB FM 3013) #6 Site
Description: FM3013 @ San Bernard River
Time Begin: 1105 Time End: 1145 Meter Type: SondeTek
Observers: D. Ramirez, R. Blackney Stream Width*: 31ft Section Width (W): 1.55
Observations: wind blowing strongly from downstream

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
0.78	0.4		0.01		
2.325	1.05		0.00		
3.875	1.3		~~0.05~~ 0.06		
5.425	1.4		0.03		
6.975	1.35		0.05		
8.525	1.25		0.09		
10.075	1.15		-0.02		
11.625	1.0		0.01		
13.175	0.9		-0.04		
14.725	0.7		-0.03		
16.275	0.65		-0.06		
17.825	0.65		-0.03		
19.375	0.55		-0.00		
20.925	*				
22.475					
24.025					
25.575					
27.125					
28.675					
30.225					

*River is cutoff @ 270m

Flow not completed due to it not flowing to anything

QC RM 6/14/11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site ~~[illegible]~~ 7 5/27/11

Data Collectors & Contact Information:	M. Shepard, D. Ramirez, J. Strouhal, R. Blackney
Date & Time: 5/1/11 0900 – 1015	County Name: Wharton / Austin
Stream Name:	San Bernard River Above Tidal
Segment No. or nearest downstream Segment No.:	1302
Description of Site:	~~Site [illegible]~~ FM 1093 @ San Bernard River) Site 7

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.

29.62258
-96.14565

A. Stream Characteristics:

1. Check the following channel flow status that applies.

X dry ☐ no flow ☐ low ☐ normal ☐ high ☐ flooded

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

X 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 no water

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 29 °C Water Temp n/a °C secchi n/a

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):

easy access

8. Dominant Primary Substrate

_Cobble ✓Sand _Silt _Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

EH 6/6/11

QC: LM 7/11/11 QC RM 6/6/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: 6
Date: 5/1/11 Time: 0900 - 1015

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).
Lack of water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
at public bridge 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? No

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: _____

EH 6/6/11
QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 7
Date: 5/1/11 Time: 0900 - 1015

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) ☒ None

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).
Lack of water, otherwise accessible

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 N/A
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: N/A

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 above)

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).
Ample public access, worn drive off main road.

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

EH 6/6/11

QC RM 6/9/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~Kerstin~~ 1
Date: ~~5/11/11~~ 5/1/11 FDS Page 3 of 8 0900 - 1015

E. Stream Channel and Substantial Pools

Please check the following which best describes the river or stream: ☑ Wadeable ☐ Non-wadeable

DRY

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 ✓ (261m) [Fences]

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	0
60 meters	0
90 meters	0
120 meters	0
150 meters	0
180 meters	0
210 meters	0
240 meters	0
270 meters	0
300 meters	0
Average	0

EH 6/6/11

QC RM 6/6/11
QC2: LM 7/4/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~Kosta~~ NB 7
Date: 5/1/11 Time: 0900 - 1015

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	0 (No water)
Width at narrowest point of the stream within 300 meter reach	0 (No water)
Width at the widest point of the stream within 300 meter reach	0 (No water)

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

COMMENTS:
No water present.

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	

EH 6/6/11

QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~6~~ 5/27/11 7
Date: 5/1/11 Time: 0900 - 1015

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
- ☒ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☒ Fences (2)
- ☐ Log jams
- ☐ Rip rap
- ☐ Water control structure
- ☐ Barbed wire
- ☐ Dams
- ☐ Thick vegetation
- ☐ Low bridges
- ☐ None
- ☐ Utility pipe
- ☐ Other (specify): _____

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

- ☐ Campgrounds
- ☐ Playgrounds
- ☒ Rural area
- ☐ Residential
- ☐ National forests
- ☐ Urban/suburban location
- ☐ Golf Course
- ☐ Sports Field
- ☐ Stairs/walkway
- ☐ Boating access (ramps)
- ☐ Beach
- ☒ Bridge crossing
- ☐ Commercial boating
- ☒ 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).

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

Comments: fences across channel up & downstream of bridge (at 30m and 26lm)

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
- ☒ Other: shotgun shells, some burned wood in channel

Comments: _____

EH 6/6/11

QC2: LM 7/4/11 GM 6/4/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: Kowalski 7
Date: 5/1/11 Time: 0900 - 1015

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 ☒ N/A
Bottom Deposit: ☐ sludge ☐ solids ☐ fine sediments ✓ none ☐ other
Water Surface: ☐ clear ☐ scum ☐ foam ☐ debris ☐ oil ☒ N/A
Other:
No water

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: 1 dead turtle

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
raccoon, snake, birds swallows

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: beer cans, cups, old sofa, toilet, food wrappers, plastic bags, glass (broken)

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).

EH 6/6/11

QC [illegible] 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/1/11

Site: ~~6~~ 5/27/11 7 Site

Description: FM 1093 @ San Bernard River

Time Begin: 0900 Time End: 1015 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: M. Shepard no water

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

no water

EH 6/6/11

QC RM 6/4/11

Site 8 TMES 5/07/11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information: J. Vrast, M. Moss, R. March, L. Melendez	
Date & Time: 4/30/11 1640-1705	County Name: Wharton / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 8 (SH60 @ San Bernard River (17421)	

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

one pool present in reach

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. 0.00 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 28.8 °C Water Temp 26 °C

Secchi: 0.346

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

4R 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):

Well marked drive down Rt side of River from bridge. gentle slope to water, public access.

8. Dominant Primary Substrate

_Cobble ✓ Sand _Silt _Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

EH 6/6/11

QC EM 6/9/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Site 8 KJ 6/16/11

Stream Name: San Bernard (AT) Site: A & PW 6/8/11
Date: 4/30/11 Time: 1640 - 1705

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 1 person approached us while taking measurements to ask questions

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).
no H_2O w/exception of 1 pool (@ 90 m)

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
no public access constraints (gravel road leading to stream bank)

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

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: _____

6/6/11

QC RW 6/9/11

Site 8 KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: 7 8 RM 10/11/11
Date: 4/30/11 Time: 1640-1705

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).
no H_2O w/ exception of 1 pool (@ 90m)

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: N/A

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

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 constraints on public access

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

EH 6/6/11

QC LM 7/11/11 QC RM 6/9/11

Site 8 KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~7~~ 8 EM 6/9/11
Date: 4/30/11 FDS Page 3 of 8 1640-1705

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.

(2) Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
(1) Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
(3) 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 @90m	~~12.0m~~ 19.5m	13.6m	0.83m
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.

(outside of reach) H_2O pooled @ 0m ~~appears~~ MM ~~origin to continue from that point on~~ 0.316

Distance	Depth (meters)
30 meters	
60 meters	
90 meters	
120 meters	
150 meters	No water present - 0m
180 meters	
210 meters	
240 meters	
270 meters	
300 meters	
Average	

pool = ~~0.88~~ 0.83 m

EH 6/6/11

QC KM 6/9/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Site 8

Stream Name San Bernard (AT) Site: ~~7~~ 8 RM 6/6/11 KS 6/16/11

Date: 4/30/11 Time: 1620 – 1705

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	N/A
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:

pool was wadeable

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	

EH 6/6/11

QC RM 6/9/11

Site 8
KD 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 7 ~~8~~ ~~KD~~ 6/16/11
Date: 4/30/11 Time: 1640-1705

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
- ☐ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☐ 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).

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

Comments: _____

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

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

Comments: _____

EH 6/6/11

QC: LM 7/11/11 QC AM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site 8

Stream Name San Bernard (AT) Site: ~~7~~ ~~[illegible]~~ 6/9/11

Date: 4/30/11 Time: 1640-1705

KJ 6/16/11

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

Aquatic Vegetation: ☑ absent ☐ rare ☐ common ☐ abundant

Algae Cover: ☑ absent ☐ rare ☐ common ☐ abundant

Odor: (pool) ☑ none ☐ rare ☐ common ☐ abundant

Color: (pool) ☐ clear ☑ green ☐ red ☐ brown ☐ black

Bottom Deposit: ☐ sludge ☐ solids ☑ fine sediments ☐ none ☐ other

Water Surface: (pool) ☑ 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 horse tracks/~~poop~~ droppings rabbit tracks snake track

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: cans, paper, 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).

EH 6/6/11

QC RM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/30/11

Site: 7 ~~6/6/11~~ Site 8 RS 6/16/11 Site

Description: SH 60 @ San Bernard River (TCEQ: 17421)

Time Begin: 1640 Time End: 1705 Meter Type:

Observers: Moss, Wrast, March Stream Width*: Section Width (W):

Observations: Site dry except for 1 pool - no flow

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

Site dry except for one pool - no flow taken

EH 6/6/11

1.9

9

Site ~~8~~ 9 5/27/11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information: J. Wrust, M. Moss, R. March, L. Melendez	
Date & Time: 4/30/11 1500-1620	County Name: Wharton / Fort Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	16373
Description of Site: Site ~~8~~ 9 (US90A @ San Bernard River: ~~17427~~)	

At any point during the Basic ~~MCS~~ 5/27/11 *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. 12.6666 fs

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 27.8 °C Water Temp 23 °C

Secchi = 0.158m

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):

can easily pull off on side of road on Rt bank, or drive down to side of water on left bank. moderately gentle slope to water.

8. Dominant Primary Substrate

_Cobble _Sand _Silt ✓Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

EH 6/6/11

QC RM 6/7/11

QC2: LM 7/11/11

Site 9
RS 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~87~~ RM 6/9/11
Date: 4/30/11 Time: 1500-1620

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).
turbid water, trash/tires/rebar in water.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
bridge crossing, w/ public access and trail/drive down under bridge on left bank/downstream side of 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? No

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: _____

EH 6/6/11
BC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site 9 KS 6/6/11

Stream Name San Bernard (AT) Site: ~~8~~ 9 RM 6/6/11
Date: 4/30/11 Time: 1500-1620

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) N/A

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).
turbid water, rip rap dam under bridge.

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 N/A RM 6/6/11

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above.

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 limited public access, ~~potentially~~, Good access at bridge.

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

EH 6/6/11

QC RM 6/6/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Site 9 KS 6/16/11

Stream Name San Bernard (AT) Site: ~~8~~ 9 RM 0/9/11
Date: 4/30/11 FDS Page 3 of 8 1500-1620

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.

1 @ 90m → Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 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	Couldn't proceed - non-wadeable
90 meters	>1.4m ← non-wadeable - but visible to ~30m mark. (see upstream photo)
120 meters	0.74m
150 meters (@ bridge →)	0.64m
180 meters	0.97m
210 meters	0.745
240 meters	0.500
270 meters	0.600
300 meters	0.710
Average	0.9105

(Where non-wadeable, 1.4 was used for calculation purposes)

EH 6/6/11

QC: LM 7/11/11 QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site 9 KS 6/16/11

Stream Name San Bernard (AT) Site: ~~8~~ 9 RM 6/9/11
Date: 4/30/11 Time: 1500 - 1620

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	~~7m~~ ~10-11m
Width at narrowest point of the stream within 300 meter reach	7m
Width at the widest point of the stream within 300 meter reach	15m

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	

EH 6/6/11

QC RM 6/9/11

site 9 KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: 8 ~~9~~ RM 0/9/11

Date: 4/30/11 Time: 1500 - 1620

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): rip rap dam
- ☑ 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
- ☐ 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).

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

Comments: _____

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

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

Comments: _____

EH 6/6/11

DCZ LM 7/11/11 QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site 9 KD 6/16/11

Stream Name San Bernard (AT) Site: ~~8~~ 9 ~~KD 6/16/11~~
Date: 4/30/11 Time: 1500 – 1620

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 (dog tracks?)

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: rebar and tires in channel, also a bike., gun (think pellet or B-B) in water under bridge. cans, paper, cigarette butts, filters

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).
Bat colony lives under this bridge. Active and large. A white truck drove down to the bank and then immediately left. There is graffiti under the bridge.

EH 6/6/11
QC RM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/30/11

Site: ~~8~~ ~~9~~ ~~6/9/11~~ Site 9 KS 6/6/11 Site

Description: US 90 A San Bernard River (TCEQ: 16373)

Time Begin: 1515 Time End: 1615 Meter Type: Flow Tracker

Observers: J. Wrast, L. Melendez Stream Width*: 38 Section Width (W): 1.9

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
0.95	1.0			0.05	
2.85	1.55			0.19	
4.75	1.8			0.21	
6.65	1.9			0.25	
8.55	2.0			0.34	
10.45	2.3			0.28	
12.35	2.3			0.35	
14.25	2.3			0.35	
16.15	2.3			0.26	
18.05	2.25			0.21	
19.95	2.3			0.15	
21.85	2.4			0.07	
23.75	2.5			0.03	
25.65	2.5			-0.04	
27.55	2.5			-0.05	
29.45	2.5			0.05	
31.35	2.35			0.36	
33.25	1.3			0.12	
35.15	1.4			0.03	
37.05	0.5			0.01	

Total Q = 12.666

EH 6/6/11

Re-write datasheet!

Site = Sb8 (sb08 was stopped and is wrong)

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/30/11

Site: 8 ~~9~~ Site 9 KS 6/16/11 Site

Description: US 90A San Bernard River (TCEQ: 16373)

Time Begin: 1515 ~~1615~~ Time End: 1615 Meter Type: Flow Tracker.

Observers: J. Wrast. L. Melendez Stream Width*: 38 Section Width (W): 1.9

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
0.95	~~0.5~~ 1.0		~~0.05~~	~~0.00~~	
2.85	~~0.6~~ 1.55		~~0.19~~	~~0.12~~	
4.75	~~0.8~~ 1.8		~~0.21~~	~~0.17~~	
6 ~~8~~.65	~~0.9~~ 1.9		~~0.25~~	~~0.27~~	
~~8~~.55	~~1.0~~ 2.0		~~0.34~~	~~0.18~~	
10 ~~8~~.45	~~1.2~~ 2.3		~~0.28~~	~~0.29~~	
12.35	~~1.2~~ 2.3		~~0.35~~	~~0.29~~	
14.25	~~1.5~~ 2.3		~~0.35~~	~~0.29~~	
16.15	~~1.5~~ 2.3		~~0.26~~	~~0.28~~	
18.05	~~1.5~~ ~~2.5~~	2.25	~~0.21~~	~~0.27~~	
19.95	~~1.5~~ 2.3		~~0.15~~	~~0.23~~	
21 ~~20~~.85	~~1.4~~ 2.4		~~0.07~~	~~0.06~~	
23.75	~~1.5~~ 2.5		~~0.03~~	~~0.03~~	
25.65	~~1.55~~ 2.5		~~-0.04~~	~~-0.04~~	
27.55	~~1.5~~ 2.5		~~-0.05~~	~~-0.04~~	
29.45	2.5		~~0.05~~		
31 ~~30~~ ~~29~~.35	2.35		~~0.36~~		
33 ~~32~~ ~~30~~.25	1.3		~~0.12~~		
35 ~~34~~ ~~32~~.15	1.4		~~0.03~~		
37.05	0.5		~~0.01~~		

total Q = 12.6666

Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information		09 KS 6/16/11
File Name	San Bernard SB08.WAD	
Start Date and Time	2011/04/30 15:43:55	

Site Details		9 KJ 6/16/11
Site Name	SB8	
Operator(s)	LM	

System Information	
Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

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%	2.5%
Velocity	1.1%	9.1%
Width	0.2%	0.2%
Method	2.3%	-
# Stations	2.3%	-
Overall	**3.6%**	**9.5%**

Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	37.100
Mean SNR	30.4 dB	Total Area	74.763
Mean Temp	73.84 °F	Mean Depth	2.015
Disch. Equation	Mid-Section	Mean Velocity	0.1694
		Total Discharge	**12.6659**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	15:43	0.90	None	1.000	0.0	0.0	0.0000	1.00	0.0456	0.025	0.0011	0.0
1	*15:43*	*0.95*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0456*	*1.00*	*0.0456*	*0.975*	*0.0445*	*0.4*
2	15:45	2.85	0.6	1.550	0.6	0.620	0.1854	1.00	0.1854	2.945	0.5458	4.3
3	15:47	4.75	0.6	1.800	0.6	0.720	0.2080	1.00	0.2080	3.420	0.7113	5.6
4	15:48	6.65	0.6	1.900	0.6	0.760	0.2487	1.00	0.2487	3.610	0.8977	7.1
5	15:49	8.55	0.6	2.000	0.6	0.800	0.3353	1.00	0.3353	3.800	1.2741	10.1
6	15:50	10.45	0.6	2.300	0.6	0.920	0.2799	1.00	0.2799	4.370	1.2229	9.7
7	15:51	12.35	0.6	2.300	0.6	0.920	0.3494	1.00	0.3494	4.370	1.5268	12.1
8	15:52	14.25	0.6	2.300	0.6	0.920	0.3478	1.00	0.3478	4.370	1.5196	12.0
9	15:53	16.15	0.6	2.300	0.6	0.920	0.2569	1.00	0.2569	4.370	1.1225	8.9
10	15:56	18.05	0.6	2.250	0.6	0.900	0.2123	1.00	0.2123	4.275	0.9074	7.2
11	15:57	19.95	0.6	2.300	0.6	0.920	0.1480	1.00	0.1480	4.370	0.6466	5.1
12	15:59	21.85	0.6	2.400	0.6	0.960	0.0656	1.00	0.0656	4.560	0.2992	2.4
13	*16:00*	*23.75*	*0.6*	*2.500*	*0.6*	*1.000*	*0.0322*	*1.00*	*0.0322*	*4.750*	*0.1527*	*1.2*
14	*16:01*	*25.65*	*0.6*	*2.500*	*0.6*	*1.000*	*-0.0404*	*1.00*	*-0.0404*	*4.750*	*-0.1917*	*-1.5*
15	*16:02*	*27.55*	*0.6*	*2.500*	*0.6*	*1.000*	*-0.0482*	*1.00*	*-0.0482*	*4.750*	*-0.2291*	*-1.8*
16	*16:04*	*29.45*	*0.6*	*2.500*	*0.6*	*1.000*	*0.0486*	*1.00*	*0.0486*	*4.750*	*0.2306*	*1.8*
17	16:05	31.35	0.6	2.350	0.6	0.940	0.3612	1.00	0.3612	4.465	1.6128	12.7
18	*16:07*	*33.25*	*0.6*	*1.300*	*0.6*	*0.520*	*0.1178*	*1.00*	*0.1178*	*2.470*	*0.2909*	*2.3*
19	*16:09*	*35.15*	*0.6*	*1.400*	*0.6*	*0.560*	*0.0285*	*1.00*	*0.0285*	*2.660*	*0.0759*	*0.6*
20	16:10	37.05	0.6	0.500	0.6	0.200	0.0059	1.00	0.0059	0.713	0.0042	0.0
21	16:10	38.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

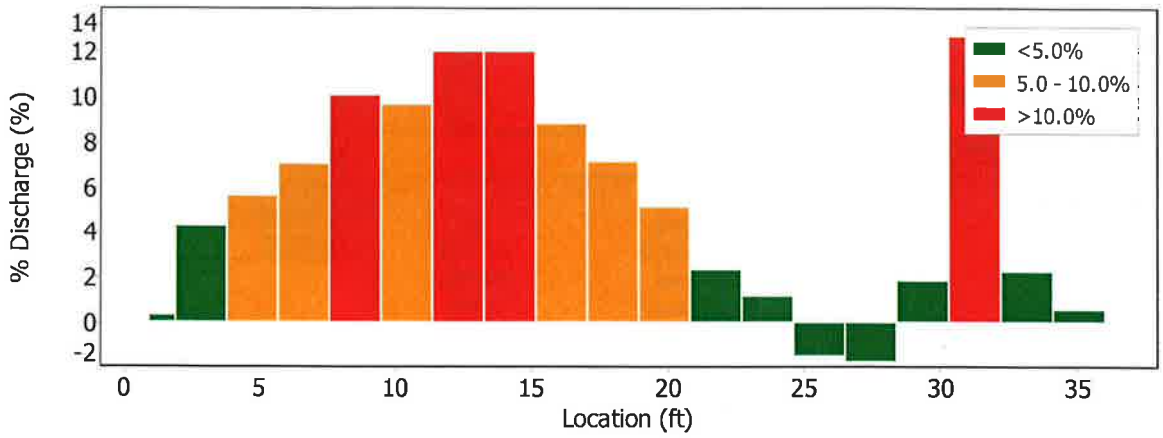
Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

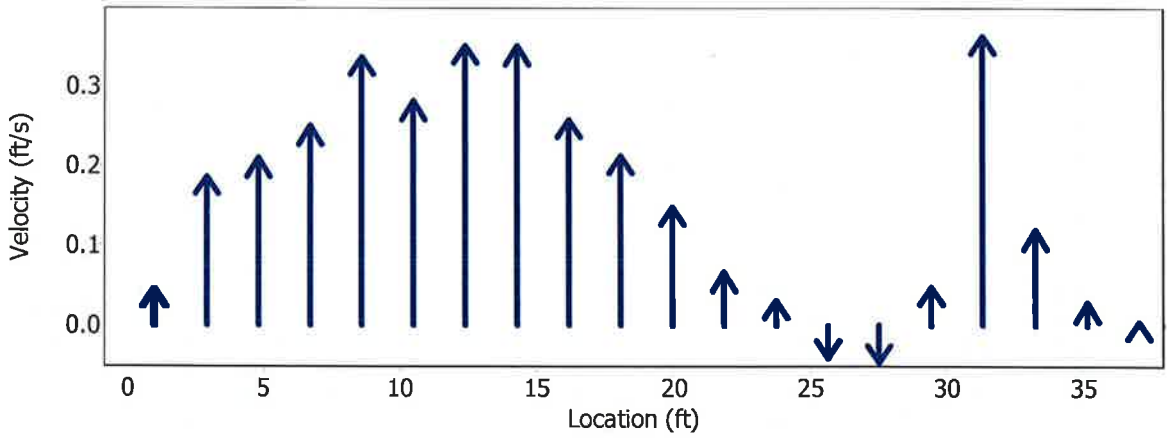
Discharge Measurement Summary

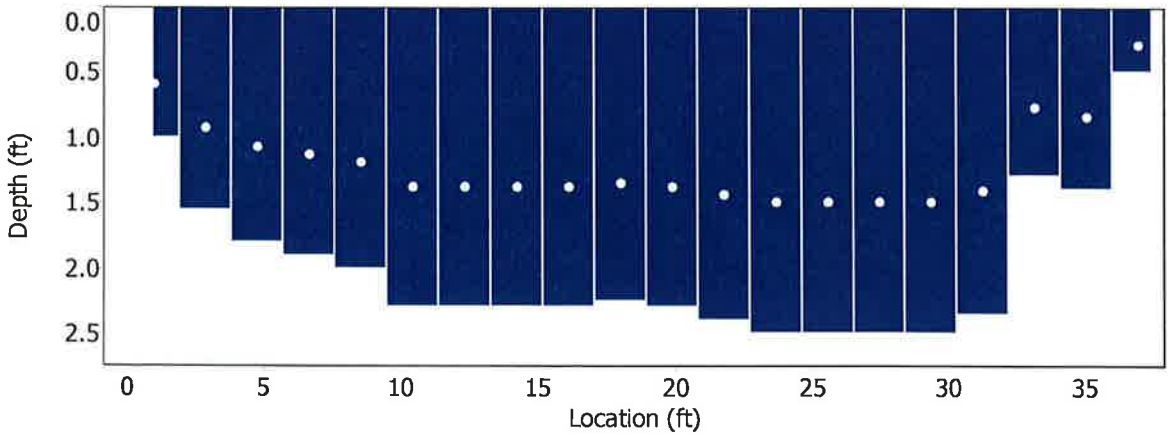
Date Generated: Thu May 19 2011

File Information	
File Name	San Bernard SB08.WAD
Start Date and Time	2011/04/30 15:43:55

Site Details	
Site Name	SB8
Operator(s)	LM







Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information		Site Details	
File Name	San Bernard SB08.WAD	Site Name	SB8
Start Date and Time	2011/04/30 15:43:55	Operator(s)	LM

Quality Control

St	Loc	%Dep	Message
1	0.95	0.6	Boundary QC is Good; possible boundary interference
13	23.75	0.6	High angle: -61
14	25.65	0.6	High angle: -134
15	27.55	0.6	High angle: 142
16	29.45	0.6	High angle: 47
18	33.25	0.6	High SNR variation during measurement: 5.6,6.0
19	35.15	0.6	High angle: -34

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 10 MCS 5/23/11

Data Collectors & Contact Information:	Moss, Wright, March, Melendez
Date & Time: 4/30/11 1325-1445	County Name: Wharton / Fort Bend
Stream Name:	San Bernard Above Tidal
Segment No. or nearest downstream Segment No.:	1302
Description of Site: ~~Site~~	FM 299 @ San Bernard River Site 10

At any point during the ~~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. 10.149 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 28.9 °C Water Temp 23.0 °C

Secchi 0.192m

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):

Public access from road, trail leading to flattened area near stream

8. Dominant Primary Substrate

_Cobble _Sand _Silt ✓Mud/Clay _Gravel _Bedrock _Rip rap _Concrete

EH 6/6/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Site 10 KS 6/16/11

Stream Name San Bernard River (AT) Site: ~~Site 10~~
Date: 4/30/11 Time: 1325 - 1445

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).
turbid, heavy vegetation on bank, steep banks, cypress knees

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
worn trail from road leading to grass covered, flat area (condusive for parking)

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

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: _____

EH 6/6/11

KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: ~~9~~ 10
Date: ~~11~~ 4/30/11 Time: 1325-1445

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) N/A

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).
~~turbid water~~, steep slopes, heavy vegetation on both banks,

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: ~~not ob~~ N/A

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 (above)

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 stream banks, steep slopes

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

EH 6/6/11

QC2: CM 7/11/11

Field Data Sheets – Basic RUAA Survey

Site 10 KS 6/16/11

Stream Name San Bernard River (AT) Site: 6/9/10
Date: 04/30/2011 FDS Page 3 of 8 1325 - 1445

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.

	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	>1.4
60 meters	>1.4
90 meters	>1.4
120 meters	0.9
150 meters	0.35
180 meters 200 meters	non-wadeable
210 meters ~~200 meters~~	1.1
240 meters	0.8
270 meters	~~0.98~~ 0.9
300 meters	0.7
Average	0.95

+ log block * @ 180 = 0.55

* After the log block, we walked around it and took measurement @ 180 meters, which was 0.55

EH 6/6/11

QC: LM 7/11/11 QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (KT) Site: ~~9~~ 10 Site 10 KJ 6/16/11
Date: 4/30/11 Time: 1325 - 1445

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	29.9 ft
Width at narrowest point of the stream within 300 meter reach	22 ft
Width at the widest point of the stream within 300 meter reach	14.5 meters

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	

EH 6/6/11

QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site 10 KS 6/16/11

Stream Name San Bernard River (#5) Site: 9 ~~10~~ EM 6/9/11

Date: 4/30/11 FDS Page 3 of 8 1325 – 1445

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.

	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	>1.4
60 meters	>1.4
90 meters	>1.4
120 meters	0.9
150 meters	0.35
180 meters	0.55
210 meters	~~0.8~~ 1.1
240 meters	0.8
270 meters	0.9
300 meters	0.7
Average	0.95

Log block and non-wadeable @ 200 m

(where >1.4, 1.4 was used for calculation)

EH 6/6/11

QC2: LM 7/11/11 QC EM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site ID KS 6/16/11

Stream Name San Bernard River (AT) Site: ~~6.9~~ 10
Date: 4/30/11 Time: 1325 - 1445

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	29.9 ft
Width at narrowest point of the stream within 300 meter reach	22 ft
Width at the widest point of the stream within 300 meter reach	14.5 meters

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	

EH 6/6/11

QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Site 10 KJ 6/16/11

Stream Name San Bernard River (AT) Site: ~~9~~ 10 RM 6/9/11
Date: 4/30/11 Time: 1325 - 1445

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☑ 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
- ☐ 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).

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

Comments: _____

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

- ☐ Roads
- ☐ Rope swings
- ☐ Dock/platform
- ☑ Foot paths/prints
- ☐ 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
- ☐ Other: Mardi gras beads hanging from branches reaching over stream.

Comments: no way of putting them there w/o 1° or 2° contact
visible

EH 6/6/11

QC RM 6/9/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Site 10
ZD 6/16/11

Stream Name: Say Bernard River (AT) Site: ~~9~~ 10
Date: ~~11~~ 4/30/11 Time: 1325 - 1445

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: paw pints observed along left bank, probably racoon.

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:
Beer cans, lots of tires around bridge, plastic bags, Soup cans, fishing line

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).

EH 6/6/11

QC RM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/30/11

Site: Site 9 10 6/16/11 Site

Description: FM 2919 @ San Bernard River

Time Begin: 1330 Time End: 1352 Meter Type: Son Tek

Observers: Moss, Wrast Stream Width*: 22ft Section Width (W): 1.1 ft

Observations: very strong wind (counter current)

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)	
0.55	0.30			0.11	0.0363	
1.65	0.60			0.21	0.1386	0.1749
2.75	0.90			0.25	0.2475	0.4224
3.85	1.10			0.26	0.3146	0.7370
4.95	1.40			0.27	0.4158	1.1528
6.05	1.50			0.33	0.5445	1.6973
7.15	1.60			0.32	0.5632	2.2605
8.25	1.65			0.36	0.6534	2.9139
9.35	1.90			0.37	0.7733	3.6872
10.45	1.90			0.38	0.7942	4.4814
11.55	1.90			0.39	0.8151	5.2965
12.65	1.90			0.44	0.9196	6.2161
13.75	1.80			0.42	0.8316	7.0477
14.85	1.70			0.37	0.7326	7.7803
15.95	1.60			0.35	0.6160	8.3963
17.05	1.50			0.38	0.6270	9.0233
18.15	1.20			0.35	0.4620	9.4853
19.25	0.70			0.35	0.2695	9.7548
20.35	0.90			0.34	0.3366	10.0914
21.45	0.70			0.19	0.1463	
					Σ = 10.2377	

Son Tek Q = 10.149

EH 6/6/11

Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information	10 KS 6/16/11
File Name	San Bernard SB09.WAD
Start Date and Time	2011/04/30 13:31:42

Site Details	10 KS 6/16/11
Site Name	SB09
Operator(s)	JW

System Information	
Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

Units	(English Units)
Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty		
Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	1.5%
Velocity	0.4%	1.5%
Width	0.1%	0.1%
Method	1.9%	-
# Stations	2.3%	-
Overall	**3.2%**	**2.3%**

Summary			
Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	22.000
Mean SNR	26.0 dB	Total Area	29.151
Mean Temp	73.15 °F	Mean Depth	1.325
Disch. Equation	Mid-Section	Mean Velocity	0.3482
		Total Discharge	**10.1493**

Measurement Results

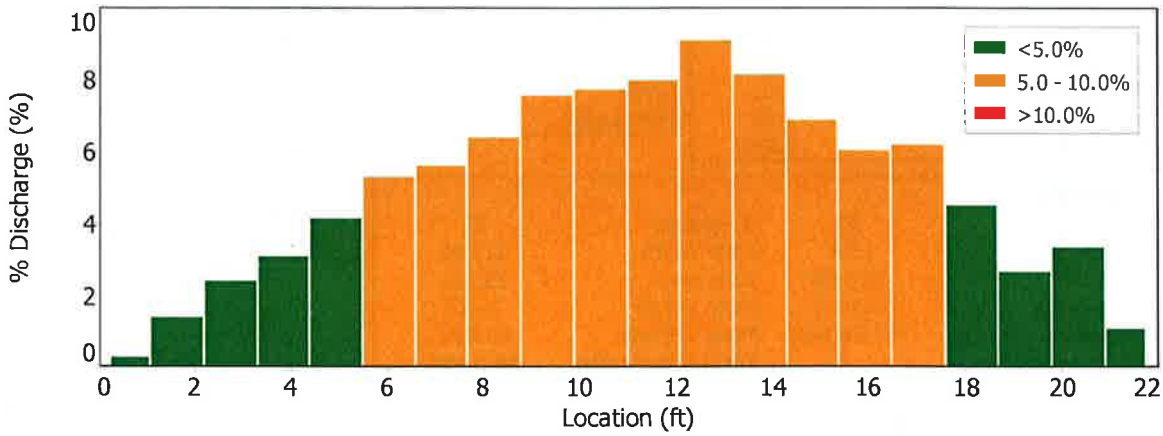
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	13:31	0.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	13:31	0.55	0.6	0.300	0.6	0.120	0.1099	1.00	0.1099	0.247	0.0272	0.3
2	13:32	1.65	0.6	0.600	0.6	0.240	0.2116	1.00	0.2116	0.660	0.1397	1.4
3	13:33	2.75	0.6	0.900	0.6	0.360	0.2484	1.00	0.2484	0.990	0.2459	2.4
4	13:34	3.85	0.6	1.100	0.6	0.440	0.2595	1.00	0.2595	1.210	0.3140	3.1
5	13:35	4.95	0.6	1.400	0.6	0.560	0.2733	1.00	0.2733	1.540	0.4209	4.1
6	13:35	6.05	0.6	1.500	0.6	0.600	0.3271	1.00	0.3271	1.650	0.5397	5.3
7	13:36	7.15	0.6	1.600	0.6	0.640	0.3228	1.00	0.3228	1.760	0.5682	5.6
8	13:37	8.25	0.6	1.650	0.6	0.660	0.3583	1.00	0.3583	1.815	0.6503	6.4
9	13:38	9.35	0.6	1.900	0.6	0.760	0.3668	1.00	0.3668	2.090	0.7666	7.6
10	13:38	10.45	0.6	1.900	0.6	0.760	0.3760	1.00	0.3760	2.090	0.7858	7.7
11	13:39	11.55	0.6	1.900	0.6	0.760	0.3875	1.00	0.3875	2.090	0.8098	8.0
12	13:39	12.65	0.6	1.900	0.6	0.760	0.4429	1.00	0.4429	2.090	0.9257	9.1
13	13:40	13.75	0.6	1.800	0.6	0.720	0.4177	1.00	0.4177	1.980	0.8269	8.1
14	13:41	14.85	0.6	1.700	0.6	0.680	0.3737	1.00	0.3737	1.870	0.6989	6.9
15	13:42	15.95	0.6	1.600	0.6	0.640	0.3494	1.00	0.3494	1.760	0.6150	6.1
16	13:42	17.05	0.6	1.500	0.6	0.600	0.3829	1.00	0.3829	1.650	0.6318	6.2
17	13:43	18.15	0.6	1.200	0.6	0.480	0.3488	1.00	0.3488	1.320	0.4604	4.5
18	13:44	19.25	0.6	0.700	0.6	0.280	0.3501	1.00	0.3501	0.770	0.2696	2.7
19	13:44	20.35	0.6	0.900	0.6	0.360	0.3448	1.00	0.3448	0.990	0.3414	3.4
20	13:45	21.45	0.6	0.700	0.6	0.280	0.1929	1.00	0.1929	0.577	0.1114	1.1
21	13:45	22.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

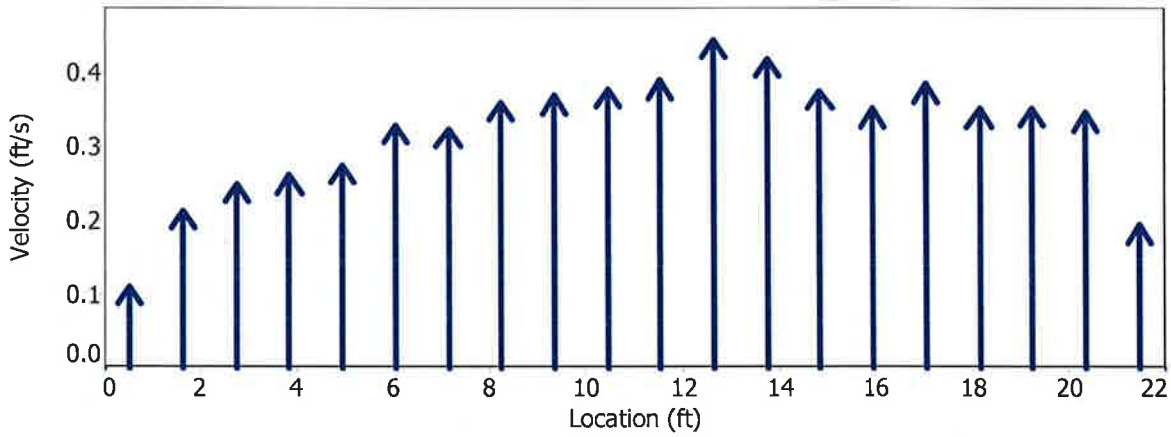
Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

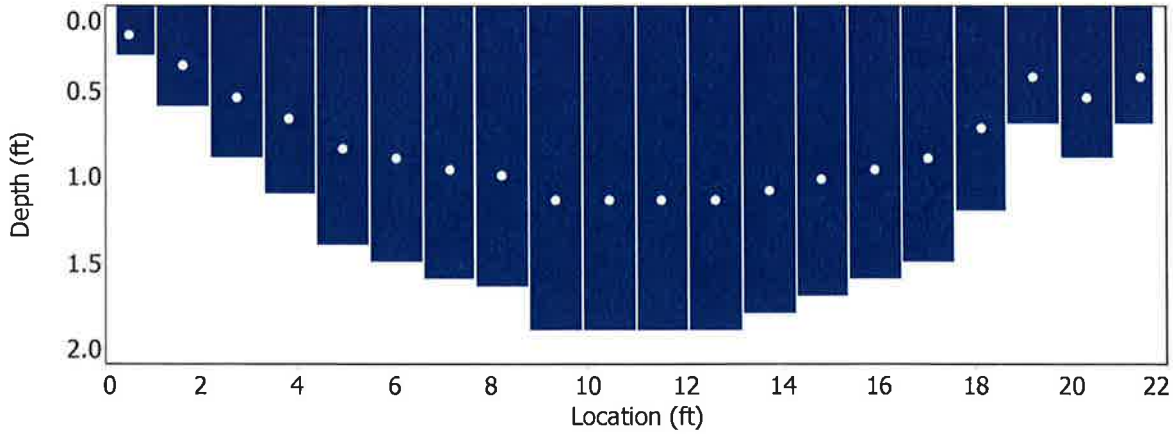
Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information		Site Details	
File Name	San Bernard SB09.WAD	Site Name	SB09
Start Date and Time	2011/04/30 13:31:42	Operator(s)	JW







Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information	10 KJ 6/16/11
File Name	San Bernard SB09.WAD
Start Date and Time	2011/04/30 13:31:42

Site Details	10 KJ 6/16/11
Site Name	SB09
Operator(s)	JW

Quality Control

No Quality Control warnings

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 11 5/27/11

Data Collectors & Contact Information: ~~San Bernard~~ March, Moss, Melendez, Wiest	
Date & Time: ~~1145~~, 4/30/11, 1145-1326	County Name: Wharton / Ft. Bend
Stream Name: San Bernard River above tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: ~~Site 10~~ US59 @ San Bernard ~~River~~ River Site 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. KJ 6/16/11

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. 10.865 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 29.5 °C Water Temp 24 °C

secchi: 0.258 m

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):

public access from US 59. To water - path of cleared vegetation but bank is steep.

8. Dominant Primary Substrate

_ Cobble _ Sand ✓ Silt _ Mud/Clay _ Gravel _ Bedrock _ Rip rap _ Concrete

EH - 6/6/11

QC RM 6/9/11

QC2: LM 7/11/11

KS 11 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 70 ~~H~~
Date: 4/30/11 Time: 1145 - 1306

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, turbid water, cypress knees, thick bank vegetation

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
access from US 59, flat area for parking

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

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.

KS 6/16/11

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: _____

EH 6/6/11

QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 10 ~~11~~ RM 6/9/11 11 KJ 6/16/11
Date: 4/30/11 Time: 1145 - 1306

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) N/A

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 banks, thick vegetation, rocky banks

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 n/a N/a KJ 6/16/11
RMG/9/11 KS 6/16/11

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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).
steep banks, thick vegetation, rocky 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).
stream banks overgrown, steep banks, rocky 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

6/6/11

QC RM 6/9/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

11 KS 6/16/11

Stream Name San Bernard (AT) Site: ~~10~~ 11 RM 6/9/11
Date: 9/30/11 FDS Page 3 of 8 1145-1306

E. Stream Channel and Substantial Pool:
Please check the following which best describes the river or stream: ~~Wadeable~~ ✓ Non-wadeable

one location @ 0359 bridge w/ recently deposited rip-rap - allowed for wading & flow measurements

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	

EH 6/6/11

QC 7/11/11

QC RM 6/9/11

KJ 11 6/6/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 10 ~~11~~ RM 6/9/11
Date: 4/30/11 Time: 1145-1306

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 .
@162m → (2) Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
(1) Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓

	# Measurements	Width (meters)
30	1	
60	2	
90	3	
120	4	
150	5	16
180	6	17
210	7	17
240	8	13
270	9	23
300	10	22

Could not continue

← Took pictures at a ~162

✓

EH 6/6/11
QC RM 6/9/11

11 KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~10~~ ~~11~~ PM 6/9/11
Date: 4/30/11 Time: 1145 – 1306

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): fallen trees
- ☐ 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
- ☐ 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).

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

Comments: _____

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

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

Comments: _____

6/6/11

QC2: LM 7/11/11

QC PM 6/9/11

KS
11 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~10~~ 11
Date: 4/30/11 Time: ~~1306~~ 1145 - 1306

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: beer cans and bottles, styrofoam box, fishing line tied to tree on bank

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).

6/6/11
DC KM 6/9/11

Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: San Bernard River above tidal Date: 4/30/11
Site: Site 10 ~~EH 6/9/11~~ H KS 6/16/11 Site
Description: USGS @ San Bernard River
Time Begin: 1223 Time End: 1309 Meter Type: Son Tek
Observers: R March, J Wrast, M Moss Stream Width*: 46 Section Width (W): 2.3
Observations: Taken between rocks and pilings, particularly near left bank

*lots of debris, rip-rap along flow site - only wadeable location in site

	Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
6.15	1.15	0.9			0.03	0.0621
	3.45	0.8			0.08	0.1472
	5.75	2.3			0.05	
see * below	8.05	1.6			0.1	
	10.35	1.8			0.04	
	12.65	2.4			0.06	
	14.95	1.9			0.11	
	17.25	2.1			0.11	
	19.55	2.3			0.13	
	21.85	3.3	~~0.64~~ ~~2.50~~	~~0.12~~ 0.10	0.11	
	24.15	~~3.~~ 1.9			0.12	
	26.45	2.2			0.14	
	28.75	2.1			0.17	
	31.05	2.0			0.18	
	33.35	2.2			0.21	
	35.65	2.0			0.12	
	37.95	2.1			0.2	
	40.25	2.2			0.19	
	42.55	2.4			0.12	
	44.85	1.2			-0.02	

* directly behind large piling

Total Q: 10.865

EH 6/6/11
QC RM 6/9/11

Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information	
File Name	San Bernard SB10.WAD
Start Date and Time	2011/04/30 12:16:49

Site Details	
Site Name	SB10
Operator(s)	JW

System Information	
Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

Units	(English Units)
Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	5.4%
Velocity	1.0%	5.9%
Width	0.1%	0.1%
Method	1.9%	-
# Stations	2.3%	-
Overall	**3.3%**	**8.0%**

Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	46.000
Mean SNR	25.5 dB	Total Area	90.079
Mean Temp	74.48 °F	Mean Depth	1.958
Disch. Equation	Mid-Section	Mean Velocity	0.1206
		Total Discharge	**10.8648**

Measurement Results

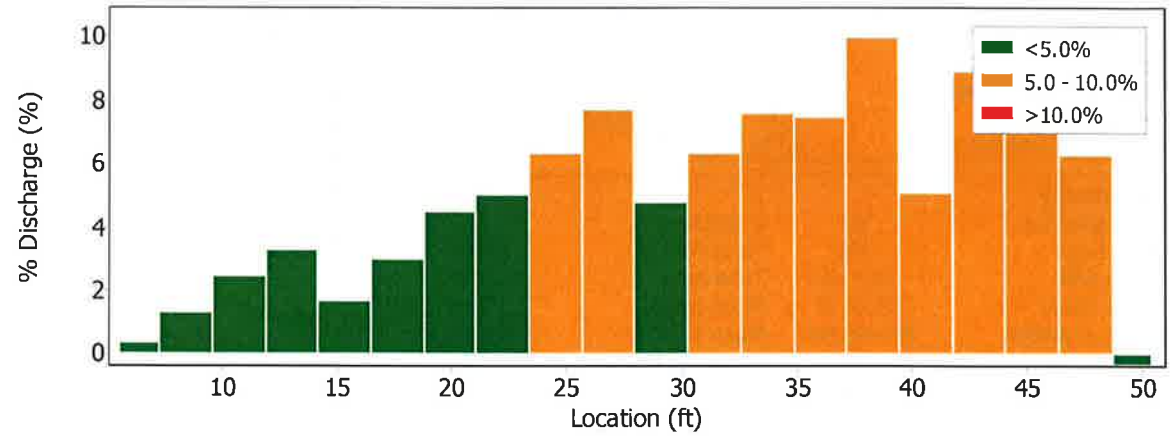
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:16	5.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	12:16	6.15	0.6	0.900	0.6	0.360	0.0266	1.00	0.0266	1.552	0.0413	0.4
2	12:18	8.45	0.6	0.800	0.6	0.320	0.0781	1.00	0.0781	1.840	0.1437	1.3
3	12:19	10.75	0.6	2.300	0.6	0.920	0.0499	1.00	0.0499	5.290	0.2638	2.4
4	12:21	13.05	0.6	1.600	0.6	0.640	0.0961	1.00	0.0961	3.680	0.3538	3.3
5	*12:23*	*15.35*	*0.6*	*1.800*	*0.6*	*0.720*	*0.0430*	*1.00*	*0.0430*	*4.140*	*0.1779*	*1.6*
6	*12:25*	*17.65*	*0.6*	*2.400*	*0.6*	*0.960*	*0.0584*	*1.00*	*0.0584*	*5.520*	*0.3224*	*3.0*
7	*12:26*	*19.95*	*0.6*	*1.900*	*0.6*	*0.760*	*0.1102*	*1.00*	*0.1102*	*4.370*	*0.4818*	*4.4*
8	*12:28*	*22.25*	*0.6*	*2.100*	*0.6*	*0.840*	*0.1122*	*1.00*	*0.1122*	*4.831*	*0.5420*	*5.0*
9	12:29	24.55	0.6	2.300	0.6	0.920	0.1293	1.00	0.1293	5.288	0.6836	6.3
10	12:37	26.85	0.2/0.8	3.300	0.2	2.640	0.1217	1.00	0.1099	7.585	0.8336	7.7
10	12:39	26.85	0.2/0.8	3.300	0.8	0.660	0.0981					
11	12:41	29.15	0.6	1.900	0.6	0.760	0.1188	1.00	0.1188	4.367	0.5187	4.8
12	12:43	31.45	0.6	2.200	0.6	0.880	0.1355	1.00	0.1355	5.057	0.6852	6.3
13	12:44	33.75	0.6	2.100	0.6	0.840	0.1699	1.00	0.1699	4.827	0.8204	7.6
14	*12:46*	*36.04*	*0.6*	*2.000*	*0.6*	*0.800*	*0.1762*	*1.00*	*0.1762*	*4.597*	*0.8099*	*7.5*
15	*12:46*	*38.34*	*0.6*	*2.200*	*0.6*	*0.880*	*0.2133*	*1.00*	*0.2133*	*5.057*	*1.0785*	*9.9*
16	*12:48*	*40.64*	*0.6*	*2.000*	*0.6*	*0.800*	*0.1191*	*1.00*	*0.1191*	*4.597*	*0.5475*	*5.0*
17	12:49	42.94	0.6	2.100	0.6	0.840	0.1998	1.00	0.1998	4.827	0.9645	8.9
18	*12:50*	*45.24*	*0.6*	*2.200*	*0.6*	*0.880*	*0.1886*	*1.00*	*0.1886*	*5.057*	*0.9540*	*8.8*
19	*12:51*	*47.54*	*0.6*	*2.400*	*0.6*	*0.960*	*0.1234*	*1.00*	*0.1234*	*5.516*	*0.6805*	*6.3*
20	12:53	49.84	0.6	1.200	0.6	0.480	-0.0184	1.00	-0.0184	2.078	-0.0382	-0.4
21	12:53	51.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

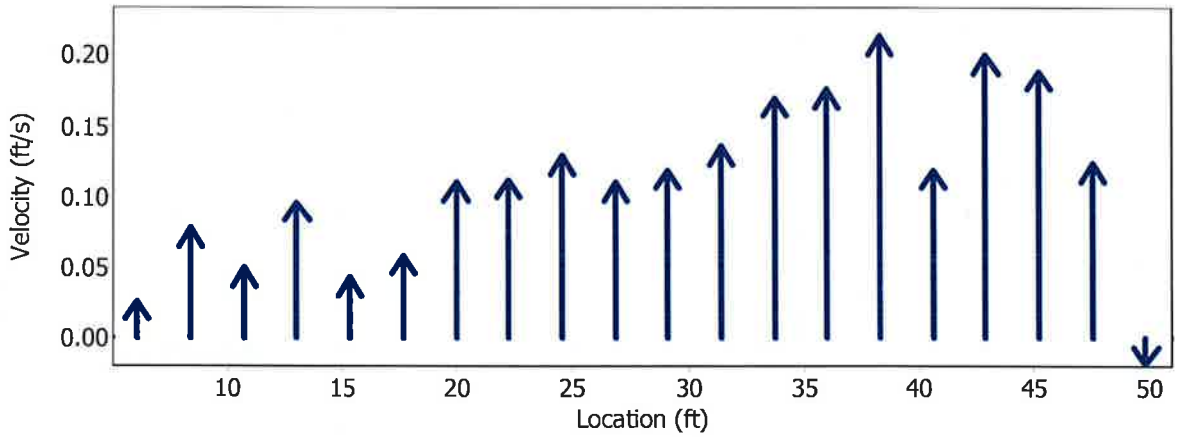
Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

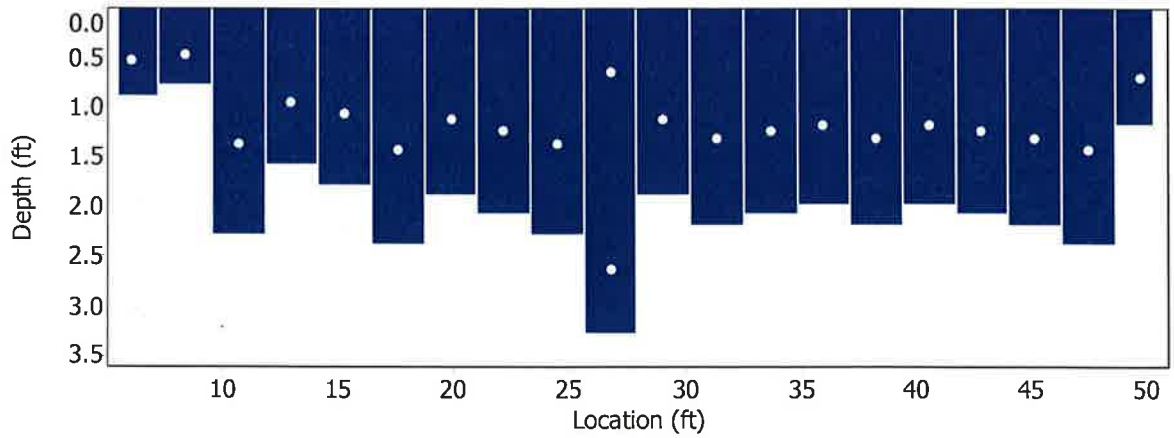
Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information		Site Details	
File Name	San Bernard SB10.WAD KJ 6/16/11	Site Name	SB10 KJ 6/16/11
Start Date and Time	2011/04/30 12:16:49	Operator(s)	JW







Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information	
File Name	San Bernard SB10.WAD
Start Date and Time	2011/04/30 12:16:49

Site Details	
Site Name	SB10
Operator(s)	JW

Quality Control

St	Loc	%Dep	Message
5	15.35	0.6	High angle: 32
6	17.65	0.6	High angle: 35
7	19.95	0.6	High angle: 31
8	22.25	0.6	High angle: 24
14	36.04	0.6	High angle: 30
15	38.34	0.6	High angle: 25
16	40.64	0.6	High angle: 34
18	45.24	0.6	High angle: 33
19	47.54	0.6	High angle: 22

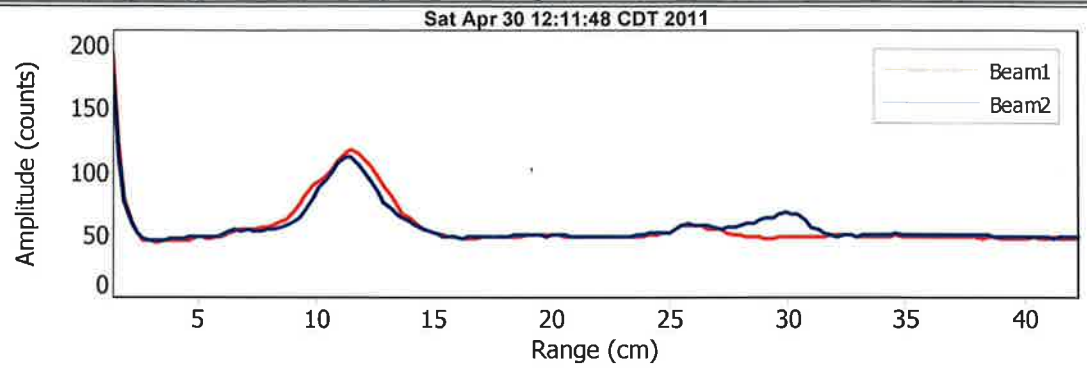
Discharge Measurement Summary

Date Generated: Thu May 19 2011

File Information		Site Details	
File Name	San Bernard SB~~10~~ 4.WAD	Site Name	SB~~10~~ 4
Start Date and Time	2011/04/30 12:16:49	Operator(s)	JW

RS 6/16/11

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)

Site 12

Data Collectors & Contact Information: Moss, March, Melendez, Wrast	
Date & Time: 4/30/11 1056-1128	County Name: Wharton / Ft. Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 12 Roberts Ln @ San Bernard River	

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 Non-wadeable

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 26.4 °C Water Temp 24.0 °C

Secchi: 0.208 m

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

R/L 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):

Boat ramp, dock on waters edge

8. Dominant Primary Substrate

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

EH 6/6/11

QC2: LM 7/11/11

QC RM 6/6/11

Field Data Sheets – Basic RUAA Survey

KJ 6/16/11

Stream Name San Bernard (AFT) Site: 11
Date: 4/30/11 Time: 1056-1128

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, deep, tall tree knees

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
boat ramp, road to shoreline, dock along + left bank

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

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: _____

RM 6/6/11
QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

KJ 6/16/11

Stream Name San Bernard (AT) Site: 12
Date: 4/30/11 Time: 1056-1128

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.
(3) ☑ Secondary touch: fishing, pets and related contact with water ☑ In a boat touching water (2)
☑ 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).
N/A

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 N/A
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).
~~N/A~~ Turbid water, and cypress knees.

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).
N/A No limitation to public access, site @ a public 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

QC: LM 7/11/11

PWM 6/~~2~~6/11
QC RM 6/9/11

Field Data Sheets – Basic RUAA Survey

KS 6/16/11

Stream Name San Bernard (AT) Site: 11 12 RM 6/16/11
Date: 4/30/11 1056-1128

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.

	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	

RM 6/20/11

QC: CM 7/11/11

QC RM 6/9/11

6/16/11
KJ

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (RT) Site: 12
Date: 4/30/11 Time: 1056

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 .
1 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓

# Measurements	Width (meters)
1	59
2	51
3	48
4	51
5	56
6	59
7	56
8	54
9	55
10	56

RM 6/6/11
QC RM 6/9/11

KJ 12 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (Aft) Site: ~~11~~ 12 PM 6/9/11
Date: 4/30/11 Time: 1056 - 1128

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
- ☐ None
- ☑ Other: fishing/boating

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

Comments: N/A

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
- ☑ 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: _____
- ☐ 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

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
- No Human Presence

Comments: _____

QC: LM 7/11/11

PM 6/12/11

QC PM 6/9/11

Field Data Sheets – Basic RUAA Survey

KJ 6/10/11

Stream Name San Bernard (AT) Site: X ~~12~~ 12
Date: 4/30/11 Time: 1056-1128

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 armadillo skeleton

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: napkin, cans (beer + soda), wrappers, plastic bags, newspaper, boxes

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).

RM 6/6/11

QC RM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River above tidal Date: 4/30/11

Site: Site H ~~12 4/9/11~~ 12 KS 6/16/11 Site

Description: Roberts Ln @ San Bernard River

Time Begin: 1056 Time End: 1128 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: Too deep - no flow taken

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

too deep - no flow taken

RM 6/2/11

QC RM 6/6/11

13

Site 12 5/27/11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information: J. Wrast, M. Moss, R. Marx, L. Melendez	
Date & Time: 4/30/11 0845-1030	County Name: Wharton / Fort Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 13 Tierra Grande Dr @ San Bernard River	

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 Non-wadeable

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 25.8 °C Water Temp 23 °C

Secchi (m) 0.132

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)

Public Park for Tierra Grande Residents, marked drive and walking trail to water. Steep slope on walking trail to water.

8. Dominant Primary Substrate

_Cobble _Sand _Silt ☑ Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

KP 06/07/2011

QC2 LM 7/11/11 QC RM 6/9/11

KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~12~~ 13 V3
Date: 4/30/11 Time: 0845 - 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

Pictures taken from 300m up

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 slopes, cypress knees, and turbid water.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Public access for all Trevino Grande, residents only.

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

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: _____

KP 6/7/11

QC: RMO 6/9/11

KJ 6/16/11
VB

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: ~~0/12/5~~ KM 0/11
Date: 4/30/11 Time: 0845-1030

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) N/A

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 banks, downed trees in water, turbid water.

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: N/A

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

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).
trails along river banks are very narrow and overgrown.

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

KP 6/7/11

QC: LM 7/11/11

QC RM 6/9/11

KS 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 12 (3 V3
Date: 4/30/11 FDS Page 3 of 8 0845 – 1030

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.

	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	

KP 6/7/11

QC: LM 7/11/11
QC: RM 6/9/11

KD 6/16/11

13

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~12~~ 13 RW 6/9/11
Date: 4/30/11 Time: 0845-1030

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	
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 ✓

taken @ 85m (could not access any further)

# Measurements	Width (meters)
1	18
2	19
3	19
4	20
5	15
6	12
7	~~24~~ 22 RW
8	10
9	15
10	18

access point to water at approximately 210 ft.

KD 6/7/11 DC RW 6/9/11

KS 6/16/11

Field Data Sheets – Basic RUAA Survey

V3

Stream Name San Bernard (AT) Site: ~~12~~ ~~13~~ 14
Date: 4/30/11 Time: 0845-1030

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): downed trees.
- ☐ 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
- ☐ 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) (neighborhood)
- ☐ Public Property
- ☑ Other: Picnic tables.
- ☐ None of the Above

Comments: _____

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

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

Comments: _____

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

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

Comments: _____

QC2: LM 7/11/11

QC: RM 6/9/11

KP 6/7/11

KP 6/16/11

V3

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~12~~ 15 RM 6/16/11

Date: 4/30/11 Time: 0845 - 1030

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: Saw one rattle snake! cattle egrets.
Saw water moccasin on landowner's property adjacent to river

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: beer 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).

Lots of evidence of use, ropes, fishing line, trails, picnic tables, deer stand

KP 6/7/11 GC, RM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard Above Tidal Date: 4/30/11

Site: Site 12 ~~13~~ ~~14~~ 13 RT 6/16/11 Site

Description: Tierra Grande Dr @ San Bernard River

Time Begin: 0845 Time End: 1030 Meter Type:

Observers: J. Wast Stream Width*: Section Width (W):

Observations: Non-wadeable- no flow taken

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

non-wadeable- flow not taken

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site ~~13~~ 14 5/27/11

Data Collectors & Contact Information: J.wrast, M. Shepard, M. Mosl, R. March.	
Date & Time: 4/22/11 1430 – 1630	County Name: Wharton / Ft. Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: FM 442 @ San Bernard River Site ~~13~~ 14	

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. 5/27/11

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. 59.315 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 29.5 °C Water Temp 25.0 °C

Secchi: 0.11 m

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):

parking area off highway w/ slope down to 2nd parking area w/ large (4 ft deep) tire ruts, pathway leading to slope under bridge to access area

8. Dominant Primary Substrate

_Cobble _Sand _Silt ✓ Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

KP 6/7/11

QC2: LM 7/11/11

RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: B ~~14~~ 14
Date: 4/22/11 Time: ~~12~~ 1430 - 1630

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).
moderately steep slopes on both banks, H_2O turbid, lots of debris along bottom (i.e. tires, car parts)

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
~~parking~~ parking area off highway w/ path worn to waterfront, could be accessible w/ Kayak/canoe, but may be difficult

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

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

KS 6/16/11

Stream Name San Bernard (AT) Site: 13 14 14
Date: 4/22/11 Time: 1430-1630

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) N/A

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 slopes, water turbid, lots of debris along bottom (i.e. tires, car parts, etc.)

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 N/A
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: N/A

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).
could be accessed by canoes/ Kayaks but would probably be difficult due to steep slopes along bank

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).
N/A

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

QC2: LM 7/11/11 QC: GM 6/9/11 KP 6/7/11

Field Data Sheets – Basic RUAA Survey

KS 6/10/11

Stream Name San Bernard (AT) Site: ~~13~~ ~~14~~ 14
Date: 4/22/11 FDS Page 3 of 8 1430-1630

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 ✓ (@ 115m) ① Photo order
Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ ③
Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ (@ 196m) ②

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	couldn't wade any further
90 meters	>1.4m @ 115m — became too deep to wade through
120 meters	>1.4m
150 meters	0.82m
180 meters	0.56m
210 meters	>1.3m @ 196m — became too deep to wade through
240 meters	couldn't wade any further
270 meters	
300 meters	
Average	1.248

(where non-wadeable, 1.4 was used for calculation)

KP 6/7/11

QC: 6/21/11

QC2: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

KD 6/16/11

Stream Name San Bernard (AT) Site: ~~13~~ 14 14

Date: 4/22/11 Time: 1430 - 1630

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	~15m
Width at narrowest point of the stream within 300 meter reach	11m
Width at the widest point of the stream within 300 meter reach	18m

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	

11m

18m

6/7/11

QC: RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~13~~ ~~14~~ 14 KJ 6/16/11
Date: 4/22/11 Time: 1430-1630

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): lots of debris under bridge
- ☑ 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
- ☐ 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).

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

Comments: _____

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

- ☑ Roads
- ☑ Rope swings
- ☐ Dock/platform
- ☐ Foot paths/prints
- ☑ Other: large debris on bottom (tires, car parts, etc.)
- ☐ 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: _____

QC2: LM 7/11/11 QC: RM 6/9/11 KP 6/7/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~13~~ ~~14~~ 14 KD 6/16/11
Date: 4/22/11 Time: 1500-1617

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 leaf litter
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 MH ~~✓ None~~ ✓ slight presence ☐ moderate presence ☐ large presence (1)
Livestock ✓ None ☐ slight presence ☐ moderate presence ☐ large presence
Feral Hogs ✓ None ☐ slight presence ☐ moderate presence ☐ large presence
Comments: cat observed

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

11. Garbage Observed
Large garbage in the channel ☐ None ☐ Rare ✓ Common ☐ Abundant only @ bridge
Small garbage in the channel ☐ None ✓ Rare ☐ Common ☐ Abundant
Bank Garbage ☐ None ✓ Rare ☐ Common ☐ Abundant most near bridge
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).

KP 6/7/11 DCi PM 6/7/11

Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/22/11
Site: Site 13 ~~[illegible]~~ 14 KS 6/16/11 Site
Description: FM442 @ San Bernard River
Time Begin: 1500 Time End: 1617 Meter Type: SonTek Flow Tracker
Observers: J. Wrust, R. March Stream Width*: 58 Section Width (W): 2.9
Observations: numerous large debris (tried to avoid)

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
1.45	1.35			-0.08	-0.3132
4.35	2.4			0.01	0.0696
7.25	2.95		0.07 0.02	0.045	0.3849
10.15	2.9		0.18 0.19	0.185	1.5560
13.05	3.1		0.23 0.27	0.25	2.2475
15.95	3.2		0.36 0.48	0.42	3.8976
18.85	3.3		0.54 0.36	0.45	4.3065
21.75	3.1		0.49 0.50	0.495	4.4501
24.65	3.0		0.53 0.48	0.505	4.3935
27.55	2.8		0.54 0.54	0.54	4.3848
30.45	2.8		0.56 0.57	0.535	4.3442
33.35	2.8		0.55 0.56	0.525	4.263
36.25	2.8		0.57 0.54	0.555	4.5066
39.15	2.75		0.53 0.59	0.56	4.466
42.05	2.7		0.56 0.49	0.525 ~~0.53~~ MM	4.111
44.95	2.45			0.45	3.197
47.85	2.45			0.51	3.624
50.75	2.10			0.42	2.558
53.65	1.6			0.42	1.949
56.55	0.8			0.29	0.673

Flow Tracker Tot. Q = 59.315
Cumulative Q = 59.0691

DC 7/11/11 DC 6/9/11

KP 6/7/11

Discharge Measurement Summary

Date Generated: Fri Apr 22 2011

File Information	
File Name	SITE13.WAD
Start Date and Time	2011/04/22 15:01:41

Site Details	
Site Name	
Operator(s)	RM

System Information	
Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

Units	(English Units)
Distance	ft
Velocity	ft/s
Area	ft^2
Discharge	cfs

Discharge Uncertainty		
Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	1.0%
Velocity	0.3%	1.9%
Width	0.1%	0.1%
Method	1.1%	-
# Stations	2.3%	-
Overall	**2.8%**	**2.4%**

Summary			
Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	58.000
Mean SNR	32.6 dB	Total Area	149.637
Mean Temp	79.29 °F	Mean Depth	2.580
Disch. Equation	Mid-Section	Mean Velocity	0.3963
		Total Discharge	**59.3055**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	15:01	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*15:01*	*3.45*	*0.6*	*2.400*	*0.6*	*0.960*	*-0.0791*	*1.00*	*-0.0791*	*5.220*	*-0.4127*	*-0.7*
2	15:10	6.35	0.6	2.400	0.6	0.960	0.0075	1.00	0.0075	6.960	0.0525	0.1
3	*15:16*	*9.25*	*0.2/0.8*	*2.950*	*0.2*	*2.360*	*0.0741*	*1.00*	*0.0476*	*8.555*	*0.4070*	*0.7*
3	*15:19*	*9.25*	*0.2/0.8*	*2.950*	*0.8*	*0.590*	*0.0210*					
4	*15:23*	*12.15*	*0.8/0.2*	*2.900*	*0.2*	*2.320*	*0.1926*	*1.00*	*0.1877*	*8.410*	*1.5782*	*2.7*
4	*15:22*	*12.15*	*0.8/0.2*	*2.900*	*0.8*	*0.580*	*0.1827*					
5	*15:26*	*15.05*	*0.2/0.8*	*3.100*	*0.2*	*2.480*	*0.2303*	*1.00*	*0.2521*	*8.990*	*2.2667*	*3.8*
5	*15:27*	*15.05*	*0.2/0.8*	*3.100*	*0.8*	*0.620*	*0.2740*					
6	*15:31*	*17.95*	*0.8/0.2*	*3.200*	*0.2*	*2.560*	*0.4829*	*1.00*	*0.4201*	*9.280*	*3.8987*	*6.6*
6	*15:30*	*17.95*	*0.8/0.2*	*3.200*	*0.8*	*0.640*	*0.3573*					
7	*15:33*	*20.85*	*0.2/0.8*	*3.300*	*0.2*	*2.640*	*0.5433*	*1.00*	*0.4498*	*9.569*	*4.3043*	*7.3*
7	*15:34*	*20.85*	*0.2/0.8*	*3.300*	*0.8*	*0.660*	*0.3563*					
8	*15:37*	*23.75*	*0.8/0.2*	*3.100*	*0.2*	*2.480*	*0.5016*	*1.00*	*0.4966*	*8.990*	*4.4640*	*7.5*
8	*15:36*	*23.75*	*0.8/0.2*	*3.100*	*0.8*	*0.620*	*0.4915*					
9	*15:39*	*26.65*	*0.2/0.8*	*3.000*	*0.2*	*2.400*	*0.5295*	*1.00*	*0.5031*	*8.700*	*4.3770*	*7.4*
9	*15:40*	*26.65*	*0.2/0.8*	*3.000*	*0.8*	*0.600*	*0.4767*					
10	*15:43*	*29.55*	*0.8/0.2*	*2.800*	*0.2*	*2.240*	*0.5443*	*1.00*	*0.5399*	*8.119*	*4.3834*	*7.4*
10	*15:41*	*29.55*	*0.8/0.2*	*2.800*	*0.8*	*0.560*	*0.5354*					
11	*15:45*	*32.45*	*0.2/0.8*	*2.800*	*0.2*	*2.240*	*0.5551*	*1.00*	*0.5615*	*8.119*	*4.5592*	*7.7*
11	*15:46*	*32.45*	*0.2/0.8*	*2.800*	*0.8*	*0.560*	*0.5679*					
12	*15:49*	*35.35*	*0.8/0.2*	*2.800*	*0.2*	*2.240*	*0.5584*	*1.00*	*0.5561*	*8.119*	*4.5152*	*7.6*
12	*15:48*	*35.35*	*0.8/0.2*	*2.800*	*0.8*	*0.560*	*0.5538*					
13	*15:50*	*38.25*	*0.2/0.8*	*2.800*	*0.2*	*2.240*	*0.5689*	*1.00*	*0.5533*	*8.119*	*4.4926*	*7.6*
13	*15:51*	*38.25*	*0.2/0.8*	*2.800*	*0.8*	*0.560*	*0.5377*					
14	*15:55*	*41.15*	*0.8/0.2*	*2.750*	*0.2*	*2.200*	*0.5863*	*1.00*	*0.5604*	*7.975*	*4.4688*	*7.5*
14	*15:53*	*41.15*	*0.8/0.2*	*2.750*	*0.8*	*0.550*	*0.5344*					
15	*15:57*	*44.05*	*0.2/0.8*	*2.700*	*0.2*	*2.160*	*0.5604*	*1.00*	*0.5249*	*7.830*	*4.1103*	*6.9*
15	*15:58*	*44.05*	*0.2/0.8*	*2.700*	*0.8*	*0.540*	*0.4895*					
16	*16:00*	*46.95*	*0.6*	*2.450*	*0.6*	*0.980*	*0.4534*	*1.00*	*0.4534*	*7.105*	*3.2216*	*5.4*
17	16:02	49.85	0.6	2.450	0.6	0.980	0.5092	1.00	0.5092	7.105	3.6179	6.1
18	16:04	52.75	0.6	2.100	0.6	0.840	0.4167	1.00	0.4167	6.090	2.5375	4.3
19	*16:06*	*55.65*	*0.6*	*1.600*	*0.6*	*0.640*	*0.4216*	*1.00*	*0.4216*	*4.640*	*1.9562*	*3.3*
20	16:09	58.55	0.6	0.800	0.6	0.320	0.2913	1.00	0.2913	1.740	0.5070	0.9
21	16:09	60.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

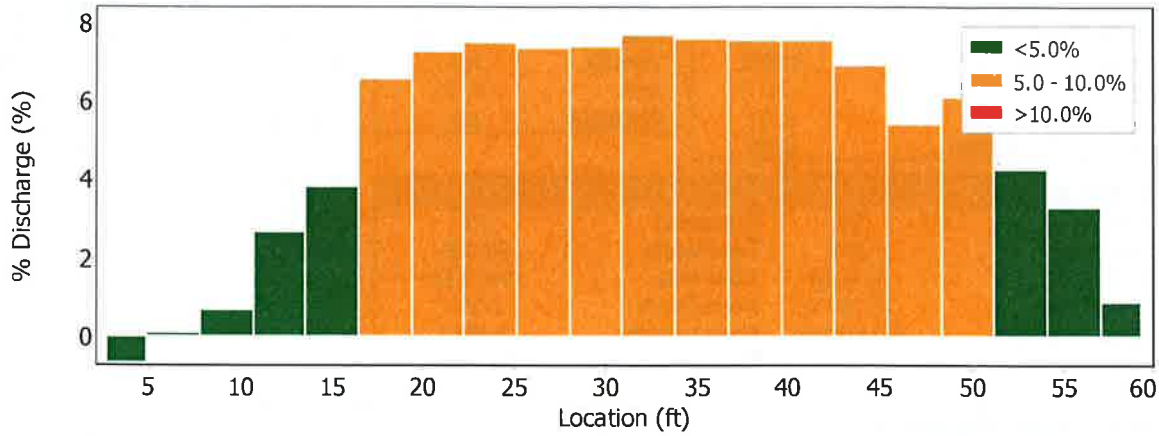
Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

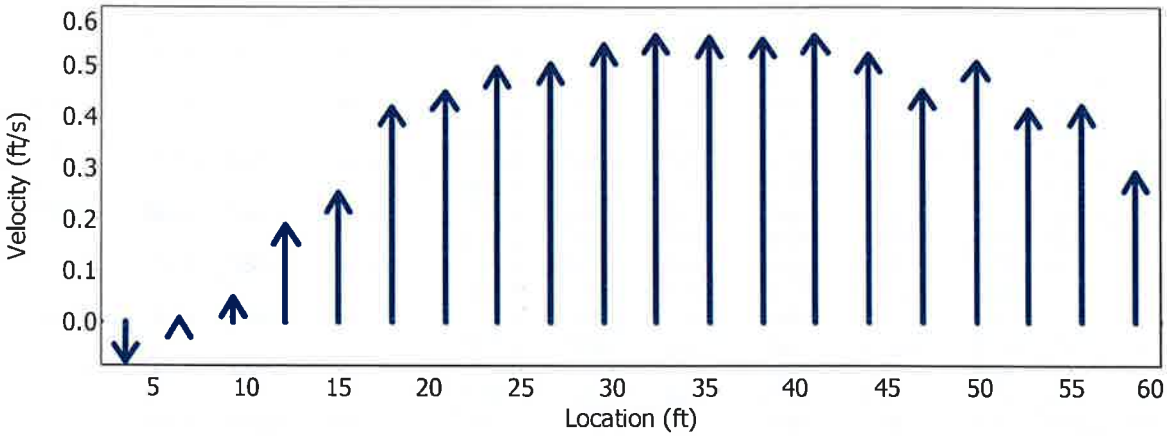
Discharge Measurement Summary

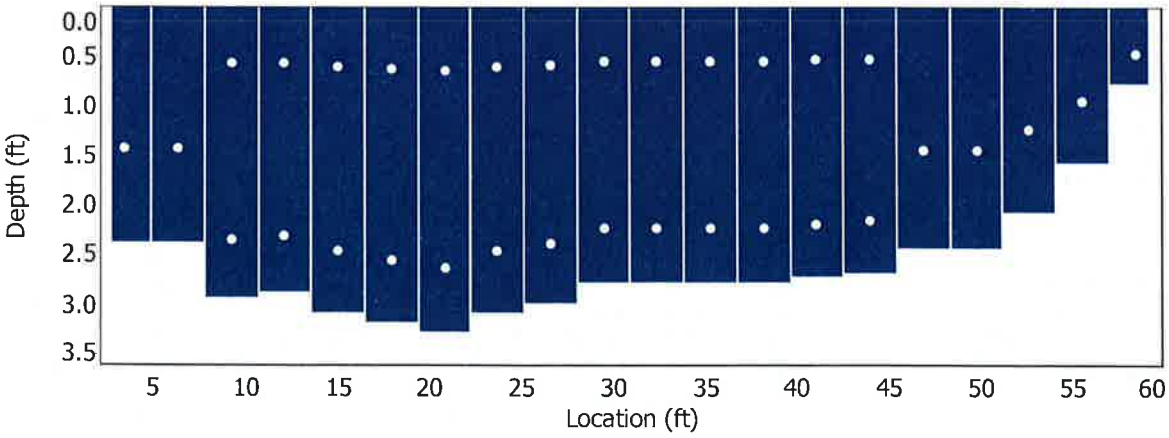
Date Generated: Fri Apr 22 2011

File Information	
File Name	SITE13.WAD
Start Date and Time	2011/04/22 15:01:41

Site Details	
Site Name	
Operator(s)	RM







Discharge Measurement Summary

Date Generated: Fri Apr 22 2011

File Information	KJ 6/16/11
File Name	SITE~~13~~ 14.WAD
Start Date and Time	2011/04/22 15:01:41

Site Details	KJ 6/16/11
Site Name	~~13~~ 14
Operator(s)	RM

Quality Control

St	Loc	%Dep	Message
1	3.45	0.6	High angle: 177
3	9.25	0.2	High angle: 31
		0.8	High angle: 60
4	12.15	0.2	High angle: 31
		0.8	High angle: 47
5	15.05	0.2	High angle: 22
		0.8	High angle: 41
6	17.95	0.8	High angle: 22
7	20.85	0.2	High angle: 22
		0.8	High angle: 26
8	23.75	0.2	High angle: 30
		0.8	High angle: 33
9	26.65	0.2	High angle: 30
		0.8	High angle: 29
10	29.55	0.2	High angle: 28
		0.8	High angle: 24
11	32.45	0.2	High angle: 22
12	35.35	0.2	High angle: 23
		0.8	High angle: 25
13	38.25	0.8	High angle: 22
14	41.15	0.8	High angle: 24
15	44.05	0.8	High angle: 23
16	46.95	0.6	High angle: 21
19	55.65	0.6	High angle: 26

Site ~~14~~ 15 MMS 5/27/11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	J. Wrast, M. Shepard, M. Moss, R. March
Date & Time: 4/22/11 1300-1345	County Name: Brazoria
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site ~~14~~ 15 (San Bernard Dr @ San Bernard River	

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. MMS 5/27/11

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

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 28.8 °C Water Temp 25 ~~28.8~~ °C
Secchi 0.104

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):
Path to water on left bank, path well worn.

8. Dominant Primary Substrate
_Cobble _Sand _Silt ✓ Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

QC: RM 6/9/11

KP 6/7/11

QC: LM 7/11/11

KS 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~14~~ ~~15~~ RM 0.4/11 15
Date: 4/22/11 Time: 1300 - 12

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).
downed trees and snags in water, soft sediment on banks, and turbid water.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Private neighborhood but all of neighborhood has access to this site, well worn trail to water, and well worn slide for john boat.

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

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: _____

KS 6/7/11

QC RM 5/9/11

10 6/16/11
15

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~14~~ 15 RM
Date: 4/22/11 Time: 1300 – 1345

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) N A

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).
trees and snags in water would not prevent kayak, but larger boat would have navigation issues.

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above.

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).
Neighborhood w/ no trespassing signs (guests of residence only) but access point is available for entire neighborhood, appears well used.

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~~ 2 people arrived on site to check water level and hang out (interviews conducted). Neither person participated in water activities, while we were there.

KP 6/7/11

QC: LM 7/11/11 QC: RM 6/9/11

15 KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~14~~ ~~15~~ 1300-1345
Date: 4/22/11 FDS Page 3 of 8

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 ✓ (@ 40m)
Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
Photos #s (300 meters) Upstream ____ Downstream ____ Left Bank ____ Right Bank ____ inaccessible

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.

measurement taken @ furthest upstream area that was wadeable

Distance	Depth (meters)
30 meters	>1.4 @ 40m
60 meters	>1.3
90 meters	1.19
120 meters	>1.4
150 meters	>1.4
180 meters	can't go any further
210 meters	
240 meters	
270 meters	
300 meters	
Average	1.369

>1.4 (0) MM
>1.4 (0)(30) MM
1.19 (30)(60) MM
>1.3 (60)(90) MM
>1.4 @ (80)(110) MM

(where non-wadeable, 1.4 was used for calculation)

QC: LM 7/11/11 QC: RM 6/19/11 KP 6/7/11

KD 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~15-14~~ 15
Date: 4/22/11 Time: 1300-1345

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	~19m
Width at narrowest point of the stream within 300 meter reach	14m
Width at the widest point of the stream within 300 meter reach	22m

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	19
2	19.5
3	17
4	14
5	22
6	19
7	
8	
9	
10	

~~19~~
~~19.5~~
~~17~~
~~14~~
~~22~~
~~19~~

KP 6/7/11

DC, PM 6/9/11

KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: ~~14~~ ~~15~~ 15
Date: 4/22/11 Time: 1300 - 1345

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 (2)
- ☐ Sitting
- ☐ Lying down/sleeping
- ☐ Playing on shoreline
- ☐ Picnicking
- ☐ Motorcycle/ATV
- ☐ Hunting/Trapping
- ☐ Wildlife watching
- ~~☑ None~~ NES
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): Downed trees & snags
- ☐ 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
- ☐ 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: Boating access - makeshift boat slide and jon boat at the site.

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: _____

*No Trespassing sign on downstream left bank from access point. (pic)

Comments: Steep slopes both upstream & downstream of access point, but at access point = gentle slope

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

- ☑ Roads
- Rope swings
- ☐ Dock/platform
- ☑ Foot paths/prints
- ☑ Other: Jon boat on bank.
- ☐ 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: rod perched on bank w/ line in water, line tied off to cypress knee

QC: LM 7/11/11

QC: RM 6/9/11

KP 6/7/11

KS 6/16/11

Field Data Sheets – Basic RUAA Survey

VS

Stream Name San Bernard (CAT) Site: 44
Date: 4/22/11 Time: 1300 - 1345

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: 1 Small heron

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 N/A

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: tiles, large drum, plastic bottle.

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).
John boat at site, bank area wet, potentially very recently used. Numerous downed trees and snags in waterway.

ICP 6/7/11

QC: RM 6/9/11

Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/22/11
Site: Site 14 ~~15~~ 15 KS 6/16/11 Site
Description: San Bernard @ San Bernard River
Time Begin: — Time End: — Meter Type: N/A
Observers: J. Wrast Stream Width*: N/A Section Width (W):
Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow Taken

Too deep to wade, unable to use the flow boat b/c can't access right bank. Flow appears similar to site 15.

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 16

Data Collectors & Contact Information: J. Wrast, M. Shepard, M. Moss, R. March	
Date & Time: 4/22/11 1030 - 12/5	County Name: Brazoria
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302 - 1215	
Description of Site: Site 16 FM 1301 @ San Bernard River	

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. 85.57 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 28.2 °C Water Temp 24 °C

Secchi: 0.16m

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):

Small drive on the downstream left bank under bridge. moderatly steep bank under bridge, but accessible.

8. Dominant Primary Substrate

_ Cobble _ Sand _ Silt ✓ Mud/Clay _ Gravel _ Bedrock _ Rip rap _ Concrete

QC2: LM 7/11/11

QC1: RM 6/9/11

KD 6/7/11

Field Data Sheets – Basic RUAA Survey KS 6/16/11

Stream Name: San Bernard (AT) Site: ~~15~~ 16
Date: 4/22/11 Time: 1030 - 1215

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).
Slightly steep slopes, turbid water,

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Site under bridge. crossings, car tracks along bank to the water.

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

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: _____

KP 6/7/11
QC: RM 6/9/11

Field Data Sheets – Basic RUAA Survey

KD 6/16/11

Stream Name San Bernard (AT) Site: 16.
Date: 4/22/11 Time: 1030 - 1215

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) N/A

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).
Slightly steep slopes, but still accessible.

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 N/A
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: N/A

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).
Slightly steep bank, and vegetation on 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 limitation to public access under bridge. upstream right bank has posted NO Trespassing sign.

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

QC: LM 7/11/11 QC: fm 6/9/11 KD 6/7/11

Field Data Sheets – Basic RUAA Survey

KD 6/16/11

Stream Name San Bernard (AFT) Site: ~~16~~ 16
Date: 4/22/11 1030 – 1215

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 ✓ @47.9 m
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.

~~47.9~~ MM

Distance	Depth (meters)
30 meters	>1.3 @ 47.9m on bank
60 meters	>1.2
90 meters	>1.1
120 meters	>1.2
150 meters	1.3
180 meters	>1.4
210 meters	>1.4
240 meters	>1.4
270 meters	>1.4
300 meters	>1.4
Average	1.31

~~1.3 RM Rm~~ >1.4 → could not continue (too deep) upstream ~~down~~ s

at ~ ~~87~~ MM m 63 = pathway; potential access point

~ 57m – fishing line on bank

QC2: LM 7/11/11 QC: RM 6/9/11 KP 6/7/11

Field Data Sheets – Basic RUAA Survey KJ 6/10/11

Stream Name San Bernard (AT) Site: ~~16~~ 16
Date: 4/22/11 Time: 1215

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	~20m
Width at narrowest point of the stream within 300 meter reach	14.6m
Width at the widest point of the stream within 300 meter reach	~23m

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	

48 ft

KP 6/7/11
QC: RM 6/9/11 22.3

KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: ~~16~~ 16
Date: 4/22/11 Time: 1030 - 1215

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): fallen trees
- ☐ Log jams
- ☐ Thick vegetation
- ☐ Rip rap
- ☐ Low bridges
- ☐ Water control structure
- ☑ ~~None~~ RM 6/8/11

KJ 6/16/11

KJ 6/16/11

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: _____
- ☐ 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: overgrown banks

RM

Comments: No trespassing sign and fence on upstream right bank.

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

- ☑ Roads
- Rope swings
- ☐ Dock/platform
- Foot paths/prints
- ☑ Other: Fishing evidence - Bait Box Lid.
- ☑ 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: _____

QC: LM 7/11/11 QC: RM 6/9/11 KP 6/7/11

KS 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~10~~ 16
Date: 4/22/11 Time: 1030 - 1215

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: broad banded water snake and (copperhead?)

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 N/A

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: tire, cups, cans.

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).
N/A

KP 6/7/11

DW. Rd 6/7/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/22/11

Site: Site ~~15~~ 16 ~~5~~ 6/16/11 Site

Description: FM 1301 @ San Bernard River

Time Begin: 1105 Time End: 1125 Meter Type: SonTek M-9 FlowBoat

Observers: J. Wrast, M. Shepard Stream Width*: 48 Section Width (W): N/A

Observations: Sandy w/ riprap as bottom type.

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

See Attached Discharge Measurement

Discharge Measurement Summary

Date Generated: Friday, April 22, 2011

Site Information

Site Name	San Bernard River
Station Number	~~I5~~ 10 KS 6/16/11
Location	FM 1301

Measurement Information

Party	ms/jw
Boat/Motor	hydroboard

System Information

System Type	RS-M9
Serial Number	468
Firmware Version	1.01
Software Version	2.00

System Setup

Transducer Depth (ft)	0.36
Salinity (ppt)	0.0
Magnetic Declination (deg)	12.5

Units

Distance	ft
Velocity	ft/s
Area	ft2
Discharge	cfs

Discharge Calculation Settings

Track Reference	Bottom-Track	Left Method	Sloped Bank
Depth Reference	Vertical Beam	Right Method	Sloped Bank
Coordinate System	ENU	Top Fit Type	Power Fit
		Bottom Fit Type	Power Fit

Discharge Results

Width (ft)	35.19
Area (ft2)	109.4
Mean Speed (ft/s)	0.782
Total Q (cfs)	85.57

Measurement Results

Tr		Time			Distance				Mean Vel		Discharge						%
#		Date	Time	Duration	Track	DMG	Width	Area	Boat	Water	Left	Right	Top	Middle	Bottom	Total	Measured
1	L	4/22/2011	11:09:26 AM	0:02:34	32.74	24.54	35.54	111.3	0.213	0.790	2.05	2.30	13.35	58.55	11.63	87.88	66.6
2	R	4/22/2011	11:12:11 AM	0:01:46	28.86	24.13	35.13	110.6	0.272	0.776	2.08	2.46	12.59	56.67	12.01	85.81	66.0
3	R	4/22/2011	11:16:29 AM	0:01:52	30.17	22.94	33.94	105.5	0.269	0.770	1.88	2.71	11.77	54.29	10.60	81.25	66.8
4	L	4/22/2011	11:19:01 AM	0:02:12	41.62	25.15	36.15	110.2	0.315	0.792	2.23	2.16	13.93	57.63	11.38	87.34	66.0
			Mean	0:02:06	33.35	24.19	35.19	109.4	0.267	0.782	2.06	2.41	12.91	56.78	11.41	85.57	66.4
			Std Dev	0:00:19	4.98	0.81	0.81	2.3	0.036	0.009	0.12	0.20	0.81	1.59	0.52	2.61	0.4
			COV	0.000	0.149	0.034	0.023	0.021	0.136	0.012	0.060	0.085	0.063	0.028	0.045	0.030	0.005

Exposure Time: 0:08:24

Tr1=SB15-1.riv; Tr2=SB15-2.riv; Tr3=SB15-3.riv; Tr4=SB15-4.riv;

Comments

Parameters and settings marked with a * are not constant for all files.

Report generated using SonTek RiverSurveyor Live v2.00

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site ~~16~~ 17 MES 5/27/11

Data Collectors & Contact Information:	J. Wrast, M. Shepard R. March. M. Moss
Date & Time: 4/23/11 1001 – 1020	County Name: Brazoria
Stream Name:	San Bernard River Above Tidal
Segment No. or nearest downstream Segment No.:	1302
Description of Site:	Site ~~16~~ 17 FM 1469 @ San Bernard River

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. MES 5/27/11

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 No flow taken

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 27.7 °C Water Temp 25 °C

Secchi = 0.194m

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):

parked along the road, walked along property line and small drainage corridor. mostly private property.

8. Dominant Primary Substrate

_Cobble _Sand _Silt ✓ Mud/Clay _Gravel _Bedrock _Rip rap _ Concrete

QC: RM 6/9/11

QC2: LM 7/11/11

KP 6/7/11

KD 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~110~~ 17 RM 6/9/11 12
Date: 4/22/11 Time: 1001 - 1020

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 overgrown banks, but access is possible, also turbid water.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Site appears to be private property, but left bank appears to have trails to the water.

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

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
✓ No secondary contact recreation activities were observed
☐ Other secondary contact activities: _____

KD 6/7/11

RM 6/9/11

KJ 6/16/11

17

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~17~~ 16 RM 6/9/11

Date: 4/22/11 Time: 1001 - 1020

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) N/A

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).

Overgrown banks, and steep slopes, difficult but possible to get in and out of water

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 N/A

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

KJ 6/16/11 RM 6/9/11

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

If other, list reasons: N/A

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 above

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).

appears to be 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

QC2: LM 7/11/11

QC1: RM 6/9/11

KP 6/7/11

KD 6/16/11

17

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~1to~~ ~~1~~ 1001-1020

Date: 4/22/11 FDS Page 3 of 8

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.

	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	

QC2: LM 7/11/11 QC: PN 6/9/11 KP 6/7/11

KS 6/16/11 V9

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: ~~16~~ ~~17~~ RM 6/9/11
Date: 4/22/11 Time: 1001 - 1020

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? X 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	26
2	26
3	24
4	26
5	
6	
7	
8	
9	
10	

KP 6/7/11 RM 6/9/11

KD 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~17~~ 16 ~~6/15/11~~ V8
Date: 4/22/11 Time: 1001 - 1020

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☐ 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) 6/16
- ☐ 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
- ☐ Wildlife
- ☑ Steep slopes
- ☐ No public access
- No roads
- ☐ Fence
- ☐ Barge/ship traffic
- ☐ Industrial
- ☐ None of the Above
- ☐ Other: _____

Comments: _____

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

- ☑ Roads
- ☑ Rope swings
- ☐ Dock/platform
- Foot paths/prints
- ☑ Other: platform/tree house
- ☐ 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: platform (pic) that is above the water on the Rt bank.

QC2: 7/11/11

QC: RM 6/9/11 KP 6/7/11

KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: 16 17 18

Date: 4/22/11 Time: 1001 - 1020

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 N/A

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, carpet, computer, plastic paper, all in the small drainage ditch on property.

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 has tire ring hanging on tree, swings, and BBQ pit as well as fire pit.

KP 6/7/11

QC: PM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/22/11

Site: Site #6 ~~[illegible]~~ 17 KS 6/16/11 Site

Description: ~~Linnett~~ FM 1469 @ San Bernard River

Time Begin: 1001 Time End: 1020 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: Too deep to wade and no way across

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow Taken

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 18 5/27/11

Data Collectors & Contact Information:	J. Wrost, M. Shepard, M. Moss, R. March
Date & Time: 9/22/11 0855-0953	County Name: Brazoria
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 18 Linnett Rd. @ San Bernard River	

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 flow not taken

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

Secchi: 0.222

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

R/L 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):

Site located at end of Residential road, walking path to the water, water accessible at points.

8. Dominant Primary Substrate

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

KP 6/7/11

QC: RM 6/9/11

QC2: 7/11/11

1111111 1

18 KD 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: ~~17~~ ~~18~~ RM 6/9/11
Date: 4/22/11 Time: 0855-0953

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).
only few access points, steep banks, turbid water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
site @ end of dead end road, public access with worn walking trail along right bank.

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

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: _____

KP 6/7/11
DO RM 6/9/11

Field Data Sheets – Basic RUAA Survey

KJ 6/16/11

Stream Name San Bernard (AT) Site: ~~17~~ ~~18~~ 18
Date: 4/22/11 Time: 0858 - 0953

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) N/A

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 banks difficult to launch boat, but there is evidence that people do.

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above.

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).
there is ample public access.

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

QC2: 7/11/11

QC: RM 6/9/11

KP 6/7/11

KD 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~17~~ 18
Date: 4/22/11 FDS Page 3 of 8 0855-0953

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.

	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	

QC: LM 7/1/11

QC: RM 6/9/11 KP 6/17/11

KJ 6/16/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: ~~17~~ ~~18~~ RM 6/9/11 18
Date: 4/23/11 Time: 0855-0953

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? X 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	36
2	40
3	40
4	39
5	38
6	38
7	39
8	40
9	37
10	31

KJ 6/7/11 QC: RM 6/9/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard (AT) Site: ~~17~~ ~~18~~ 18 KD 6/16/11
Date: 4/23/11 Time: 0855-0953

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
- ✓ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ✓ 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: Boating Access: slide where small john boats are pulled in and out of water.

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: fence but a walkway was cleared through it.

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
- No Human Presence

Comments: rope swing pictured.

QC2 LM 7/11/11

QC: KM 6/9/11 KP 6/7/11

KJ 6/6/11
18

Field Data Sheets – Basic RUAA Survey

47 18 PA 6/9/11

Stream Name San Bernard (AT) Site:
Date: 4/23/11 Time: 0855 - 0953

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 one cow, on walking trail

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

11. Garbage Observed

Large garbage in the channel	☐ None	✓ Rare	☐ Common	☐ Abundant	= pictured refrigerator
Small garbage in the channel	☐ None	✓ Rare	☐ Common	☐ Abundant	
Bank Garbage	☐ None	✓ Rare	☐ Common	☐ Abundant	

Briefly describe the kinds of garbage observed: cups, oil container, bags, bottles

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).

KJ 6/7/11 QC: PM 6/9/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 4/23/11

Site: Site ~~17~~ (Linnett Rd. @ San Bernard River) 18 Site

Description:

Time Begin: 0855 Time End: 0953 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: Too deep to wade and no crossing to get to other side for flow boat.

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow Taken

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 1

Data Collectors & Contact Information:	March, Ramirez, Lawrence, Blackney
Date & Time: ~~8am~~ 1420 - 1445 5/15/11	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 1 Bostik Rd @ San Bernard River	

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. 29.85482 -96.45535

A. Stream Characteristics:

1. Check the following channel flow status that applies.

~~☐ dry~~ ☑ no flow ☐ low ☐ normal ☐ high ☐ flooded

LM 7/11/11

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 n/a

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 _____ °C n/a Water Temp _____ °C n/a

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):

river easily accessible from road

8. Dominant Primary Substrate

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

DE: LM

QC AM

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 1
Date: 5/15/11 Time: 1420-1445

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).
river dry except for 1 pool.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
access from 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? no

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: _____

n one

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 1
Date: 5/15/11 Time: ~~140~~ PM 1420 - 1445

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) n/a

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).
Dry.

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 n/a

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: unknown

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).
dry.

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).
easy access but banks overgrown.

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

DE: LM

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 1
Date: 5/15/11 FDS Page 3 of 8 1420-1445

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 1 Downstream 3 Left Bank 2 Right Bank 4 pics on 29.85515 96.45623
Photos #s (150 meters) Upstream 1 Downstream 3 Left Bank 2 Right Bank 4 pic on ratio, see site lat/long
Photos #s (300 meters) Upstream 1 Downstream 3 Left Bank 2 Right Bank 4 * pic on GPS cam

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 60m	5.1m	2.5	0.32
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	

29.85482
-96.45535

DE: LM
QC: AM

* 300: 29.85575
-96.45467

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 1
Date: 5/15/11 Time: 1420-1445

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	
2	
3	
4	
5	
6	
7	
8	
9	
10	

DE: LM
QC: AVM

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 1
Date: 5/15/11 - 1420-1445 Time: 1420-1445

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
- ☑ None
- ☐ Other: _____

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

Comments: road through stream.

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

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

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

- ☐ Campgrounds
- ☐ Playgrounds
- ☑ Rural area
- ☐ Residential
- ☐ National forests
- ☐ Urban/suburban location
- ☐ Golf Course
- ☐ Sports Field
- ☐ Stairs/walkway
- ☐ Boating access (ramps)
- ☐ Beach
- ☐ Bridge crossing
- ☐ Commercial boating
- ☐ 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).

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

Comments: _____

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

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

Comments: _____

Field Data Sheets – Basic RUAA Survey

Stream Name Sen Bernard River AT Site: 1
Date: 5/15/11 Time: 1420-1445

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).
N/A

DE: LM

QC: AMM

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River AT Date:

Site: 1 Site

Description: Bostick Rd @ San Bernard River

Time Begin: Time End: Meter Type:

Observers: Stream Width*: Section Width (W):

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

DE: LM

QC AMM

Field Data Sheets – Basic RUAA Survey

(should be completed for each site) Site 2

Data Collectors & Contact Information:	March, Shepherd, Knotte, Barton
Date & Time: 5/21/11 0915 - 1020	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 2 Cut Spring @ San Bernard River	

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

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 26.1 °C Water Temp 24 °C secchi 0.374 m

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):

Accessible from road. Can pull off and park on roadside and walk to water

8. Dominant Primary Substrate

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

DE: LM

QC: ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 2
Date: 5/21/11 Time: 0915 - 1026

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).
~~Wate~~ MES 5/24/11 Only pools, most very shallow. Stagnant with abundant vegetation and algae

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Access from 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? No

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: _____

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 2
Date: 5/21/11 Time: 0915 - 1026

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) ☒ N/A

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).
water depth too shallow, very mucky pools, relatively abundant vegetation & thick along bank

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 above)

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).
ample public access

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

DE: LM
QC: AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 2
Date: 5/21/11 FDS Page 3 of 8 0915-1026

E. Stream Channel and Substantial Pools
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 ✓ GPS: 30-150
Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ Cam 2 - 300, 150 downstream
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)
150	Pool 1	30	14.0	0.5
180	Pool 2	25.2	2.56	0.45
210	Pool 3	9.85	5.35	0.35
240	Pool 4	12.3	11.3	1.2
	Pool 5	14.5	1.15	0.52
	Pool 6	2.60	3.5	0.53
	Pool 7	2.8	3.7	0.15
	Pool 8	3.0	1.2	0.1
	Pool 9	1.0	2.4	0.1
	Pool 10			

Secchi: 0.374

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	

DE: LM
QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 2
Date: 5/24/11 Time: 0915-1026

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? X Yes ☐ No
COMMENTS: children wading

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	

DE:LM
QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 2
Date: 5/21/11 Time: 0915-1026

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
- ☒ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☒ 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).

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

Comments: sth

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
- ☒ Other: tire tracks

Comments: found broken winch cable

QC AWM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River AT Site: 2
Date: 5/21/11 Time: 0915 - 1026

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: ↳ only on some of the pools

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 some bird tracks

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: feed sacks

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).
Individual interviewed at site, but he was present only to assist BLH personnel with a stuck vehicle.

DE: LM
QC AMM 7-12-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River AT Date: 5/21/11

Site: 2 Site

Description: Cat Spring @ San Bernard River Site 2

Time Begin: _____ Time End: _____ Meter Type: _____

Observers: M. Shepard Stream Width*: _____ Section Width (W): _____

Observations: Pools only

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow

DE: LM

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 3

Data Collectors & Contact Information:	March, Shepland, Barton, Knothe
Date & Time: 5/21/11 1143 - 1220	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 3 FM 949 @ San Bernard River	

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.

MEB 5/24/11 ☐ 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

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 29.2 °C Water Temp 24 °C

Secchi: 0.714 m

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

RM 5/21/11

at bridge

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

accessible from road. Can park on roadside - easy bank access from bridge

8. Dominant Primary Substrate

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

DE: LM

QC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 3
Date: 5/21/11 Time: 1143-1220

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).
high, thickly vegeted banks

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Access from 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?
no

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: _____

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Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 3
Date: 5/21/11 Time: 1143 - 1220

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) n/a

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 water, high, over steep, overgrown banks.

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 n/a

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: n/a

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).
Dry, only 2 shallow pools, steep, overgrown 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).
~~Access from road~~ N/A LM 7/11/11

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.

DEILM
QC AVM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 3
Date: 8/21/11 FDS Page 3 of 8 1193-1220

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.

1 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓

on gps cam

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	5.8	3.2	0.45
Pool 2	13.5	4.2	0.65
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

secchi: 0.74

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	

DE; LM
QC ARM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 3
Date: 5/21/11 Time: 1143 - 1220

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:
children wading

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	

DE: LM
QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 3
Date: 5/21/11 Time: 1143 - 1220

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☑ 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).

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

Comments: electric fence across channel

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

- ☒ Roads
- ☐ Rope swings
- ☐ Dock/platform
- ☐ Foot paths/prints
- ☒ Other: tire tracks
- ☐ 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: trash -

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Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 3
Date: 5/21/11 Time: 1143 - 1220

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 - styrofoam
Bank Garbage ☐ None ☐ Rare ☒ Common ☐ Abundant
Briefly describe the kinds of garbage observed: food & beverage containers, tires

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).

DE:LM

QCANM 7-12-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

~~Site 4~~ Site 3

Stream: San Bernard River Above Tidal Date: 5/21/11

Site: ~~4~~ 3 Site

Description: FM 949 @ San Bernard River

Time Begin: Time End: Meter Type:

Observers: R. March Stream Width*: Section Width (W):

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

DE: LM

QC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 4

Data Collectors & Contact Information:	J. Barton, R. March, M. Shepard, G. Kusthe
Date & Time: 5-21-11 12:30/1310	County Name: Colorado / Austin
Stream Name: San Bernard River AT	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 4 Sealy Rd @ San Bernard River	

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

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 30.4 °C Water Temp 25 °C

Secchi: >1.2m

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		Rip rap
R	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):

Site at low water crossing, easy access to bank from road

8. Dominant Primary Substrate

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

DE: LM

QC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 4
Date: 5/21/11 Time: 1230-1310

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).
Overgrown banks, ~~barbed wire~~ 5-21

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Public road and 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? No

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: _____

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 4
Date: 5/21/11 Time: 1230 – 1310

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) ☑ Not applicable

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).
Shallow pool, no flow

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 NA

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 #2

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).
Public road but in rural area

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.

DE: LM
QC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 4
Date: 5/21/11 ~~FDS Page 3 of 8~~ Time 1230 - 1310

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 ✓

30 on pentax
150 & 300 on GPS cam
(1) (2)

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	230.0	17.5	1.1
Pool 2	57.0	7.1	0.5
Pool 3	20.0	6.0	0.4
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	

DE : LM

QC: AN M 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 4
Date: 5/21/11 Time: 1230 – 1310

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	
2	
3	
4	
5	
6	
7	
8	
9	
10	

DE : LM

QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River AT Site: 4
Date: 5/21/11 Time: 1230-1310

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☑ 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).

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

Comments: _____

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

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

Comments: _____

QC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 4
Date: 5/21/11 Time: 1230 - 1310

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: beer cans and bottles

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).

DE: LM

QC AMM 7-13-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/21/11

Site: 4 Site

Description: Sealy Rd @ San Bernard River

Time Begin: 1230 Time End: Meter Type:

Observers: J. Barton Stream Width*: Section Width (W):

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow

DE:LM

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 5

Data Collectors & Contact Information: March, Shepherd, Kuathe, Barton	
Date & Time: 5/21/11 1500 – 1530	County Name: Colorado / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 5 IH10 @ San Bernard River	

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

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 30.7 °C Water Temp 24 °C

Secchi: 1.84

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):

Accessible from median at IH10.

8. Dominant Primary Substrate

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

DE: LM

QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: S
Date: 5/21/11 Time: 1500-1530

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).
Dry - only a few small pools.

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Only access is from I-10 - park in median and walk under 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?
no

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: _____

QC
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Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 5
Date: 5/21/11 Time: 1500 1530

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) n/a

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).
Only a few small, shallow pools.

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 n/a

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other n/a
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).
See #2 above

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).
Lack of roads that go directly to river. Under bridge of major highway.

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.

DE:LM

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: S
Date: 5/21/11 FDS Page 3 of 8 1500 – 1530

E. Stream Channel and Substantial Pools
Please check the following which best describes the river or stream: ✓ Wadeable ☐ Non-wadeable (dry)

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 ✓ 300 pics: optio
Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ 150, 300 - GPS cam

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	32.5	4.6	0.65
Pool 2	11.0	3.8	0.18
Pool 3	3.8	0.8	0.1
Pool 4	6.0	4.3	0.1
Pool 5	10.0	2.5	0.35
Pool 6	5.2	3.5	0.15
Pool 7	3.6	0.5	0.1
Pool 8	27.0	3.8	0.44
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	

DE: LM

QC WM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: S
Date: 5/21/11 Time: 1500-1530

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	
2	
3	
4	
5	
6	
7	
8	
9	
10	

DE:LM
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Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 5
Date: 5/21/11 Time: 1500 – 1530

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☑ 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).

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

Comments: _____

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

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

Comments: _____

UC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 5
Date: 5/21/11 Time: 1500-1530

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: tracks: maybe possum, deer, dog, raccoon

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: bags, cans, food/beverage containers, mostly near 1410 - probably trash from cars on road.

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).

DE:LM

QC: AMM 7-12-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/21/11

Site: 5 Site

Description: IH10 @ San Bernard River

Time Begin: 1500 Time End: Meter Type:

Observers: R. March Stream Width*: Section Width (W):

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No Flow

DE:LM

Site 6
(FM 3013)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Data Collectors & Contact Information:	K. Vale, D. Ramirez, M. Moss, R. Blackney
Date & Time: 5/22/11 10:46-11:42	County Name: Colorado / Austin
Stream Name: San Bernard River AT	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: FM 3013 @ San Bernard River Site 6	

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

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 28.8 °C Water Temp 25.0 °C

Secchi 0.33 m

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/R 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):

There is an unimproved parking area on left bank by the bridge, but there is a fence line to get to water that has an unlocked gate

8. Dominant Primary Substrate

_ Cobble ✓ Sand _ Silt _ Mud/Clay _ Gravel _ Bedrock _ Rip rap _ Concrete

DE: LM

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River Site: FM3013
Date: 5/22/11 Time: 1046-1142

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).
None, can see ~~most~~ KV bottom of water in more places

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Park vehicle on left bank right by bridge, there's an unimproved vehicle path

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

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: _____

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: FM 521 C3
Date: 5/22/11 Time: 1046-1142

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) ☒ N/A

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 banks that drop off in certain areas, overgrown banks

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 N/A
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: N/A

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).
Large stands of ~~Frag~~ Phragmites spp., and other herbacious shrubbery/tree (KU) overgrown on the banks, steep 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).
Fenced under the bridge on the left bank, No trespassing sign

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

DE: LM

QC AWM 7-12-11

Rewritten by MM on 5/22/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: FM 2013
Date: 5/22/11 FDS Page 3 of 8

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.
1 Photos #s (30 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓
2 Photos #s (150 meters) Upstream 1 ✓ Downstream ~~3~~ 2 ✓ Left Bank ~~3~~ 2 ✓ Right Bank ~~4~~ 4 ✓
3 Photos #s (300 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓

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	20.1	~~8m~~ 8.0	0.29
Pool 2	98.0	19.2	>1.3m
Pool 3		36.0	
Pool 4	>12.0	9.5m	0.25 ~~tom~~
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

extends past end of reach

depth ~~not~~ taken width @ 300m (end of reach)

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	~~non-wadeable~~ 0.21
~~90 meters~~ ~~108 to 107.6m~~	~~>1.2m (1.38)~~
120 meters	0.9m
150 meters	0.2m
180 meters	0.74
210 meters	0.73
240 meters	0.69
270 meters	0.34
300 meters	
Average	

90m ~~+12~~

0.38m ~~@107.6m - deeper than 1.2m (1.38)~~

25
~~30~~
50
30
~~115~~
85 + 13

20
98.1
90
~~112~~
128.1

Fish bobbers stratification up

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: FM 3013
Date: Time:

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

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	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River (AT) Site: FM 3013
Date: 5/22/11 FDS Page 3 of 8 1046 - 1142

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.
1 Photos #s (30 meters) Upstream 1 Downstream 3 Left Bank 2 Right Bank 4
2 Photos #s (150 meters) Upstream 1 Downstream 3 Left Bank 2 Right Bank 4
3 Photos #s (300 meters) Upstream 1 Downstream 3 Left Bank 2 Right Bank 4

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 30m	20.1	8.0	0.29
Pool 2 60-150m	98.0	19.2	>1.3m
Pool 3 150-270m	128.1	36.0	0.74
Pool 4 300+m	>12.0	95	0.25
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

ex led past 300m reach, depth & width taken @ 300m

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	0.21
90 meters	0.38
120 meters	0.90
150 meters	0.20
180 meters	0.74
210 meters	0.73
240 meters	0.69
270 meters	0.34
300 meters	
Average	

Pool #2

pool #3

DE: LM
QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard (AT) Site: #3 FM 3013
Date: 5/22/11 Time: 1046-1142

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	~10 m
Width at narrowest point of the stream within 300 meter reach	3.0 m
Width at the widest point of the stream within 300 meter reach	36.0 m

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	

DEILM

QC ANM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: FM 3013
Date: 5/22/11 Time: 1046-1142

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
- ☑ None
- ☐ Other: _____

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

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

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

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

- ☐ Campgrounds
- ☐ Playgrounds
- ☑ Rural area
- ☐ Residential
- ☐ National forests
- ☐ Urban/suburban location
- ☐ Golf Course
- ☐ Sports Field
- ☐ Stairs/walkway
- ☐ Boating access (ramps)
- ☐ Beach
- ☐ Bridge crossing
- ☐ Commercial boating
- ☐ 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).

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

Comments: _____

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

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

Comments: Adult and childs shoe prints leading towards the river, fishing bobbers few meters upstream of 150m, and downstream, catfish bait containers

DE: LM

QC ANC 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: FM 3013
Date: _____ Time: _____

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:
Small sheen on the surface.

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: game/livestock trail on the left bank downstream of bridge

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: Bank garbage: beer bottles, cans, Styrofoam cups, fish bait container (catfish

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).
There are fish scales on the left bank, downstream of the bridge. There are large, deep pools along the reach, no flow, some stagnant water, one oxbow on the left bank that ends at the bridge. Odor under the bridge, most likely from large colony of swallows nesting under the bridge, over the water

JC AFM 7/12/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/22/11

Site: FM 3013 Site

Description: FM 3013 @ San Bernard River

Time Begin: 11:00 Time End: Meter Type:

Observers: K. Vale, D. Ramirez Stream Width*: Section Width (W):

Observations: No flow, large pools segmented

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

DE : LM

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site ~~6~~ 7 MCS 5/27/11

Data Collectors & Contact Information: K. Vale, D. Ramirez, M. Moss, R. Blackney	
Date & Time: 5/22/11 11:55-12:13	County Name: Wharton / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site ~~6~~ 7 FM 1093 @ San Bernard River	

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. MCS 5/27/11

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

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 31.2 °C Water Temp — °C

Secchi — m

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):

Drive vehicle off the highway, to unimproved road to left bank

8. Dominant Primary Substrate

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

DE: LM

QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 6 7 PB
Date: 5/22/11 Time: 1155-1213

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).
No water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Unimproved road to left river bank from highway / FM 1093

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

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: _____

QC AMN 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 67 JB
Date: 5/22/11 Time: 1155-1213

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) ☒ N/A

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 water

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 N/A
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: N/A

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 water

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).
River banks overgrown for vehicles, lack of roads

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

DELM
QC MM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 6 7
Date: 5/22/11 FDS Page 3 of 8 1155-1213

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 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓
Photos #s (150 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓
Photos #s (300 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓

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	NONE		
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	0.0
60 meters	0.0
90 meters	0.0
120 meters	0.0
150 meters	0.0
180 meters	0.0
210 meters	0.0
240 meters	0.0
270 meters	0.0
300 meters	0.0
Average	

No H_2O - dry

fence: barbed wired 270m →

DE:LM
QC AN 7-12-11

Avg:
Narrow:
Wide:

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: to 7 JB
Date: 5/22/11 Time: 1155-1213

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	N/A
Width at narrowest point of the stream within 300 meter reach	N/A
Width at the widest point of the stream within 300 meter reach	N/A

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	

DE:LM
QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 6-7 PB
Date: 5/22/11 Time: 1155-1213

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

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

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

- ☐ Campgrounds
- ☐ Playgrounds
- ☑ Rural area
- ☐ Residential
- ☐ National forests
- ☐ Urban/suburban location
- ☐ Golf Course
- ☐ Sports Field
- ☐ Stairs/walkway
- ☐ Boating access (ramps)
- ☐ Beach
- ☑ Bridge crossing
- ☐ Commercial boating
- ☐ 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).

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

Comments: _____

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

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

Comments: _____

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 6 7 JB
Date: 5/22/11 Time: 1155-1213

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: KV 5/22 ☑ clear ☐ green ☐ red ☐ brown ☐ black N/A
Bottom Deposit: ☐ sludge ☐ solids ☑ fine sediments ☐ none ☐ other
Water Surface: ☐ clear ☐ scum ☐ foam ☐ debris ☐ oil N/A
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: trails of lizards, possibly 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: couch cushions under the bridge in the channel, there was a mattress downstream of 300 m mark, bottles/cans

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).
Near the 150 m mark on the right bank there are possible ATV tracks that lead in and out of the channel. Channel thick sand, completely dry

DELM
QCANM 7-12-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River above Tidal Date: 5/22/11

Site: 167 JB Site

Description: FM 1093 @ San Bernard River

Time Begin: 12:00 Time End: Meter Type:

Observers: K Yule, D. Ramirez Stream Width*: Section Width (W):

Observations: No water, completely dry

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

DE:LM

Field Data Sheets – Basic RUAA Survey

(should be completed for each site) Site 8

Data Collectors & Contact Information: K.Vale, D.Ramirez, M.Moss, R. Blackney	
Date & Time: 5/22/11 12:25 – 12:50	County Name: Wharton / Austin
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 8 SH 60 @ San Bernard River (17421)	

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

LM 7/4/11

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

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 31.2 °C Water Temp 30.0 °C

Secchi 0.14m (from pool)

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
L/R 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):

Drive off SH 60 to unimproved vehicle path under bridge

8. Dominant Primary Substrate

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

DE: LM

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 6 7 8 9 10/16/11
Date: 5/22/11 Time: 1225-1250

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).
No water in the river channel, small pool downstream of bridge is stagnent, some algae

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Pull of SH 60 and park under/by bridge from unimproved road on left bank

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

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: _____

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: T 8 B 6/16/11
Date: 5/22/11 Time: 1225-1250

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) ☒ N/A

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 water, overgrown banks

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 N/A
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: N/A

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

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).
river banks overgrown away from the bridge

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

DE: LM

QC AM 7/12/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 7 8 SB 6/16/11
Date: 5/22/11 FDS Page 3 of 8 1225-1250

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.

(2) Photos #s (30 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓
(1) Photos #s (150 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓
(3) Photos #s (300 meters) Upstream 1 ✓ Downstream 3 ✓ Left Bank 2 ✓ Right Bank 4 ✓

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 210m	17.8	11.6	0.58
Pool 2			
Pool 3			
Pool 4			
Pool 5			
Pool 6			
Pool 7			
Pool 8			
Pool 9			
Pool 10			

Pool located in riffle (downstream of) reach – photographed, not measured

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	0.0
60 meters	0.0
90 meters	0.0
120 meters	0.0
150 meters	0.0
180 meters	0.0
210 meters	0.0
240 meters	0.0
270 meters	0.0
300 meters	0.0
Average	

Tire tracks + burn / fire under bridge @ 150m (maybe vehicle fire)

DE:LM

JC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 7 8 B 6/16/11
Date: 5/22/11 Time: 1225-1250

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	N/A
Width at narrowest point of the stream within 300 meter reach	N/A
Width at the widest point of the stream within 300 meter reach	N/A

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	

DE: LM

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey JB 6/16/11

Stream Name San Bernard River AT Site: T 8
Date: 5/22/11 Time: 1225-1250

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☑ 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).

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

Comments: _____

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

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

Comments: fishing pole along the pool by bridge, dead fish (carp) under the bridge, vehicle tracks in the channel, fire pit/ burnt wood was in the river channel right by the tracks

OC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

JB 6/16/11

Stream Name San Bernard River AT Site: 7 8

Date: 5/22/11 Time: 1225-1250

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:

Water measurements from the pool

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: snake skin observed, white feather, possibly a type of egret

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: plastic, rope, bottles, can, food wrapper

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).

Fire ring under the bridge, on top of vehicle/ATV ruts in the channel. One larger pool downstream of 300m, took pictures, not measured. There's a pipeline going across the channel downstream of the bridge. Part of it was exposed

DE:LM

QC AM 7-12-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/22/11

Site: 7 Site

Description: SH60 @ San Bernard River (17421)

Time Begin: 12:30 Time End: Meter Type:

Observers: K. Vale Stream Width*: Section Width (W):

Observations: No flow in the channel, small pool was stagnent, no other water

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

DE:LM

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site ~~8~~ 9 NG 5/27/11

Data Collectors & Contact Information: K. Vale, D. Ramirez, M. Moss, R. Blackney	
Date & Time: 5/22/11 13:01 - 13:53	County Name: Wharton / Fort Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site ~~8~~ 9 USGD A @ San Bernard River: 16373	

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. 0.524 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 29.6 °C Water Temp 25 °C

Secchi 0.194 m

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

R, L 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):

Pulloff side of road

8. Dominant Primary Substrate

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

DE:LM

QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 8 · 9 JB 6/16/11
Date: 5/22/11 Time: 1301-1353

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).
turbid water, plant debris

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

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

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: _____

OK NA 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: Site 8 9 JB 6/16/11
Date: 5/22/11 Time: 1301-1353

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) ~~☐~~ N/A

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).
overgrown banks

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 N/A
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: N/A

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).
Overgrown 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).
lack of roads overgrown 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

DE: LM
QC AWM 7/12/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: R 9 OB 6/16/11
Date: 5/22/11 FDS Page 3 of 8 1301-1353

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.

1 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 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	0.7
60 meters	0.94
90 meters	>1.7
120 meters	0.85
150 meters	0.49
180 meters	0.32
210 meters	0.95
240 meters	0.16
270 meters	0.49
300 meters	0.41
Average	

DE: LM
QC AMM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 8 9 JB 6/16/11
Date: 5/22/11 Time: 1301-1353

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	13.1 m
Width at narrowest point of the stream within 300 meter reach	0.9 m
Width at the widest point of the stream within 300 meter reach	~~37.3~~ 37.9 m

OK 5-22-11

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	

DE:LM

QC AM 7/12/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 8 9 JB 6/16/11
Date: _____ Time: _____

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☑ 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
- ☑ 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).

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

8/19/11 MES

Comments: _____

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

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

Comments: Foot prints under the bridge approx 20 m from the river

OC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 8 9 JB 6/16/11
Date: 5/22/11 Time: 1301-1353

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:
Mostly clear water surface, few oil spots/sheen on the surface

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: large vehicle tires, plastic pieces, bicycle w/rope, office chair wheel base on cypress knee, bottles, cans, shoe, most washed from a rain event

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).
Fence line on right bank to the banks edge. The water body has deep spots upstream of bridge for about 60 m then gets shallow

DE: LM

QC AM 7-13-11

IL written by MM 5/23/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/22/11

Site: 8 Site

Description: US 90A @ San Bernard River (TCEQ 16373)

Time Begin: 1314 Time End: 1345 Meter Type: SonTek

Observers: D. Ramirez & M. Moss Stream Width*: 37.9 Section Width (W): 1.895

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
0.4475	0.2			-0.00	
2.8425	0.4			-0.06	
4.7325	0.6			0.01	
6.6275	0.8			0.00	
8.5225	1.0			0.02	
10.4175	1.0			0.01	
12.3125	1.2			0.02	
14.2075	1.25			0.03	
16.1025	1.3			0.02	
17.9975	1.25			0.03	
19.8925	1.3			0.01	
21.7875	1.3			0.02	
23.6825	1.5			0.02	
25.5775	1.6			0.03	
27.4725	1.7			0.02	
29.3675	1.7			0.02	
31.2625	1.65			-0.02	
33.1575	0.9			-0.04	
35.0525	0.9			0.01	
36.9475	0.2			-0.04	

lots of unavoidable debris in front of meter for first 6 readings.

SonTek Q = 0.524

needs to be rewritten

Rewritten by MM on 5/23/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5-22-11

Site: 8 Site

Description: US 90 A @ San Bernard River: 16373

Time Begin: 13:14 Time End: 13:45 Meter Type: Sontek

Observers: D. Ramirez, M. Moss Stream Width*: 37.9 Section Width (W): 1.89

Observations: 20

	Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
	0.9475	0.2			-0.00	
	2.8425	0.4		-0.06	~~0.03~~	
	4.7325	0.6			0.01	
	6.6275	~~0.8~~ 0.8			0.00	
	8.5225	1.0			0.02	
	10.4175	1.0			0.01	
	12.3125	1.2			0.02	
	14.2075	1.25			0.03	
9.	16.1025	1.3			0.02	
	17.9975	1.25			0.03	
	19.8925	~~1.25~~	1.3		0.01	
	21.7875	1.3			0.02	
13	23.6825	~~2.0~~	1.5	0.02	~~0.02~~	
	25.5775	~~2.1~~	1.6	0.03	~~0.04~~	
	27.4725	~~2.2~~	~~1.75~~ 1.7	0.02	~~0.03~~	
	29.3675	~~2.25~~	1.7	0.02	~~0.03~~	
	31.2625	~~2.1~~	1.65	-0.02	~~0.00~~	wind blowing - reclone to check
	33.1575	~~2.~~	~~1.3~~ 0.9	-0.04		water was moving backward!
	35.0525		0.9	0.01		
20	36.9475		0.2	-0.04		

Q = 0.52

Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information

File Name	San Bernard SB09.WAD
Start Date and Time	2011/05/22 14:08:50

Site Details

Site Name	
Operator(s)	MM

System Information

Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

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%	2.3%
Velocity	1.1%	3.5%
Width	0.1%	0.1%
Method	2.2%	-
# Stations	2.3%	-
Overall	**3.5%**	**4.3%**

Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	18.000
Mean SNR	24.9 dB	Total Area	12.846
Mean Temp	80.36 °F	Mean Depth	0.714
Disch. Equation	Mid-Section	Mean Velocity	0.0813
		Total Discharge	**1.0439**

Measurement Results

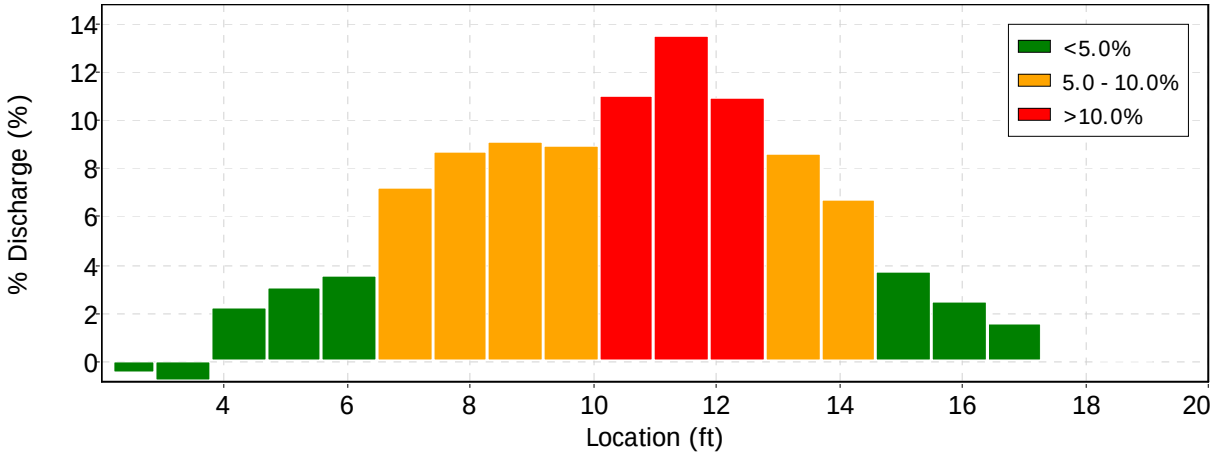
St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:08	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*14:08*	*2.45*	*0.6*	*0.300*	*0.6*	*0.120*	*-0.0256*	*1.00*	*-0.0256*	*0.202*	*-0.0052*	*-0.5*
2	*14:09*	*3.35*	*0.6*	*0.400*	*0.6*	*0.160*	*-0.0226*	*1.00*	*-0.0226*	*0.360*	*-0.0081*	*-0.8*
3	14:10	4.25	0.6	0.700	0.6	0.280	0.0371	1.00	0.0371	0.630	0.0234	2.2
4	14:11	5.15	0.6	0.800	0.6	0.320	0.0440	1.00	0.0440	0.720	0.0316	3.0
5	14:12	6.05	0.6	0.900	0.6	0.360	0.0456	1.00	0.0456	0.810	0.0369	3.5
6	*14:13*	*6.95*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0833*	*1.00*	*0.0833*	*0.900*	*0.0750*	*7.2*
7	*14:14*	*7.85*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1010*	*1.00*	*0.1010*	*0.900*	*0.0909*	*8.7*
8	*14:15*	*8.75*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1060*	*1.00*	*0.1060*	*0.900*	*0.0954*	*9.1*
9	*14:15*	*9.65*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1040*	*1.00*	*0.1040*	*0.900*	*0.0936*	*9.0*
10	*14:16*	*10.55*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1276*	*1.00*	*0.1276*	*0.900*	*0.1149*	*11.0*
11	*14:17*	*11.45*	*0.6*	*1.300*	*0.6*	*0.520*	*0.1204*	*1.00*	*0.1204*	*1.170*	*0.1409*	*13.5*
12	*14:18*	*12.35*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1263*	*1.00*	*0.1263*	*0.900*	*0.1137*	*10.9*
13	14:18	13.25	0.6	0.900	0.6	0.360	0.1109	1.00	0.1109	0.810	0.0898	8.6
14	14:19	14.15	0.6	0.800	0.6	0.320	0.0978	1.00	0.0978	0.720	0.0704	6.7
15	14:20	15.05	0.6	0.650	0.6	0.260	0.0659	1.00	0.0659	0.585	0.0386	3.7
16	*14:21*	*15.95*	*0.6*	*0.550*	*0.6*	*0.220*	*0.0518*	*1.00*	*0.0518*	*0.495*	*0.0257*	*2.5*
17	14:22	16.85	0.6	0.400	0.6	0.160	0.0459	1.00	0.0459	0.360	0.0165	1.6
18	*14:23*	*17.75*	*0.6*	*0.300*	*0.6*	*0.120*	*-0.0003*	*1.00*	*-0.0003*	*0.270*	*-0.0001*	*0.0*
19	*14:24*	*18.65*	*0.6*	*0.200*	*0.6*	*0.080*	*-0.0026*	*1.00*	*-0.0026*	*0.180*	*-0.0005*	*0.0*
20	*14:25*	*19.55*	*0.6*	*0.200*	*0.6*	*0.080*	*0.0049*	*1.00*	*0.0049*	*0.135*	*0.0007*	*0.1*
21	14:25	20.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

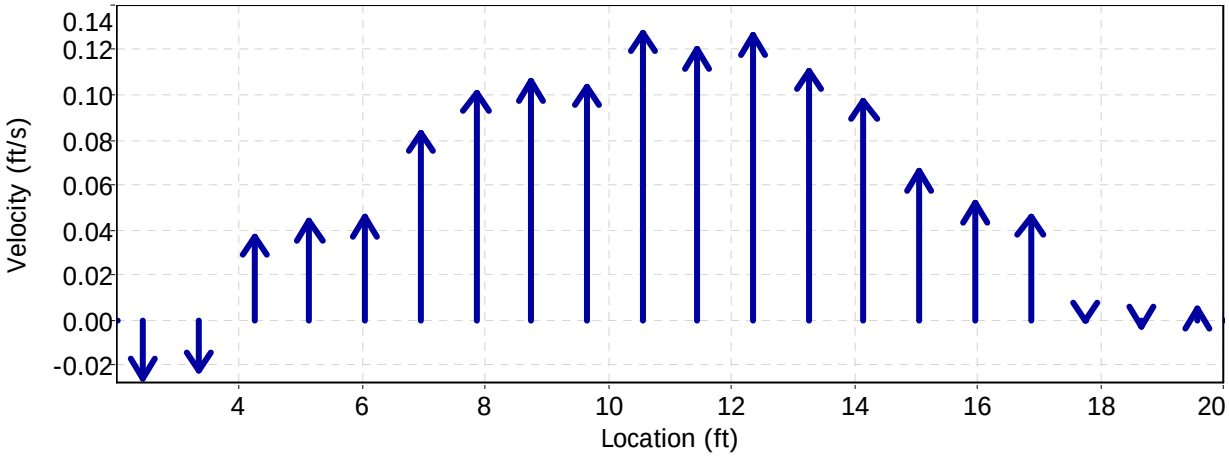
Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

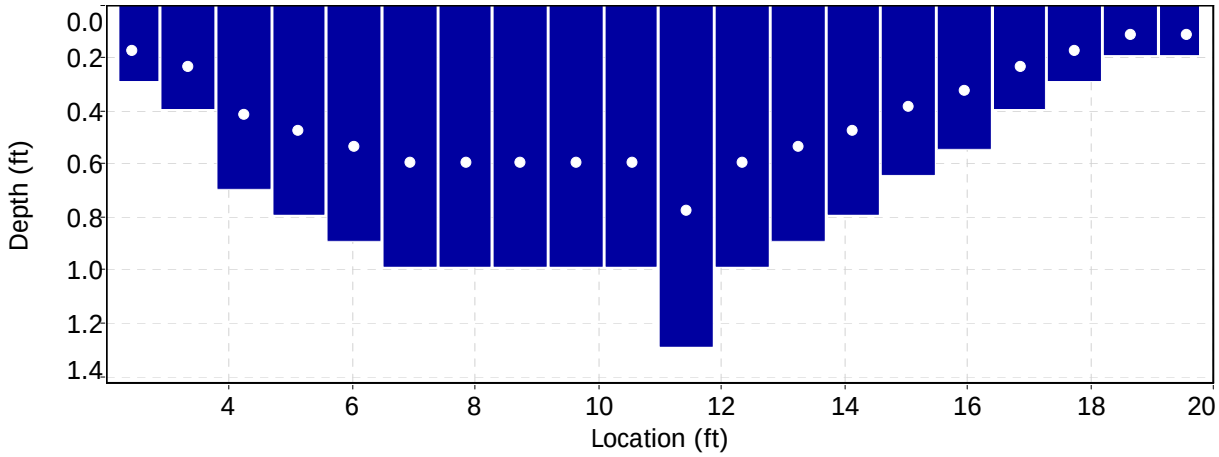
Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information		Site Details	
File Name	San Bernard SB09.WAD	Site Name	
Start Date and Time	2011/05/22 14:08:50	Operator(s)	MM







Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information

File Name	San Bernard SB09.WAD
Start Date and Time	2011/05/22 14:08:50

Site Details

Site Name	
Operator(s)	MM

Quality Control

St	Loc	% Dep	Message
1	2.45	0.6	High angle: 160
		0.6	SNR (42.8) is different from typical SNR (24.9)
2	3.35	0.6	High angle: -179
6	6.95	0.6	SNR (12.7) is different from typical SNR (24.9)
7	7.85	0.6	SNR (12.9) is different from typical SNR (24.9)
8	8.75	0.6	SNR (12.4) is different from typical SNR (24.9)
9	9.65	0.6	SNR (12.9) is different from typical SNR (24.9)
10	10.55	0.6	SNR (13.3) is different from typical SNR (24.9)
11	11.45	0.6	SNR (13.5) is different from typical SNR (24.9)
12	12.35	0.6	SNR (13.5) is different from typical SNR (24.9)
16	15.95	0.6	High angle: -28
18	17.75	0.6	SNR (56.1) is different from typical SNR (24.9)
19	18.65	0.6	SNR (45.3) is different from typical SNR (24.9)
		0.6	Boundary QC is Good; possible boundary interference
20	19.55	0.6	SNR (50.7) is different from typical SNR (24.9)
		0.6	Boundary QC is Good; possible boundary interference

Field Data Sheets – Basic RUAA Survey

(should be completed for each site) Site 10

Data Collectors & Contact Information: K. Vale, D. Ramirez	
Date & Time: 5/22/11 14:05 - 1440	County Name: Wharton / Fort Bend
Stream Name: San Bernard Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 10 FM 2919 @ San Bernard River	

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. 1.044 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 27 °C

Secchi ± 0.72 m

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):

Park off side of road, under bridge

8. Dominant Primary Substrate

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

KV 5/22/11

DE: LM

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: A 10 JB 6/10/11
Date: 5-22-11 Time: 1485 - 1440

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).
Turbid water, plant debris in the water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Take unimproved road, park under 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? no

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: _____

7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: A 10 JB 6/16/11
Date: 5-22-11 Time: 1405-1440

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) ☒ N/A

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).
Right banks are steep slopes, overgrown banks

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 N/A
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: unknown

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 above

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).
n/a - easy public access, pull off side of road, park under the bridge

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

DE: LM

QC AM 7/12/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 9 10 JB 6/16/11
Date: 5/22/11 FDS Page 3 of 8 1405-1440

E. Stream Channel and Substantial Pools
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.

1 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 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	0.57
60 meters	0.48
90 meters	0.73
120 meters	0.4
150 meters	0.63
180 meters	0.42
210 meters	1.13
240 meters	0.92
270 meters	0.7
300 meters	0.46
Average	

DE:LM

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 9 10 JB 6/16/11
Date: 5-22-11 Time: 1405 - 1440

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	KW 5/22/11 Width (meters)
Typical Average Width of 300 meter reach	~~27~~ 8.2
Width at narrowest point of the stream within 300 meter reach	5.5
Width at the widest point of the stream within 300 meter reach	23.3

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 n/a
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	

DE : LM
DLM 7/12/11

Bernard **Field Data Sheets – Basic RUAA Survey**

Stream Name San Bernard River AT Site: 9 10 JB 6/16/11

Date: 5-22-11 Time: 1405 - 1440

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
- ☑ None
- ☐ Other: _____

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

Comments: _____

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☑ 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
- ☑ 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).

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

Comments: _____

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

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

Comments: fishing bobber in the water

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 9 10 JB 6/16/11
Date: 5-22-11 Time: 1405 - 1440

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: Dead turtle

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: Abundant amount of tires on the left bank, possibly used to prevent erosion

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).

DE: LM

QC AM 7-6-11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5-22-11

Site: FM 2919 @ San Bernard River Site 9 10 JB 6/16/11 Site Description:

Time Begin: 1414 Time End: 1435 Meter Type: Sontek

Observers: D. Ramirez, M. Moss Stream Width*: 18 Section Width (W): 0.9

Observations: 20

	Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
2.0	0.45	0.3			-0.03	
	1.35	0.4			-0.02	
	2.25	0.7			0.04	
	3.15	0.8			0.04	
	4.05	0.9			0.05	
	4.95	1.0			0.08	
	5.85	1.0			0.10	
	6.75	1.0			0.11	
	7.65	1.0			0.10	
10	8.55	1.0			0.13	
	9.45	1.3			0.12	
	10.35	1.0			0.13	
	11.25	0.9			0.11	
	12.15	0.8			0.10	
	13.05	0.65			0.07	
	13.95	0.55			0.05	
	14.85	0.4			0.05	
	15.75	0.3			-0.00	
	16.65	0.2			-0.00	
20	17.55	0.2			0.0	
					1.044 = Q	

site 10 JB 6/16/11

Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information

File Name	San Bernard SB09.WAD
Start Date and Time	2011/05/22 14:08:50

Site Details

Site Name	
Operator(s)	MM

System Information

Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

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%	2.3%
Velocity	1.1%	3.5%
Width	0.1%	0.1%
Method	2.2%	-
# Stations	2.3%	-
Overall	**3.5%**	**4.3%**

Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	18.000
Mean SNR	24.9 dB	Total Area	12.846
Mean Temp	80.36 °F	Mean Depth	0.714
Disch. Equation	Mid-Section	Mean Velocity	0.0813
		Total Discharge	**1.0439**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	14:08	2.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*14:08*	*2.45*	*0.6*	*0.300*	*0.6*	*0.120*	*-0.0256*	*1.00*	*-0.0256*	*0.202*	*-0.0052*	*-0.5*
2	*14:09*	*3.35*	*0.6*	*0.400*	*0.6*	*0.160*	*-0.0226*	*1.00*	*-0.0226*	*0.360*	*-0.0081*	*-0.8*
3	14:10	4.25	0.6	0.700	0.6	0.280	0.0371	1.00	0.0371	0.630	0.0234	2.2
4	14:11	5.15	0.6	0.800	0.6	0.320	0.0440	1.00	0.0440	0.720	0.0316	3.0
5	14:12	6.05	0.6	0.900	0.6	0.360	0.0456	1.00	0.0456	0.810	0.0369	3.5
6	*14:13*	*6.95*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0833*	*1.00*	*0.0833*	*0.900*	*0.0750*	*7.2*
7	*14:14*	*7.85*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1010*	*1.00*	*0.1010*	*0.900*	*0.0909*	*8.7*
8	*14:15*	*8.75*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1060*	*1.00*	*0.1060*	*0.900*	*0.0954*	*9.1*
9	*14:15*	*9.65*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1040*	*1.00*	*0.1040*	*0.900*	*0.0936*	*9.0*
10	*14:16*	*10.55*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1276*	*1.00*	*0.1276*	*0.900*	*0.1149*	*11.0*
11	*14:17*	*11.45*	*0.6*	*1.300*	*0.6*	*0.520*	*0.1204*	*1.00*	*0.1204*	*1.170*	*0.1409*	*13.5*
12	*14:18*	*12.35*	*0.6*	*1.000*	*0.6*	*0.400*	*0.1263*	*1.00*	*0.1263*	*0.900*	*0.1137*	*10.9*
13	14:18	13.25	0.6	0.900	0.6	0.360	0.1109	1.00	0.1109	0.810	0.0898	8.6
14	14:19	14.15	0.6	0.800	0.6	0.320	0.0978	1.00	0.0978	0.720	0.0704	6.7
15	14:20	15.05	0.6	0.650	0.6	0.260	0.0659	1.00	0.0659	0.585	0.0386	3.7
16	*14:21*	*15.95*	*0.6*	*0.550*	*0.6*	*0.220*	*0.0518*	*1.00*	*0.0518*	*0.495*	*0.0257*	*2.5*
17	14:22	16.85	0.6	0.400	0.6	0.160	0.0459	1.00	0.0459	0.360	0.0165	1.6
18	*14:23*	*17.75*	*0.6*	*0.300*	*0.6*	*0.120*	*-0.0003*	*1.00*	*-0.0003*	*0.270*	*-0.0001*	*0.0*
19	*14:24*	*18.65*	*0.6*	*0.200*	*0.6*	*0.080*	*-0.0026*	*1.00*	*-0.0026*	*0.180*	*-0.0005*	*0.0*
20	*14:25*	*19.55*	*0.6*	*0.200*	*0.6*	*0.080*	*0.0049*	*1.00*	*0.0049*	*0.135*	*0.0007*	*0.1*
21	14:25	20.00	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.

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 11 MES 7/27/11

Data Collectors & Contact Information: D. Ramirez, K. Vale, M. Moss, R. Blackney	
Date & Time: 5-22-11 1500 - 1357 1557	County Name: Wharton / Fort Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site ~~10~~ 11 USGS @ San Bernard River	

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. MES 5/27/11

A. Stream Characteristics:

1. Check the following channel flow status that applies.

☐ dry ✓ no flow ✗ low ☐ normal ☐ high ☐ flooded

MES 8/18/11

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. MES 8/18/11

☐ 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. 2.125 cfs Flow observed was ~~8~~ of that water going from higher to lower area but reach was actually one large pool. (ended at ~300 m) – Not recorded in database MES 8/18/11

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 36.1 °C 0.216 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.)

R, L 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):

Pull off side of road & drive under bridge, lots of room to park

8. Dominant Primary Substrate

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

DE : LM

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: ~~10~~ 11 JB 6/16/11
Date: 5-22-11 Time: 1500-1557

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).
very deep (not wadeable in most areas), murky water, thick vegetation on banks

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

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 San Bernard River AT Site: ~~10~~ 11 JB 6/16/11
Date: 5/22/11 Time: 1500-1557

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) ☒ n/A

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).
thick bank vegetation, turbid water

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 N/A
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: unknown

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).
~~murky water~~ MM 5/22/11, see #2 above

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).
Pull off road & park under bridge, no other roads to river near 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

DE : LM

QC AM 7-13-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: ~~10~~ 11 JB 6/16/11
Date: 5/22/11 FDS Page 3 of 8 1500-1557

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.

1 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 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	>300	46	>1.8
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.

More people might recreate further downstream of original 150m, moved 150 ~ downstream

Distance	Depth (meters)
30 meters	0.8
60 meters	0.58
90 meters	~~0.58~~ >1.4
120 meters KV 5/22/11	~~>1.4~~ ~~0.84~~ 1.04
150 meters	>1.4
180 meters	1.18
210 meters	>1.8
240 meters	1.45
270 meters	1.4
300 meters	0m – stream ended (MES 8/18/11)
Average	

DE: LM

QC AM 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: to 11 JB 6/16/11
Date: 5/22/11 Time: 1500-1537

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.

MES 8/18/11

Measurement Type	Width (meters)
Typical Average Width of 300 meter reach	14.85
Width at narrowest point of the stream within 300 meter reach	8.5
Width at the widest point of the stream within 300 meter reach	46

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	

DE:LM

QC AM 6-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 10
Date: 5/22/11 Time: 1500-1531 1557
kv 5/22/11

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
- ☒ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☒ 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
- ☐ 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).

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

Comments: _____

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

- ☒ Roads
- ☐ Rope swings
- ☐ Dock/platform
- ☐ Foot paths/prints
- ☒ Other: trash
- ☐ 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: beer cans near water's edge, fish net on the bank (left right) lightbulb

QC AM. 7-12-11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: #5 11 JB 6/16/11
Date: 5/22/11 Time: 1500-1557

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: Juvenille blotched water snake

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, food wrappers, beer box

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).
At the 300m mark the river stopped flowing, and ended. The sediment was raised across the channel, and there was vegetation across the channel

DELM

Field Data Sheet - Basic RUAA Survey
Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5-22-11
Site: 10 Site
Description: US 59 @ San Bernard River
Time Begin: 1509 Time End: 1540 Meter Type: Sontek
Observers: D. Ramirez, M. Moss Stream Width*: 44.9 ft Section Width (W): 2.245 ft
Observations: 20, water ~~level~~ depth dropped approx +9 m right in front of where flow was measured

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
1.1225	0.4			0.00	
3.3675	0.3			0.02	
5.6125	0.2			0.02	
7.8575	0.8			0.04	
10.1025	~~1.0~~ 0.5			0.01	
12.3475	0.9			0.03	
14.5925	1.0			0.03	
16.8375	1.4			0.05	
19.0825	1.6			0.02	
21.3275	1.7			0.03	
23.5725	2.0			0.01	
25.8225	1.4			0.06	
28.0675	1.3			0.08	
30.3125	0.7			0.09	
32.5575	1.0			0.09	
34.8025	1.2			0.08	
37.0475	2.1			0.05	
39.2925	1.7			0.04	
41.5375	2.0			0.02	
43.7825	1.1			0.03	

start @ 3.0

end @ 47.9

* a lot of debris in front of probe, but ~~on~~ best ~~only~~ wadeable location

Q = 2.125 cfs*

* See attached Discharge Summary

site 11 JB 6/16/11

Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information

File Name	San Bernard ~~SB10~~.WAD
Start Date and Time	2011/05/22 15:02:00

Site Details

Site Name	
Operator(s)	MM

System Information

Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

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%	6.3%
Velocity	2.0%	7.5%
Width	0.1%	0.1%
Method	2.1%	-
# Stations	2.3%	-
Overall	**3.8%**	**9.8%**

Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	44.900
Mean SNR	24.5 dB	Total Area	51.468
Mean Temp	79.92 °F	Mean Depth	1.146
Disch. Equation	Mid-Section	Mean Velocity	0.0413
		Total Discharge	**2.1252**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	15:01	3.00	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*15:01*	*4.12*	*0.6*	*0.400*	*0.6*	*0.160*	*0.0003*	*1.00*	*0.0003*	*0.673*	*0.0002*	*0.0*
2	*15:03*	*6.37*	*0.6*	*0.300*	*0.6*	*0.120*	*0.0213*	*1.00*	*0.0213*	*0.673*	*0.0144*	*0.7*
3	15:04	8.61	0.6	0.200	0.6	0.080	0.0226	1.00	0.0226	0.449	0.0102	0.5
4	15:05	10.86	0.6	0.800	0.6	0.320	0.0367	1.00	0.0367	1.796	0.0660	3.1
5	15:07	13.10	0.6	0.500	0.6	0.200	0.0121	1.00	0.0121	1.123	0.0136	0.6
6	*15:08*	*15.35*	*0.6*	*0.900*	*0.6*	*0.360*	*0.0305*	*1.00*	*0.0305*	*2.020*	*0.0616*	*2.9*
7	*15:09*	*17.59*	*0.6*	*1.000*	*0.6*	*0.400*	*0.0312*	*1.00*	*0.0312*	*2.245*	*0.0700*	*3.3*
8	15:10	19.84	0.6	1.400	0.6	0.560	0.0492	1.00	0.0492	3.143	0.1547	7.3
9	15:11	22.08	0.6	1.600	0.6	0.640	0.0177	1.00	0.0177	3.592	0.0636	3.0
10	*15:13*	*24.33*	*0.6*	*1.700*	*0.6*	*0.680*	*0.0253*	*1.00*	*0.0253*	*3.817*	*0.0964*	*4.5*
11	15:14	26.57	0.6	2.000	0.6	0.800	0.0102	1.00	0.0102	4.490	0.0457	2.1
12	15:15	28.82	0.6	1.400	0.6	0.560	0.0594	1.00	0.0594	3.143	0.1866	8.8
13	15:16	31.06	0.6	1.300	0.6	0.520	0.0827	1.00	0.0827	2.918	0.2413	11.4
14	15:17	33.31	0.6	0.700	0.6	0.280	0.0948	1.00	0.0948	1.572	0.1490	7.0
15	15:18	35.55	0.6	1.000	0.6	0.400	0.0902	1.00	0.0902	2.245	0.2026	9.5
16	15:19	37.80	0.6	1.200	0.6	0.480	0.0791	1.00	0.0791	2.694	0.2130	10.0
17	15:20	40.04	0.6	2.100	0.6	0.840	0.0525	1.00	0.0525	4.715	0.2475	11.6
18	15:21	42.29	0.6	1.700	0.6	0.680	0.0407	1.00	0.0407	3.817	0.1553	7.3
19	*15:22*	*44.53*	*0.6*	*2.000*	*0.6*	*0.800*	*0.0167*	*1.00*	*0.0167*	*4.490*	*0.0751*	*3.5*
20	15:23	46.78	0.6	1.100	0.6	0.440	0.0315	1.00	0.0315	1.851	0.0583	2.7
21	15:23	47.90	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0

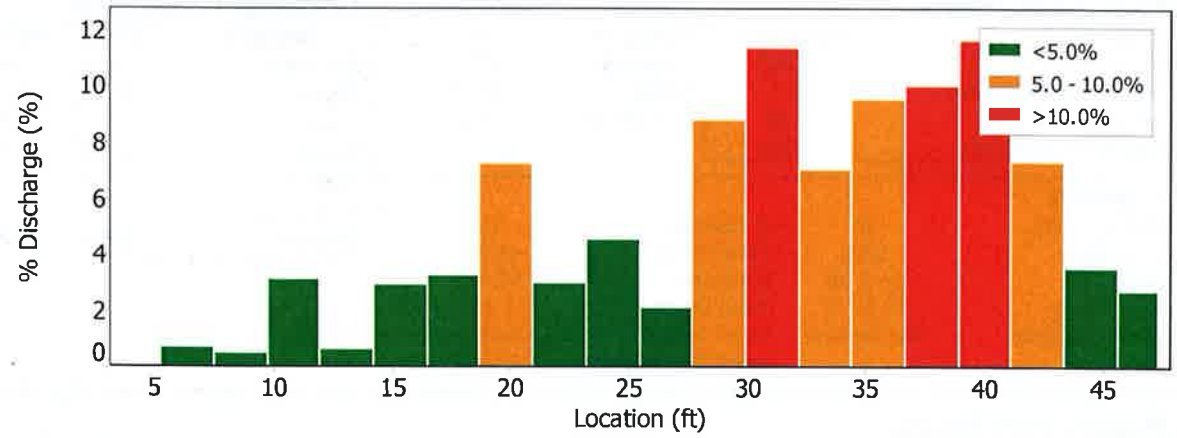
Rows in italics indicate a QC warning. See the Quality Control page of this report for more information.

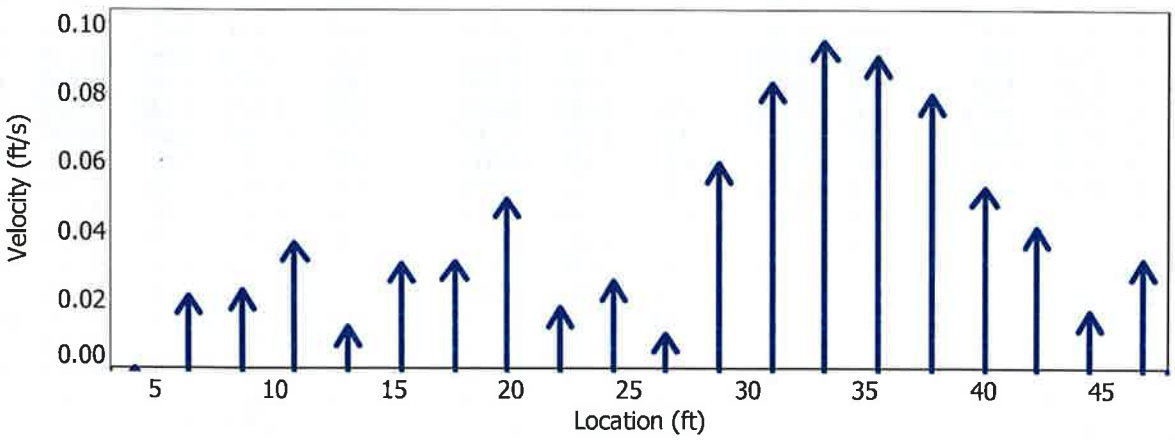
site 11 JB 6/16/11

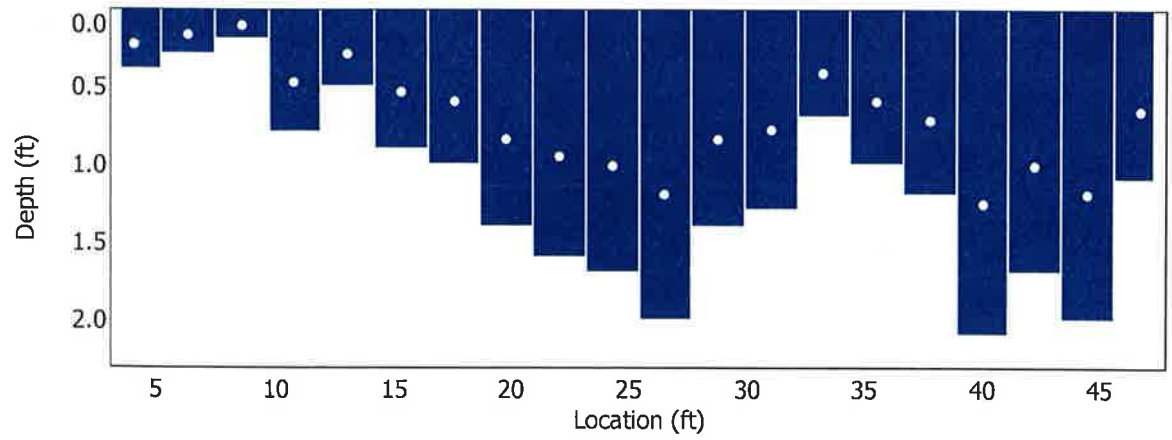
Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information		Site Details	
File Name	San Bernard ~~SB10~~.WAD	Site Name	
Start Date and Time	2011/05/22 15:02:00	Operator(s)	MM







site 11 JB 6/16/11

Discharge Measurement Summary

Date Generated: Mon May 23 2011

File Information		Site Details	
File Name	San Bernard ~~SB10~~.WAD	Site Name	
Start Date and Time	2011/05/22 15:02:00	Operator(s)	MM

Quality Control

St	Loc	%Dep	Message
1	4.12	0.6	Low SNR: 3.8,6.8
		0.6	SNR (5.3) is different from typical SNR (24.5)
		0.6	Boundary QC is Fair; possible boundary interference
2	6.37	0.6	High angle: 24
6	15.35	0.6	High angle: 39
7	17.59	0.6	High angle: 41
10	24.33	0.6	High angle: -37
		0.6	High SNR variation during measurement: 6.5,5.2
19	44.53	0.6	SNR (36.1) is different from typical SNR (24.5)

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 12

Data Collectors & Contact Information: M. Shepard, K. Paudel, C. Lawrence	
Date & Time: 5/28/11 0830 – 0900	County Name: Wharton / Ft. Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 12 – Roberts Ln @ San Bernard	

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 No flow, 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.

SECHI 0.32m

Air Temp 26.9 °C Water Temp 28.7 °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/L 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):

Easy access at boat ramp and along most of the bank

8. Dominant Primary Substrate

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

RR 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: #2 13 JB 6/16/11
Date: 5/28/11 Time: 0830 - 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	☐ 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).
Signage "Absolutely no swimming" and a picture of a swimmer with a cross through it

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
site is at a public park - accessible to anyone

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

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: _____

QC: LM 7/11/11 RM 6/13/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: TC 13 JB 6/16/11
Date: 5/28/11 Time: 0830-0900

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.
(1) ☑ Secondary touch: fishing, pets and related contact with water ☑ In a boat touching water (2)
☑ Body on shore near water within 8 meters (25ft) of water ☐ Body well away from water between 8 and 30 meters (100 ft) (2)

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).
potentially wildlife or cypress knees may deter recreation – no hinderance perceived.

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: N/A

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 above)

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).
Ample access to public

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

RW 6/13/11

QC LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: #13 SB 6/16/11
Date: 5/28/11 FDS Page 3 of 8 0830-0900

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.

3 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
1 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓

MES 6/9/11

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	

RM 6/13/11

 QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~12~~ 13 OB 6/16/11
Date: 05/28/2011 Time: 0800 – 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	
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 .
3 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
1 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ 1
2 Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓

# Measurements	Width (meters)
1	56
2	54
3	50
4	52
5	50
6	47
7	46
8	41
9	48
10	50

RM 4/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: R 13 JB 6/16/11
Date: 5/28/11 Time: 0830 – 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
- ☐ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☑ 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).

- ☐ Private Property
- ☐ No trespass sign
- ☐ Wildlife
- ☐ Steep slopes
- ☐ No public access
- ☐ No roads
- ☐ Fence
- ☐ Barge/ship traffic
- ☐ Industrial
- ☐ None of the Above
- ☑ Other: no swimming, no motorized boats signage

Comments: _____

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

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

Comments: _____

QC: LM 7/11/11

AM 6/13/11

Field Data Sheets – Basic RUAA Survey

JB 6/16/11

Stream Name: San Bernard AT Site: 13
Date: 5/28/11 Time: 0830/0900

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 (1)
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 N/A

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: food/beverage containers, plastics bits.

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).

KM 4/13/14

QC: LM 7/11/14

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard AT Date: 5/28/11

Site: #13 SB 6/16/11 Site

Description: Roberts Ln @ San Bernard

Time Begin: 0830 Time End: Meter Type:

Observers: M. Shepard Stream Width*: Section Width (W):

Observations: non-wadeable, no river crossings

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No flow taken

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

13

Site ~~12~~ MLS 5/27/11

Data Collectors & Contact Information:	M. Shepard, C. Lawrence, K. Pandel
Date & Time: 5/28/11 0950-1050	County Name: Wharton / Ft. Bend
Stream Name: ~~Tierra Grande Dr. @~~	San Bernard River AT
Segment No. or nearest downstream Segment No.:	1302
Description of Site: ~~Site 12~~	Tierra Grande Dr. @ San Bernard River Site 13

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. MLS 5/27/11

29.35829
-95.93639

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

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 30.2 °C Water Temp — °C Secchi: 0.20m

Not taken, thermometer broke

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

R/L 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):

Only a few access points along steep banks

8. Dominant Primary Substrate

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: ~~12~~ 5/27/11 13
Date: 5/26/11 Time: 0950 – 1050

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).
Water gets very deep very quickly, turbid, numerous cypress trees & snags

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
Site is at a park for the Tierra Grande Subdivision (Semi-private)

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

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: _____

RWW 7/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: ~~12~~ 5/27/11 13
Date: 5/28/11 Time: 0950 – 1050

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) ☑ Not applicable

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 banks, relatively thick vegetation on banks, numerous cypress trees and snags

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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 before)

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 before)
pg 2, #3

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

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QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: ~~+2~~ 5/27/11 13
Date: 5/28/11 FDS Page 3 of 8 0950 – 1050

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.

	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	

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QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: 13
Date: 5/28/11 Time: 0950-1050

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 .
1 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
3 Photos #s (300 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓

# Measurements	Width (meters)
1	18
2	17
3	16
4	10
5	18
6	22
7	20
8	14
9	18
10	25

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QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River AT Site: ~~12~~ 13
Date: 5/28/11 Time: 0950 – 1050

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☑ Other (specify): downed trees, cypress knees
- ☐ 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
- ☑ 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) – subdivision
- ☐ Public Property
- ☐ Other: _____
- ☐ None of the Above

Comments: _____

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

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

Comments: _____

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

- ☐ Roads
- * ☑ Rope swings
- ☐ Dock/platform
- ☑ Foot paths/prints
- ☑ Other: picnic area at park
- ☐ 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: * possibly – rope is relatively thin but tied on high in a tree

QC ILM 7/11/11 RM 6/13/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River AT Site: L25 13
Date: 5/28/11 Time: 0950 – 1050

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: 1 beer can

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).

RWM 6/13/11
QC: LM 7/11/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River AT Date: 5/28/11

Site: ~~12~~ MES 5/27/11 13 Site

Description: San Bernard River @ Tierra Grande Dr

Time Begin: 1000 Time End: Meter Type:

Observers: M. Shepard Stream Width*: Section Width (W):

Observations: Non-wadeable & no way to cross.

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

No flow taken

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site ~~13~~ 5/28 14

Data Collectors & Contact Information:	M. Shepard, C. Lawrence, K. Paudel
Date & Time: 5/28/11 1105 – 1150	County Name: Wharton / Ft. Bend
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 14 - FM 442 @ San Bernard River	

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. 15 cfs from USGS sta 08117500

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 31.8 °C Water Temp ___ °C Secchi: ~~29.5~~ 0.29m

No temp, thermometer broken

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

R/L 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):

one or two spots to get to water on steep, vegetated banks

8. Dominant Primary Substrate

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~MC~~ 14
Date: 5/28/11 Time: 1165 – 1150

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).
Lots of trash in wadeable portion, turbid water

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
can pull off bridge & under, fenced on u/L side of bridge to water

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

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: _____

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~13~~ 14
Date: 5/28/11 Time: 1105 - 1150

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) ☑ Not applicable

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).
thick vegetation on banks, some areas to shallow for boat or larger 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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 before)

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 before)

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~13~~ MES 5/28/11 14
Date: 5/28/11 FDS Page 3 of 8 1105 / 1150

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.

3 Photos #s (~~30~~ 70 meters) Upstream ✓ Downstream ✓ ~~Left Bank~~ ✓ ~~Right Bank~~ ✓ MES
1 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓ 5/28/11
2 Photos #s (~~300~~ 225 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	↑ >1.95
~~60~~ 78 meters	1.95
90 meters	1.35
120 meters	0.68
150 meters	0.5
180 meters	0.35
210 meters	>1.4
~~240~~ 225 meters	↓ cannot wade further
270 meters	
300 meters	
Average	1.24

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River AT Site: ~~13~~ NPS 5/28 14
Date: 5/28/11 Time: 1105 – 1150

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	15.8
Width at narrowest point of the stream within 300 meter reach	12.2
Width at the widest point of the stream within 300 meter reach	18.3

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	

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~13~~ 14
Date: 5/28/11 Time: 5/28 1105/1150

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): downed trees & debris
- ☐ 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
- ☑ 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).

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

Comments: _____

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

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

Comments: _____

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~13~~ MES 5/28 14
Date: 5/28/11 Time: 1105 – 1150

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:
algae on bottom not water surface

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	MES ☑ None	☑ slight presence	☐ moderate presence	☐ large presence (1)
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

at bridge only

Briefly describe the kinds of garbage observed: rusted, large metal furniture/appliances tires, beer boxes/containers, plastic

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).

RM 6/13/11

QC: LM 7/11/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/28/11

Site: ~~13~~ MEB 5/28/11 14 Site

Description: FM 442 @ San Bernard River

Time Begin: 1110 Time End: Meter Type:

Observers: M. Shepard Stream Width*: Section Width (W):

Observations: USGS gage station

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)

No flow taken used USGS 08117500 for flow measurement.

USGS 08117500 San Bernard Rv nr Boling, TX

PROVISIONAL DATA SUBJECT TO REVISION

Available data for this site | Time-series: Real-time data | GO

Funding for this site is provided by the cooperators / programs below:

US Army Corps of Engineers

Corps of Engineers, Galveston District

Advanced Hydrologic Prediction Service

Retransmission, forecasts and summary by the National Weather Service

This station managed by the Houston Field Unit.

Available Parameters	Output format	Days	
All 2 Available Parameters for this site	Graph	13 (1-120)	GO
00060 Discharge	Graph w/ stats		
00065 Gage height	Graph w/o stats		
	Table		
	Tab-separated		

Summary of all available data for this site

Date / Time	Gage height, feet	Dis-charge, ft3/s
05/27/2011 00:00 CDT	2.80	11
05/27/2011 00:15 CDT	2.80	11
05/27/2011 00:30 CDT	2.80	11
05/27/2011 00:45 CDT	2.80	11
05/27/2011 01:00 CDT	2.80	11
05/27/2011 01:15 CDT	2.80	11
05/27/2011 01:30 CDT	2.80	11
05/27/2011 01:45 CDT	2.80	11
05/27/2011 02:00 CDT	2.79	10
05/27/2011 02:15 CDT	2.80	11
05/27/2011 02:30 CDT	2.80	11
05/27/2011 02:45 CDT	2.79	10

05/27/2011 13:30 CDT	2.87	13
05/27/2011 13:45 CDT	2.88	13
05/27/2011 14:00 CDT	2.88	13
05/27/2011 14:15 CDT	2.89	14
05/27/2011 14:30 CDT	2.89	14
05/27/2011 14:45 CDT	2.89	14
05/27/2011 15:00 CDT	2.90	14
05/27/2011 15:15 CDT	2.90	14
05/27/2011 15:30 CDT	2.90	14
05/27/2011 15:45 CDT	2.90	14
05/27/2011 16:00 CDT	2.91	14
05/27/2011 16:15 CDT	2.91	14
05/27/2011 16:30 CDT	2.91	14
05/27/2011 16:45 CDT	2.92	15
05/27/2011 17:00 CDT	2.91	14
05/27/2011 17:15 CDT	2.92	15
05/27/2011 17:30 CDT	2.92	15
05/27/2011 17:45 CDT	2.92	15
05/27/2011 18:00 CDT	2.92	15
05/27/2011 18:15 CDT	2.92	15
05/27/2011 18:30 CDT	2.92	15
05/27/2011 18:45 CDT	2.92	15
05/27/2011 19:00 CDT	2.92	15
05/27/2011 19:15 CDT	2.92	15
05/27/2011 19:30 CDT	2.93	15
05/27/2011 19:45 CDT	2.93	15
05/27/2011 20:00 CDT	2.93	15
05/27/2011 20:15 CDT	2.93	15
05/27/2011 20:30 CDT	2.92	15
05/27/2011 20:45 CDT	2.93	15
05/27/2011 21:00 CDT	2.93	15
05/27/2011 21:15 CDT	2.93	15
05/27/2011 21:30 CDT	2.93	15
05/27/2011 21:45 CDT	2.93	15
05/27/2011 22:00 CDT	2.93	15
05/27/2011 22:15 CDT	2.93	15
05/27/2011 22:30 CDT	2.93	15
05/27/2011 22:45 CDT	2.93	15
05/27/2011 23:00 CDT	2.93	15
05/27/2011 23:15 CDT	2.93	15
05/27/2011 23:30 CDT	2.93	15
05/27/2011 23:45 CDT	2.93	15

05/28/2011 10:30 CDT	2.92	15
05/28/2011 10:45 CDT	2.92	15
05/28/2011 11:00 CDT	2.92	15
05/28/2011 11:15 CDT	2.92	15
05/28/2011 11:30 CDT	2.92	15
05/28/2011 11:45 CDT	2.92	15
05/28/2011 12:00 CDT	2.92	15
05/28/2011 12:15 CDT	2.92	15
05/28/2011 12:30 CDT	2.92	15
05/28/2011 12:45 CDT	2.92	15
05/28/2011 13:00 CDT	2.92	15
05/28/2011 13:15 CDT	2.92	15
05/28/2011 13:30 CDT	2.92	15
05/28/2011 13:45 CDT	2.92	15
05/28/2011 14:00 CDT	2.92	15
05/28/2011 14:15 CDT	2.92	15
05/28/2011 14:30 CDT	2.92	15
05/28/2011 14:45 CDT	2.92	15
05/28/2011 15:00 CDT	2.92	15
05/28/2011 15:15 CDT	2.92	15
05/28/2011 15:30 CDT	2.92	15
05/28/2011 15:45 CDT	2.91	14
05/28/2011 16:00 CDT	2.92	15
05/28/2011 16:15 CDT	2.91	14
05/28/2011 16:30 CDT	2.92	15
05/28/2011 16:45 CDT	2.92	15
05/28/2011 17:00 CDT	2.91	14
05/28/2011 17:15 CDT	2.91	14
05/28/2011 17:30 CDT	2.91	14
05/28/2011 17:45 CDT	2.91	14
05/28/2011 18:00 CDT	2.91	14
05/28/2011 18:15 CDT	2.91	14
05/28/2011 18:30 CDT	2.91	14
05/28/2011 18:45 CDT	2.91	14
05/28/2011 19:00 CDT	2.91	14
05/28/2011 19:15 CDT	2.91	14
05/28/2011 19:30 CDT	2.91	14
05/28/2011 19:45 CDT	2.90	14
05/28/2011 20:00 CDT	2.91	14
05/28/2011 20:15 CDT	2.91	14
05/28/2011 20:30 CDT	2.90	14
05/28/2011 20:45 CDT	2.91	14

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 15 5/28

Data Collectors & Contact Information:	Moss, Melendez, Miller, Harrington
Date & Time: 5/30/11 10:00-11:00	County Name: Brazoria
Stream Name: San Bernard River above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: San Bernard Pl. @ San Bernard River Site 15	

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 not taken at site

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 29 °C Secci: 0.74' Water Temp 27.0 °C

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

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):

Road to left bank w/ trail leading to waters edge

8. Dominant Primary Substrate

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River Site: ~~14~~ 15
Date: 5/30/11 Time: 1000 - 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).
water turbid, lots of fallen trees/logs/branches, banks overgrown

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
unimproved parking area near 150m on left bank, site located in private neighborhood

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

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: _____

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River Site: ~~14~~ MES 15
Date: 5/30/11 Time: 1000 – 1100

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) ☑ N/A

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 overgrown banks, only one moderately easy access point (@ ≈150m)

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 N/A
MES

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: ~~unknown~~ MES 11/9/11 N/A

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 above

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 along reach w/ fencing & no trespassing signs

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

RM 11/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River Site: Lyons 15
Date: 5/30/11 FDS Page 3 of 8 10/20/00

E. Stream Channel and Substantial Pools
Please check the following which best describes the river or stream: ✓ Wadeable ~~Non-wadeable~~ MES 6/9/11

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.
1 Photos #s (30 meters) Upstream X Downstream X Left Bank X Right Bank X
2 Photos #s (150 meters) Upstream X Downstream X Left Bank X Right Bank X
3 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			
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	1.2
60 meters	1.2
90 meters	0.81
120 meters	1.2
150 meters	1.2
180 meters	1.2
210 meters	0.48
240 meters	0.73
270 meters	1.2
300 meters	1.2
Average	1.04

M

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard River Site: Lynches 15
Date: 5/30/11 Time: 1002 - 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	13.8
Width at narrowest point of the stream within 300 meter reach	12.m
Width at the widest point of the stream within 300 meter reach	16.3

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	

RM 6/13/11

DC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River Site: ~~14~~ 15
Date: 5/30/11 Time: 1000 - 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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☑ 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
- ☐ 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).

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

Comments: _____

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

- ☑ Roads
- ☐ Rope swings
- ☐ Dock/platform
- ☑ Foot paths/prints
- ☑ Other: Remnant rope on tree
- ☐ 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: fishing bobbers and lines, chairs

RM 6/13/11

QC: 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard River Site: LY MCS 15
Date: 5/30/11 Time: 1000 - 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: Deer scrape on tree; foot print of small mammals; bird feather along left bank

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: cans, plastic bag, plastic bottles Remnant washing machine on left bank @ about 140m (photographed), Remnant matress frame/springs

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).
N/A

RW 6/13/11
QC: LM 7/11/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Date: 5/30/11

Site: HYNES 15 Site

Description: San Bernard Dr. @ San Bernard River

Time Begin: 1000 Time End: 1100 Meter Type:

Observers: Stream Width*: Section Width (W):

Observations: Too deep to wade ☆

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

☆ Potentially wadeable @ 1 point, but it had lots of debris blocking flow

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 16

Data Collectors & Contact Information:	M. Shepard, K. Paudel, C. Lawrence
Date & Time: 5/28/11 1220 – 1430	County Name: Brazoria
Stream Name: San Bernard River Above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: Site 16 - FM 1301 @ San Bernard River	

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. 18.129 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 32.2 °C Water Temp — °C Secchi: 0.3m

Not taken, thermometer broken

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

R/L 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):

one area to access from - bank is steep w/ loose, uneven soil

8. Dominant Primary Substrate

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

 QC: LM 7/11/11 RM 6/13/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 15
Date: 5/28/11 Time: 1220-1430

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, thick vegetation, debris & rip rap in water hinders walking

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
can pull off road and under bridge, left bank

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

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: _____

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 16
Date: 5/28/11 Time: 1220 - 1430

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) ☑ Not applicable

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).
Lots of rip rap & debris at bridge, thick vegetation on banks, steep banks, a lot of tree 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 N/A

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: N/A

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 before)

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 before)

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name Sam Bernard AT Site: 16
Date: 5/28/11 FDS Page 3 of 8 1220 – 1430

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.
3 Photos #s (30 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
1 Photos #s (150 meters) Upstream ✓ Downstream ✓ Left Bank ✓ Right Bank ✓
2 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	1.35
60 meters	0.89
90 meters	0.96
120 meters	1.0
150 meters	1.2
180 meters	1.35
210 meters	1.45
240 meters	1.40
270 meters	0.8
300 meters	0.96
Average	1.14

rope swing

John boat

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 15
Date: 5/28/11 Time: 1220-1430

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	15
Width at narrowest point of the stream within 300 meter reach	10
Width at the widest point of the stream within 300 meter reach	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	

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name: San Bernard AT Site: 16
Date: 5/28/11 Time: 1220 – 1430

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Fences
- ☐ Log jams
- ☑ Rip rap
- ☐ Water control structure
- ☐ Barbed wire
- ☐ Dams
- ☐ Thick vegetation
- ☐ Low bridges
- ☐ None
- ☐ Utility pipe
- ☑ Other (specify): downed trees, debris

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: _____
- ☐ 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 (right bank)
- ☐ 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: abandoned johnboat
- ☐ 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: _____

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QC: 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 16
Date: 5/28/11 Time: 1220-1430

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 N/A

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, large metal pieces, food/beverage containers

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).

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QC: LM 7/11/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River Above Tidal Date: 5/28/11

Site: 16 Site

Description: FM 1301 @ San Bernard River

Time Begin: 1230 Time End: 1420 Meter Type: SonTek FlowTracker

Observers: M. Shepard, K. Paudel Stream Width*: 32.5 ft Section Width (W): ~~1.625~~ 1.63 ft

Observations:

	Section Midpoint (ft)(m)	Section Depth (ft)(m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V) At Point (ft/s)(m/s)	Velocity (V) Average (ft/s)(m/s)	Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
9.31	0.81	0.60			0.03	
10.94	2.44	1.40			0.03	
12.57	4.07	1.60			0.06	
14.20	5.70	1.90			0.09	
15.83	7.33	2.20			0.12	
17.46	8.96	2.20			0.14 *	
19.09	10.59	3.00	(.2) 6.0 (.8) 1.5	0.24 0.18		
20.72	12.22	3.20	(.8) 1.6 (0.2) 6.4	0.19 0.21 *		
22.35	13.85	3.80	(0.2) 7.6 (0.8) 1.9	0.23 0.27		
23.98	15.48	4.30	(0.8) 2.15 (0.2) 8.6	0.21 * 0.28		
25.61	17.11	4.45	(0.2) 8.9 (0.8) 2.225	0.30 0.24		
27.24	18.74	4.35	(0.8) 2.135 (0.2) 8.7	0.16 * 0.3		
28.87	20.37	3.95	(0.2) 7.9 (0.8) 1.98	0.26 0.25		
30.50	22.00	3.55	(0.8) 1.775 (0.2) 6.3	0.38 0.30		
32.13	23.63	2.85	(0.2) 5.7 (0.8) 1.425	0.36 0.34		
33.76	25.26	2.50	(0.8) 1.25 (0.2) 5.0	0.25 0.37		
35.39	26.89	2.00			0.22	
37.02	28.52	1.60			0.20	
38.65	30.15	~~1.10~~ 1.25			0.00	
40.28	31.78	0.5			0.02	

* high velocity angle - reset rod & probe, reran measurement - still high - accepted value

Field total Q: 18.129 cfs

Discharge Measurement Summary

Date Generated: Sat May 28 2011

File Information

File Name	SB16.WAD
Start Date and Time	2011/05/28 12:39:27

Site Details

Site Name	
Operator(s)	MS

System Information

Sensor Type	FlowTracker
Serial #	P1880
CPU Firmware Version	3.7
Software Ver	2.30
Mounting Correction	0.0%

Units (English Units)

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

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.1%	1.2%
Velocity	0.9%	4.1%
Width	0.1%	0.1%
Method	1.1%	-
# Stations	2.3%	-
Overall	**2.9%**	**4.4%**

Summary

Averaging Int.	20	# Stations	22
Start Edge	LEW	Total Width	32.500
Mean SNR	24.2 dB	Total Area	82.980
Mean Temp	83.22 °F	Mean Depth	2.553
Disch. Equation	Mid-Section	Mean Velocity	0.2184
		Total Discharge	**18.1254**

Measurement Results

St	Clock	Loc	Method	Depth	%Dep	MeasD	Vel	CorrFact	MeanV	Area	Flow	%Q
0	12:39	8.50	None	0.000	0.0	0.0	0.0000	1.00	0.0000	0.000	0.0000	0.0
1	*12:40*	*9.31*	*0.6*	*0.600*	*0.6*	*0.240*	*0.0262*	*1.00*	*0.0262*	*0.732*	*0.0192*	*0.1*
2	*12:44*	*10.94*	*0.6*	*1.400*	*0.6*	*0.560*	*0.0292*	*1.00*	*0.0292*	*2.282*	*0.0666*	*0.4*
3	12:46	12.57	0.6	1.600	0.6	0.640	0.0597	1.00	0.0597	2.608	0.1557	0.9
4	12:48	14.20	0.6	1.900	0.6	0.760	0.0899	1.00	0.0899	3.097	0.2784	1.5
5	12:50	15.83	0.6	2.200	0.6	0.880	0.1230	1.00	0.1230	3.586	0.4412	2.4
6	*12:52*	*17.46*	*0.6*	*2.200*	*0.6*	*0.880*	*0.1404*	*1.00*	*0.1404*	*3.586*	*0.5036*	*2.8*
7	13:05	19.09	0.2/0.8	3.000	0.2	2.400	0.2726	1.00	0.2264	4.890	1.1069	6.1
7	13:08	19.09	0.2/0.8	3.000	0.8	0.600	0.1801					
8	*13:16*	*20.72*	*0.8/0.2*	*3.200*	*0.2*	*2.560*	*0.2123*	*1.00*	*0.2001*	*5.216*	*1.0439*	*5.8*
8	*13:12*	*20.72*	*0.8/0.2*	*3.200*	*0.8*	*0.640*	*0.1880*					
9	13:19	22.35	0.2/0.8	3.800	0.2	3.040	0.2251	1.00	0.2480	6.193	1.5362	8.5
9	13:21	22.35	0.2/0.8	3.800	0.8	0.760	0.2710					
10	*13:37*	*23.98*	*0.8/0.2*	*4.300*	*0.2*	*3.440*	*0.2772*	*1.00*	*0.2411*	*7.008*	*1.6900*	*9.3*
10	*13:33*	*23.98*	*0.8/0.2*	*4.300*	*0.8*	*0.860*	*0.2051*					
11	13:41	25.61	0.2/0.8	4.450	0.2	3.560	0.2959	1.00	0.2672	7.253	1.9383	10.7
11	13:43	25.61	0.2/0.8	4.450	0.8	0.890	0.2385					
12	*13:48*	*27.24*	*0.8/0.2*	*4.350*	*0.2*	*3.480*	*0.3018*	*1.00*	*0.2292*	*7.090*	*1.6249*	*9.0*
12	*13:46*	*27.24*	*0.8/0.2*	*4.350*	*0.8*	*0.870*	*0.1565*					
13	*13:50*	*28.87*	*0.2/0.8*	*3.950*	*0.2*	*3.160*	*0.2575*	*1.00*	*0.2546*	*6.438*	*1.6392*	*9.0*
13	*13:52*	*28.87*	*0.2/0.8*	*3.950*	*0.8*	*0.790*	*0.2516*					
14	13:55	30.50	0.8/0.2	3.550	0.2	2.840	0.2969	1.00	0.3386	5.786	1.9590	10.8
14	13:54	30.50	0.8/0.2	3.550	0.8	0.710	0.3802					
15	13:59	32.13	0.2/0.8	2.850	0.2	2.280	0.3560	1.00	0.3469	4.645	1.6117	8.9
15	14:00	32.13	0.2/0.8	2.850	0.8	0.570	0.3379					
16	14:02	33.76	0.8/0.2	2.500	0.2	2.000	0.3717	1.00	0.3091	4.075	1.2593	6.9
16	14:02	33.76	0.8/0.2	2.500	0.8	0.500	0.2464					
17	14:05	35.39	0.6	2.000	0.6	0.800	0.2169	1.00	0.2169	3.260	0.7069	3.9
18	14:07	37.02	0.6	1.600	0.6	0.640	0.2037	1.00	0.2037	2.608	0.5314	2.9
19	*14:09*	*38.65*	*0.6*	*1.250*	*0.6*	*0.500*	*0.0003*	*1.00*	*0.0003*	*2.037*	*0.0007*	*0.0*
20	14:12	40.28	0.6	0.500	0.6	0.200	0.0210	1.00	0.0210	0.588	0.0123	0.1
21	14:12	41.00	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.

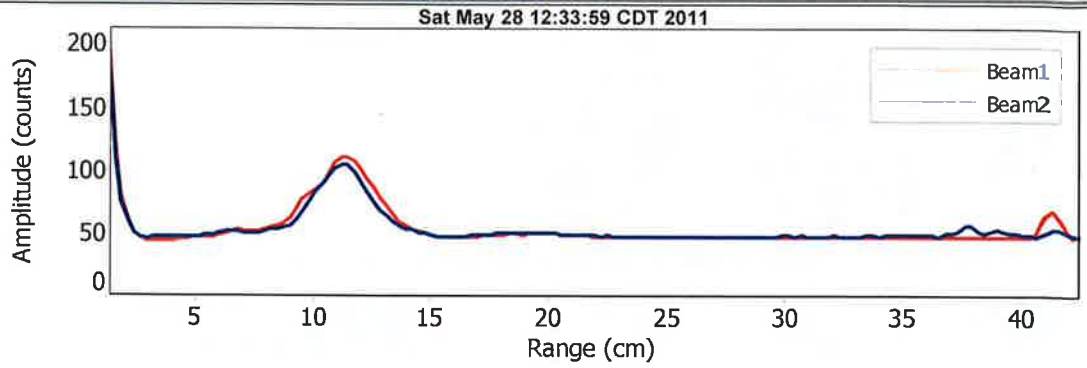
Discharge Measurement Summary

Date Generated: Sat May 28 2011

File Information	
File Name	SB16.WAD
Start Date and Time	2011/05/28 12:39:27

Site Details	
Site Name	
Operator(s)	MS

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)

Site ~~16~~ 17

Data Collectors & Contact Information: Moss, Melendez, Miller, Harrington	
Date & Time: 5/30/11 1200-1220	County Name: Brazoria
Stream Name: San Bernard River above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: ~~16~~ 17 : FM 1469 @ San Bernard River	

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:

MM 5/30/11 ☑ 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 Not taken @ site

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 31.5 °C Water Temp 28.5 °C

Secchi 0.83 m

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 bank

8. Dominant Primary Substrate

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~16~~ 17
Date: 5/30/11 Time: 1200 - 1220

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).
water turbid, steep banks w/ thick vegetation

3. Describe if there is public access (e.g. parks, roads, etc.) (Attach photos, maps, etc. for documentation).
road w/ access to culvert leading to waters edge

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

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: _____

RM 6/13/11
QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: X6 HES 17
Date: 5/30/11 Time: 1200 - 1220

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) ☑ N/A

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 banks w/ thick vegetation

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 N/A
RM 6/13/11

4. If infrequently, what is the reason? ☐ physical characteristics of the water body ☐ limited public access ☐ other
If other, list reasons: unknown N/A
RM 6/13/11

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 above

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 limited access

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

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QC: CM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~16~~ 17
Date: 5/30/11 FDS Page 3 of 8 1200-1220

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.

	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	

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QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~16~~ 17
Date: 5/30/11 Time: 1200 - 1220

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	21 m
2	22 m
3	26 m
4	
5	
6	
7	
8	
9	
10	

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QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: ~~16~~ MKS 17
Date: 5/30/11 Time: 1200-1220

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
- ☑ None
- ☐ Other: _____

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

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

- ☐ Culverts
- ☐ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☐ 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
- ☐ 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).

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

Comments: _____

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

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

Comments: _____

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QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: Home 17
Date: 5/30/11 Time: 1200-1220

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 Unknown
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 N/A

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: TV, Bike frame, tires, bottles

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).
N/A

RM 6/13/11
QC: LM 7/11/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River above Tidal Date: 5/30/11

Site: ~~HCMS~~ 17 Site

Description: FM 1469 @ San Bernard River

Time Begin: 1200 Time End: 1220 Meter Type:

Observers: Melendez Stream Width*: Section Width (W):

Observations: Too deep to Wade

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

Field Data Sheets – Basic RUAA Survey

(should be completed for each site)

Site 18

Data Collectors & Contact Information:	Moss, Melendez, Miller, Harrington
Date & Time: 5/30/11 1230-1315	County Name: Brazoria
Stream Name: San Bernard River above Tidal	
Segment No. or nearest downstream Segment No.: 1302	
Description of Site: 18 : Linnett Rd @ San Bernard River	

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 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 28.0 °C Water Temp 29 °C

Secchi 0.33

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): little trail goes down to water edge of left bank

8. Dominant Primary Substrate

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

RM 6/13/11

QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 18
Date: 5/30/11 Time: 1230-1315

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, high vegetation

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

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

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 LM

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 2 ppl
LM ☒ No secondary contact recreation activities were observed
☐ Other secondary contact activities: _____

QC: LM 7/11/11 RM 6/13/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 18
Date: 5/30/11 Time: 1230-1315

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).
~~Difficult to access down bank~~ RM 6/13/11
N/A

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 Unknown
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: unknown

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).
Steep Bank

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 bank and steep to get to water

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

QC: LM 7/11/11 RM 6/13/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 18
Date: 5/30/11 FDS Page 3 of 8 1230-1315

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.
3 Photos #s (30 meters) Upstream 8 Downstream 8 Left Bank 8 Right Bank 8
2 Photos #s (150 meters) Upstream 8 Downstream 8 Left Bank 8 Right Bank 8
1 Photos #s (300 meters) Upstream 6 Downstream 8 Left Bank 8 Right Bank 8

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	

QC: LM 7/11/11 RM 6/13/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 18
Date: 5/30/11 Time: 1230 - 1315

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	31m 35.7
Width at narrowest point of the stream within 300 meter reach	38m 40m 31
Width at the widest point of the stream within 300 meter reach	40

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	37	
2	38	40
3	32	120
4	31	150
5	37	210
6	35	180
7	36	210
8	38	240
9	40	270
10	38	300

RM 6/13/11
QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard Site: 18
Date: 5/30/11 Time: 1230-1315

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
- ☐ None
- ☒ Other: ~~Kayaking~~ 6/17/11

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

Comments: _____

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

- ☐ Culverts
- ☒ Barbed wire
- ☐ Utility pipe
- ☐ Fences
- ☐ Dams
- ☐ Other (specify): _____
- ☒ 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
- ☒ 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).

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

Comments: _____

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

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

Comments: _____

RM 6/13/11
QC: LM 7/11/11

Field Data Sheets – Basic RUAA Survey

Stream Name San Bernard AT Site: 18

Date: 5/30/11 Time: 1230-1315

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: Cup, bag of trash

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).

Saw / interviewed Kayakers

RM 6/13/11
QC: LM 7/11/11

Field Data Sheet - Basic RUAA Survey

Stream Flow (Discharge) Measurement

Stream: San Bernard River above Tidal Date:

Site: 18 ~~Site~~

Description: Linnett Rd @ San Bernard River

Time Begin: Time End: Meter Type:

Observers: Stream Width*: Section Width (W):

Observations:

Section Midpoint (ft) (m)	Section Depth (ft) (m) (cm) (D)	Observational Depth** (ft)(m)	Velocity (V)		Flow (Q) (m^3/s) (ft^3/s) Q = (W)(D)(V)
			At Point (ft/s)(m/s)	Average (ft/s)(m/s)	

Too deep to Masure