

Missouri  
Department of  
Natural Resources

Use Attainability Analysis

for

WBID 3237 Hudson Creek

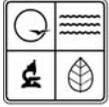
Submitted by

Pickett Ray and Silver

to

Missouri Department of Natural Resources  
Water Protection Program

Date received: October 31, 2007



Missouri Department of Natural Resources  
**Field Data Sheets for Recreation Use Stream Surveys**  
**Data Sheet A - Water Body Identification**

**I. Water Body Information** (For water body being surveyed)

Water Body Name (from USGS 7.5' quad): Hudson Creek	
Missouri Water Body Identification (WBID) Number: 3237	
8 digit HUC code: 11070207	County: Barry
Upstream Legal Description (from Table H): T25N R28W 11	
Downstream Legal Description (from Table H): T25N R28W 17	
Number of sites evaluated: 3	
List all site numbers, listed consequentially upstream to downstream: 1,2,3	

**Site Locations Map(s):** Attach a map of the entire segment with assessment sites clearly labeled. Mark any other items that may be of interest.

**II. Facility Information** (list all permitted discharges to the water body segment)

Facility Name(s) and Permit Number(s): Dairy Farmers of America MO 0128241
--

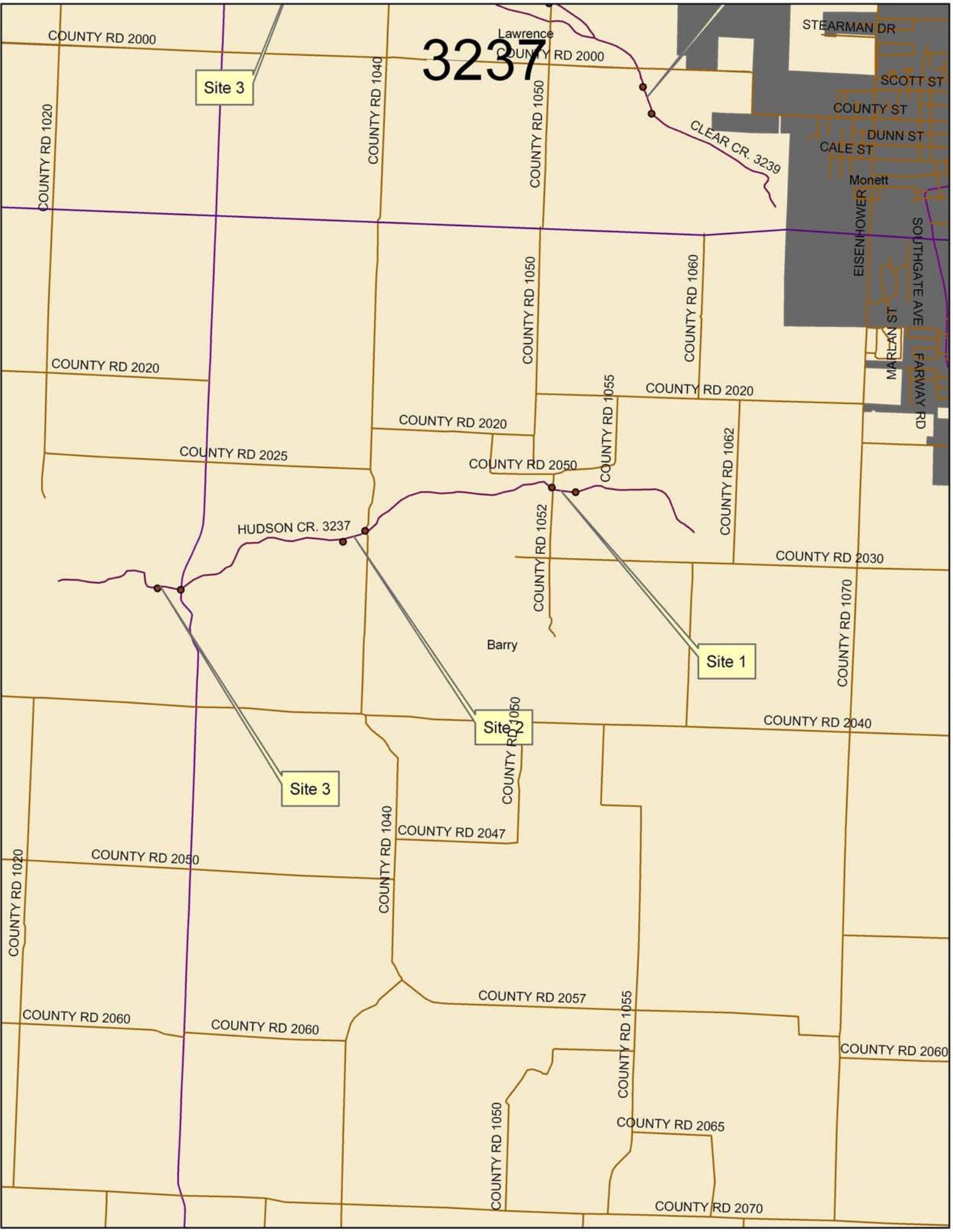
**III. UAA Surveyor** (please print legibly)

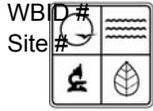
Name of Surveyor: Aaron Ball	Telephone Number: (913)307-0046
Organization/Employer: SES, Inc.	

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Signed: Aaron Ball Date: 10/23/2007

3237





Missouri  
Department of  
Natural Resources

**Field Data Sheets For Recreational Use Stream Surveys**

**Data Sheet B-Site Characterization**

Date & Time:	10/9/07	12:35	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball, Drew Dodson		Un-named road access
Current Weather Conditions:	clear	Facility Name:	Dairy Farmers of America
Weather conditions for the past 10 days:	0.98 inches	Permit Number:	MO 0128241
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

**Site Location:**

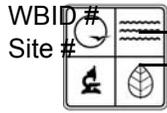
Location Coordinates (Universal Transverse Mercator Projection, In Meters)			
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0413437	4083352	5.1
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0413671	4083306	5.1

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
22	Downstream	23	Upstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed:**

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				



Missouri  
 Department of  
 Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:

Comments:

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other: Road crosses stream

Substrate:

% Cobble 60	% Gravel	% Sand	% Silt	% Mud/Clay 40	% Bedrock
----------------	----------	--------	--------	------------------	-----------

Aquatic Vegetation:

N/A

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:



Missouri 3237  
 Department of  
 Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

**Data Sheet B - Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

none

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Surveyor's Signature: Aaron Ball Date of Survey: 10/9/2007

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

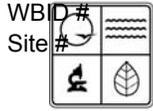
Missouri Department of Natural Resources Waterbody ID: <u>3337</u> Site #: <u>1</u> Estimated Channel Incision: <u>3.0</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>0413437</u> UTM Y: <u>4083352</u> +/- <u>5.1</u> (meters) <b>11</b> UTM X: <u>0413671</u> UTM Y: <u>4083306</u> +/- <u>5.1</u> (meters)  Average Stream Width: <u>N/A</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width)  Field Staff: <u>Aaron Ball, Drew Dodson</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/9/07</u> Time: <u>12:37</u>  Dissolved Oxygen: <u>N/A</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>N/A</u> (°C)
--	--

#### Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11		
		Distance (m)	Depth (m)																					
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
2	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
3	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
4	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
5	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
6	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
7	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
8	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
9	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00	#####	0.00
<b>Right Bank</b>	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00	N/A	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A		N/A	

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/9/07



Missouri  
Department of  
Natural Resources

**Field Data Sheets For Recreational Use Stream Surveys**

**Data Sheet B-Site Characterization**

Date & Time:	10/9/07	11:58	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball, Drew Dodson		CR 1040
Current Weather Conditions:	clear	Facility Name:	Dairy Farmers of America
Weather conditions for the past 10 days:	0.98 inches	Permit Number:	MO 0128241
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

**Site Location:**

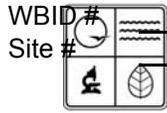
Location Coordinates (Universal Transverse Mercator Projection, In Meters)			
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0411594	4082924	4.5
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0411375	4082817	6.0

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
20	Upstream	21	Downstream		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed:**

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				



Missouri  
 Department of  
 Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:

Comments:

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock watering

comments/other: none

Substrate:

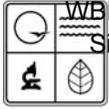
% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
50	50				

Aquatic Vegetation:

2% algae on the bottom

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	Algae <input type="checkbox"/> Other:



Missouri 3237  
 Department of  
 Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

**Data Sheet B - Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)
pool	40	3	9	0.6	0.8

**Comments:** (Please record any additional comments here.)

none

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Surveyor's Signature: Aaron Ball Date of Survey: 10/9/2007

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

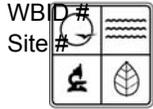
Missouri Department of Natural Resources Waterbody ID: <u>2337</u> Site #: <u>2</u> Estimated Channel Incision: <u>2.0</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>0411594</u> UTM Y: <u>4082924</u> +/- <u>4.5</u> (meters) <b>11</b> UTM X: <u>0411375</u> UTM Y: <u>4082817</u> +/- <u>6</u> (meters)  Average Stream Width: <u>3</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width)  Field Staff: <u>Aaron Ball, Drew Dodson</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/9/07</u> Time: <u>11:58</u>  Dissolved Oxygen: <u>12.5</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>19</u> (°C)
--	--

#### Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	0.6	0.20	0.2	0.10	0.6	0.25	0.5	0.30	0.6	0.05	0.2	0.20	0.3	0.15	0.3	0.10	0.2	0.10	0.4	0.40	0.5	0.10	
2	1.2	0.20	0.4	0.15	1.2	0.30	1.0	0.50	1.2	0.10	0.4	0.20	0.6	0.20	0.6	0.10	0.4	0.10	0.8	0.50	1.0	0.10	
3	1.8	0.30	0.6	0.10	1.8	0.20	1.5	0.75	1.8	0.05	0.6	0.25	0.9	0.30	0.9	0.15	0.6	0.05	1.2	0.40	1.5	0.10	
4	2.4	0.35	0.8	0.20	2.4	0.25	2.0	0.80	2.4	0.20	0.8	0.30	1.2	0.40	1.2	0.15	0.8	0.10	1.6	0.35	2.0	0.10	
5	3.0	0.35	1.0	0.20	3.0	0.25	2.5	0.85	3.0	0.20	1.0	0.35	1.5	0.50	1.5	0.25	1	0.10	2.0	0.30	2.5	0.15	
6	3.6	0.35	1.2	0.20	3.6	0.20	3.0	0.90	3.6	0.20	1.2	0.40	1.8	0.50	1.8	0.30	1.2	0.05	2.4	0.25	3.0	0.20	
7	4.2	0.30	1.4	0.20	4.2	0.30	3.5	0.75	4.2	0.20	1.4	0.30	2.1	0.50	2.1	0.35	1.4	0.10	2.8	0.20	3.5	0.15	
8	4.8	0.35	1.6	0.20	4.8	0.25	4.0	0.65	4.8	0.10	1.6	0.30	2.4	0.35	2.4	0.35	1.6	0.05	3.2	0.20	4.0	0.10	
9	5.4	0.25	1.8	0.10	5.4	0.20	4.5	0.50	5.4	0.10	1.8	0.20	2.7	0.30	2.7	0.25	1.8	0.05	3.6	0.15	4.5	0.10	
<b>Right Bank</b>	6.0	0.00	2.0	0.00	6.0	0.00	5.0	0.00	6.0	0.00	2.0	0.00	3.0	0.00	3.0	0.00	2	0.00	4.0	0.00	5.0	0.00	
<b>Feature Type</b> (riffle, run, or pool)	pool		pool		pool		pool		pool		pool		pool		pool		pool		pool		pool		

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/9/07



Missouri  
 Department of  
 Natural Resources

**Field Data Sheets For Recreational Use Stream Surveys**

**Data Sheet B-Site Characterization**

Date & Time:	10/9/07	11:20	Site Location Description (e.g. road crossing):
Personnel:	Aaron Ball and Drew Dodson		Hwy 97
Current Weather Conditions:	clear	Facility Name:	Dairy Farmers of America
Weather conditions for the past 10 days:	0.98 inches	Permit Number:	MO 0128241
Drought conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>			

**Site Location:**

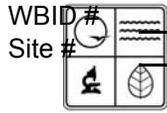
Location Coordinates (Universal Transverse Mercator Projection, In Meters)			
Site 01	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0409774	4082343	9.6
Site 11	Easting (UTM X):	Northing (UTM Y):	Horizontal Accuracy: Meters
	0409543	4082357	8.4

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
17	Upstream	18	Livestock	19	Downstream
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed:**

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water Skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe:				



Missouri  
 Department of  
 Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B- Site Characterization (Continued)

Surrounding Conditions:

<input type="checkbox"/> City/County parks	<input type="checkbox"/> playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National Forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkways
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep Slopes	<input type="checkbox"/> Other:

Comments:  
 none

Evidence of Human Use:

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot path/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV/ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input checked="" type="checkbox"/> Livestock watering

comments/other:

Substrate:

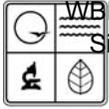
% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
50	45				5

Aquatic Vegetation:

none

Water Characteristics:

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:



Missouri 3237  
 Department of  
 Natural Resources

Field Data Sheets for Recreational Use Stream Surveys

**Data Sheet B - Site Characterization (continued)**

**Additional Stream Morphology:** (Record isolated pools or other features identified during the survey that may support recreational uses)

Channel Feature	Distance from access location (m)	Width (m)	Length (m)	Median Depth (m)	Max Depth (m)

**Comments:** (Please record any additional comments here.)

none

**Please verify that you have completed all sections, checked all applicable boxes, and that the form is complete.**

Surveyor's Signature: Aaron Ball Date of Survey: 10/9/2007

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Missouri Department of Natural Resources Waterbody ID: <u>3337</u> Site #: <u>3</u> Estimated Channel Incision: <u>1.0</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) <b>01</b> UTM X: <u>0409774</u> UTM Y: <u>4082343</u> +/- <u>9.6</u> (meters) <b>11</b> UTM X: <u>0409543</u> UTM Y: <u>4082357</u> +/- <u>8.4</u> (meters)  Average Stream Width: <u>4</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width)  Field Staff: <u>Aaron Ball, Drew Dodson</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/9/07</u> Time: <u>11:20</u>  Dissolved Oxygen: <u>9.8</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>18.4</u> (°C)
--	---

#### Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.2	0.05	0.4	0.05	0.4	0.10	0.3	0.10	0.4	0.20	0.4	0.20	0.7	0.25	0.7	0.10	0.6	0.15	0.3	0.10	0.8	0.40
2	0.4	0.05	0.8	0.10	0.8	0.10	0.6	0.15	0.8	0.40	0.8	0.15	1.4	0.00	1.4	0.05	1.2	0.25	0.6	0.10	1.6	0.55
3	0.6	0.15	1.2	0.10	1.2	0.20	0.9	0.20	1.2	0.50	1.2	0.10	2.1	0.05	2.1	0.10	1.8	0.20	0.9	0.10	2.4	0.70
4	0.8	0.10	1.6	0.10	1.6	0.15	1.2	0.20	1.6	0.45	1.6	0.20	2.8	0.15	2.8	0.05	2.4	0.20	1.2	0.10	3.2	0.70
5	1.0	0.10	2.0	0.25	2.0	0.10	1.5	0.20	2.0	0.40	2.0	0.15	3.5	0.20	3.5	0.10	3	0.10	1.5	0.10	4.0	0.70
6	1.2	0.10	2.4	0.40	2.4	0.05	1.8	0.15	2.4	0.25	2.4	0.10	4.2	0.20	4.2	0.05	3.6	0.10	1.8	0.10	4.8	0.75
7	1.4	0.10	2.8	0.40	2.8	0.10	2.1	0.10	2.8	0.20	2.8	0.05	4.9	0.20	4.9	0.05	4.2	0.05	2.1	0.15	5.6	0.70
8	1.6	0.05	3.2	0.60	3.2	0.10	2.4	0.25	3.2	0.30	3.2	0.10	5.6	0.20	5.6	0.10	4.8	0.10	2.4	0.15	6.4	0.55
9	1.8	0.05	3.6	0.45	3.6	0.10	2.7	0.25	3.6	0.30	3.6	0.05	6.3	0.20	6.3	0.10	5.4	0.10	2.7	0.15	7.2	0.40
<b>Right Bank</b>	2.0	0.00	4.0	0.00	4.0	0.00	3.0	0.00	4.0	0.00	4.0	0.00	7.0	0.00	7.0	0.00	6	0.00	3.0	0.00	8.0	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	riffle		riffle		pool		riffle		pool		riffle		pool									

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.01 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Signed: Aaron Ball Date: 10/9/07

**WBID# 3237**



**Site# 1 Photo ID# 22, Downstream**



**Site# 1 Photo ID# 23, Upstream**



**Site# 2 Photo ID# 20, Upstream**



**Site# 2 Photo ID# 21, Downstream**

**WBID# 3237**



**Site# 3 Photo ID# 17, Upstream**



**Site# 3 Photo ID# 18, Livestock**



**Site# 3 Photo ID# 19, Downstream**