



Missouri  
Department of  
Natural Resources

## Use Attainability Analysis

for

WBID 3656 North Fork Charrette Creek

Submitted by  
SES, Inc.

To  
Missouri Department of Natural Resources  
Water Protection Program

On

November 4, 2008

## Field Data Sheets for Recreational 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): North Fork Charrette Creek
Missouri Water Body Identification (WBID) Number: 3656
8-digit HUC: 10300200
County(ies), Listed Upstream to Downstream: Warren
Upstream Legal Description (from Table H): T46N, R2W, Sec. 3
Downstream Legal Description (from Table H): T46N, R2W, Sec. 23
Number of sites evaluated: 4
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 4, 3
<b>Include a Site Location Map(s).</b> The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).

#### II. Facility Information (list all permitted discharges to this water body segment)

Facility Name(s) and Permit Number(s): Gateway Refrig Warehouses MO0116459
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#### III. UAA Surveyor (please PRINT legibly)

Name of Surveyor: David Bender	Telephone Number: 913-307-0046
Organization/Employer: SES, Inc.	

**Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.**

**Signed: David Bender Date: 9-23-08**



WBID # 3656

Site # 1

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

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 9/23/2008      10:00	Location Description (e.g., road crossing):
<b>Stream Name:</b> N. Fk. Charrette Cr.	Pipeline through Reifsnider State Forest
Current Weather Conditions: clear	Facility Name(s): Gateway Refrig Warehouses
Weather Conditions for Past 10 days: 8.67 cm	Permit Number(s): MO0129721
Official Drought Conditions at time of this survey (search DNR home page for “drought”): 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): 0662880	Northing (UTM Y): 4294074	Horizontal Accuracy: (EPE / FOM / PDOP)	9 Meters
Site 11	Easting (UTM X): 0662916	Northing (UTM Y): 4293838	Horizontal Accuracy: (EPE / FOM / PDOP)	6 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
120	downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
121	Hunting blind				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
122	upstream				

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Site # 1

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

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input checked="" 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 checked="" type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<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:				

**Evidence of Human Use\*:** (Attach photos and reference in “Photos” section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input type="checkbox"/> None of the above	Comments / Other: Hunting blind			

**Substrate\*:** (These values should add up to 100%.)

80% Cobble	% Gravel	% Sand	% Silt	% Mud/Clay	20% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None
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**Water Characteristics\*:** (Mark all that apply.)

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 checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input 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:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 1

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

**Data Sheet B – Site Characterization** (Page 3 of 3)

**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.)

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

Printed Names of Personnel Collecting Data: David Bender, Chris Schuler

Surveyor's Signature: David Bender Date of Survey: 9/23/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>N. Fk. Charrette Cr.</u> Waterbody ID: <u>3656</u> Site #: <u>1</u>  Estimated Channel Incision: <u>1</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>0662880</u> UTM Y: <u>4294074</u> +/- <u>9</u> (meters) <b>11</b> UTM X: <u>0662916</u> UTM Y: <u>4293838</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>David Bender, Chris Schuler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/23/2008</u> Time: <u>10:00</u>  Dissolved Oxygen: <u>5.0</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>16.8</u> (°C)
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#### 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	
	1	0.10	0.00	0.30	0.00	0.10	0.01	0.20	0.05	0.05	0.01	0.05	0.01	0.30	0.00	0.10	0.05	0.20	0.05	0.20	0.01	0.05	0.01
	2	0.20	0.00	0.60	0.00	0.20	0.05	0.40	0.15	0.10	0.01	0.10	0.05	0.60	0.00	0.20	0.20	0.40	0.05	0.40	0.05	0.10	0.05
	3	0.30	0.00	0.90	0.00	0.30	0.05	0.60	0.20	0.15	0.01	0.15	0.05	0.90	0.00	0.30	0.20	0.60	0.20	0.60	0.05	0.15	0.05
	4	0.40	0.00	1.20	0.00	0.40	0.01	0.80	0.15	0.20	0.01	0.20	0.05	1.20	0.00	0.40	0.15	0.80	0.20	0.80	0.05	0.20	0.05
	5	0.50	0.00	1.50	0.00	0.50	0.05	1.00	0.20	0.25	0.05	0.25	0.01	1.50	0.00	0.50	0.15	1.00	0.05	1.00	0.00	0.25	0.05
	6	0.60	0.00	1.80	0.00	0.60	0.05	1.20	0.20	0.30	0.01	0.30	0.01	1.80	0.00	0.60	0.15	1.20	0.10	1.20	0.01	0.30	0.05
	7	0.70	0.00	2.10	0.00	0.70	0.01	1.40	0.15	0.35	0.01	0.35	0.01	2.10	0.00	0.70	0.25	1.40	0.05	1.40	0.05	0.35	0.10
	8	0.80	0.00	2.40	0.00	0.80	0.01	1.60	0.15	0.40	0.00	0.40	0.01	2.40	0.00	0.80	0.20	1.60	0.01	1.60	0.05	0.40	0.10
	9	0.90	0.00	2.70	0.00	0.90	0.01	1.80	0.05	0.45	0.01	0.45	0.01	2.70	0.00	0.90	0.10	1.80	0.15	1.80	0.01	0.45	0.10
<b>Right Bank</b>		1.00	0.00	3.00	0.00	1.00	0.00	2.00	0.00	0.50	0.00	0.50	0.00	3.00	0.00	1.00	0.00	2.00	0.00	2.00	0.00	0.50	0.00
<b>Feature Type</b>		rifle		pool		pool		pool		rifle		rifle		pool		pool		pool		run		run	

**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 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: David Bender      Date: 9/23/2008





WBID # 3656

Site # 2

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

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 9/23/2008                      11:20	Location Description (e.g., road crossing):
<b>Stream Name:</b> N. Fk. Charrette Cr.	Charrette Creek Road
Current Weather Conditions: clear	Facility Name(s): Gateway Refrig Warehouses
Weather Conditions for Past 10 days: 8.67 cm	Permit Number(s): MO0129721
Official Drought Conditions at time of this survey (search DNR home page for “drought”): 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): 0664140	Northing (UTM Y): 4292286	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters
Site 11	Easting (UTM X): 0664215	Northing (UTM Y): 4292123	Horizontal Accuracy: (EPE / FOM / PDOP)	3 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
123	upstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
124	Road crossing				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
125	downstream				

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<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/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input type="checkbox"/> None of the above	Comments / Other:			

**Substrate\*:** (These values should add up to 100%.)

60% Cobble	40% Gravel	% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None

**Water Characteristics\*:** (Mark all that apply.)

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 checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input 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:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

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

**Data Sheet B – Site Characterization** (Page 3 of 3)

**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.)

No flow; only small pools.  
 D.O. not working.

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

Printed Names of Personnel Collecting Data: David Bender, Chris Schuler

Surveyor's Signature: David Bender Date of Survey: 9/23/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>N. Fk. Charrette Cr.</u> Waterbody ID: <u>3656</u> Site #: <u>2</u>  Estimated Channel Incision: <u>2</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>0664140</u> UTM Y: <u>4292286</u> +/- <u>5</u> (meters) <b>11</b> UTM X: <u>0664215</u> UTM Y: <u>4292123</u> +/- <u>3</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>David Bender, Chris Schuler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/23/2008</u> Time: <u>11:20</u>  Dissolved Oxygen: <u>NA</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>18.9</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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	
	1	0.60	0.00	0.60	0.00	0.20	0.00	0.40	0.00	0.40	0.00	0.80	0.00	0.20	0.01	0.20	0.00	0.20	0.00	0.40	0.20	0.60	0.05
	2	1.20	0.00	1.20	0.00	0.40	0.00	0.80	0.00	0.80	0.00	1.60	0.00	0.40	0.01	0.40	0.00	0.40	0.00	0.80	0.25	1.20	0.20
	3	1.80	0.00	1.80	0.00	0.60	0.00	1.20	0.00	1.20	0.00	2.40	0.00	0.60	0.15	0.60	0.00	0.60	0.00	1.20	0.40	1.80	0.20
	4	2.40	0.00	2.40	0.00	0.80	0.00	1.60	0.00	1.60	0.00	3.20	0.00	0.80	0.15	0.80	0.00	0.80	0.00	1.60	0.35	2.40	0.20
	5	3.00	0.00	3.00	0.00	1.00	0.00	2.00	0.00	2.00	0.00	4.00	0.00	1.00	0.15	1.00	0.00	1.00	0.00	2.00	0.40	3.00	0.10
	6	3.60	0.00	3.60	0.00	1.20	0.00	2.40	0.00	2.40	0.00	4.80	0.00	1.20	0.05	1.20	0.00	1.20	0.00	2.40	0.30	3.60	0.15
	7	4.20	0.00	4.20	0.00	1.40	0.00	2.80	0.00	2.80	0.00	5.60	0.00	1.40	0.01	1.40	0.00	1.40	0.00	2.80	0.25	4.20	0.25
	8	4.80	0.00	4.80	0.00	1.60	0.00	3.20	0.00	3.20	0.00	6.40	0.00	1.60	0.01	1.60	0.00	1.60	0.00	3.20	0.15	4.80	0.15
	9	5.40	0.00	5.40	0.00	1.80	0.00	3.60	0.00	3.60	0.00	7.20	0.00	1.80	0.01	1.80	0.00	1.80	0.00	3.60	0.05	5.40	0.10
<b>Right Bank</b>		6.00	0.00	6.00	0.00	2.00	0.00	4.00	0.00	4.00	0.00	8.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	4.00	0.00	6.00	0.00
<b>Feature Type</b>		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

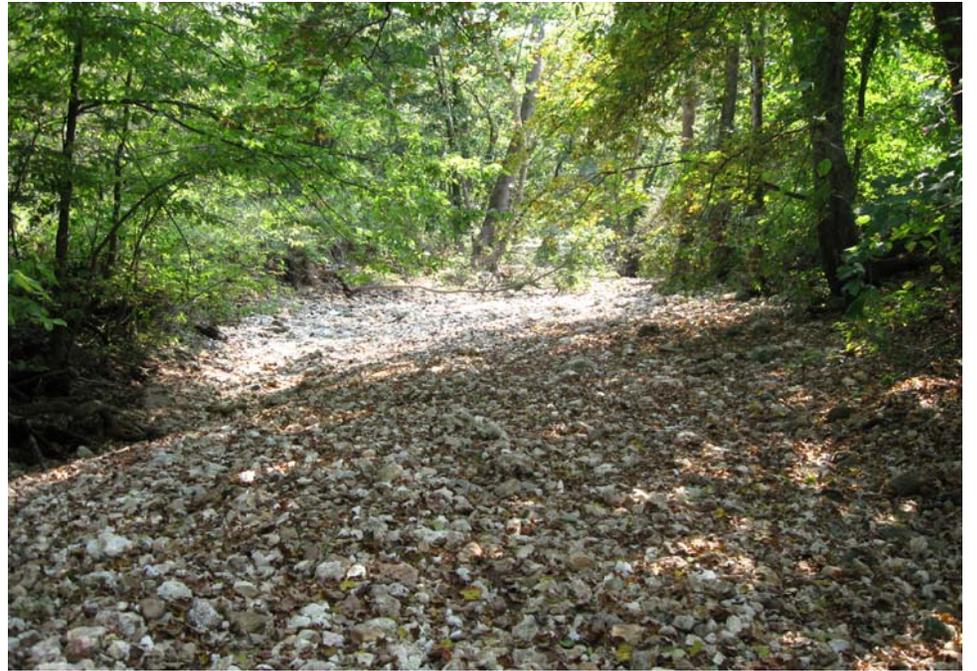
GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

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 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: David Bender      Date: 9/23/2008



WBID # 3656

Site # 3

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

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 9/23/2008                      12:50	Location Description (e.g., road crossing):
<b>Stream Name:</b> N. Fk. Charrette Cr.	Charrette Creek Road
Current Weather Conditions: clear	Facility Name(s): Gateway Refrig Warehouses
Weather Conditions for Past 10 days: 8.67 cm	Permit Number(s): MO0129721
Official Drought Conditions at time of this survey (search DNR home page for “drought”): 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): 0665007	Northing (UTM Y): 4290193	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters
Site 11	Easting (UTM X): 0665083	Northing (UTM Y): 4289991	Horizontal Accuracy: (EPE / FOM / PDOP)	4 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
128	upstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
129	downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<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/walkway
<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\*:** (Attach photos and reference in “Photos” section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input type="checkbox"/> None of the above	Comments / Other:			

**Substrate\*:** (These values should add up to 100%.)

10% Cobble	80% Gravel	10% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

Algae on 10% of substrate.
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**Water Characteristics\*:** (Mark all that apply.)

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 checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input 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:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 3

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

**Data Sheet B – Site Characterization** (Page 3 of 3)

**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.)

D.O. not working

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

Printed Names of Personnel Collecting Data: David Bender, Chris Schuler

Surveyor's Signature: David Bender Date of Survey: 9/23/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>N. Fk. Charrette Cr.</u> Waterbody ID: <u>3656</u> Site #: <u>3</u>  Estimated Channel Incision: <u>2</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>0665007</u> UTM Y: <u>4290193</u> +/- <u>5</u> (meters) <b>11</b> UTM X: <u>0665083</u> UTM Y: <u>4289991</u> +/- <u>4</u> (meters)  Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>David Bender, Chris Schuler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/23/2008</u> Time: <u>12:50</u>  Dissolved Oxygen: <u>NA</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>NA</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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
	<b>1</b>	0.50	0.10	0.60	0.05	0.50	0.15	0.60	0.05	0.60	0.10	0.30	0.01	0.60	0.01	0.50	0.05	0.60	0.10	0.60	0.05	0.70	0.05
	<b>2</b>	1.00	0.90	1.20	0.25	1.00	0.35	1.20	0.20	1.20	0.10	0.60	0.01	1.20	0.05	1.00	0.10	1.20	0.20	1.20	0.10	1.40	0.10
	<b>3</b>	1.50	1.00	1.80	0.45	1.50	0.75	1.80	0.30	1.80	0.10	0.90	0.01	1.80	0.05	1.50	0.15	1.80	0.25	1.80	0.30	2.10	0.15
	<b>4</b>	2.00	1.00	2.40	0.55	2.00	0.90	2.40	0.30	2.40	0.05	1.20	0.05	2.40	0.10	2.00	0.15	2.40	0.30	2.40	0.35	2.80	0.20
	<b>5</b>	2.50	1.00	3.00	0.55	2.50	1.00	3.00	0.35	3.00	0.05	1.50	0.10	3.00	0.05	2.50	0.20	3.00	0.35	3.00	0.50	3.50	0.25
	<b>6</b>	3.00	1.00	3.60	0.45	3.00	1.00	3.60	0.40	3.60	0.05	1.80	0.05	3.60	0.10	3.00	0.20	3.60	0.40	3.60	0.65	4.20	0.25
	<b>7</b>	3.50	0.80	4.20	0.50	3.50	1.00	4.20	0.30	4.20	0.10	2.10	0.10	4.20	0.15	3.50	0.20	4.20	0.50	4.20	0.80	4.90	0.30
	<b>8</b>	4.00	0.45	4.80	0.45	4.00	0.90	4.80	0.30	4.80	0.15	2.40	0.10	4.80	0.10	4.00	0.15	4.80	0.45	4.80	0.70	5.60	0.10
	<b>9</b>	4.50	0.15	5.40	0.15	4.50	0.50	5.40	0.10	5.40	0.05	2.70	0.10	5.40	0.05	4.50	0.05	5.40	0.25	5.40	0.40	6.30	0.05
<b>Right Bank</b>		5.00	0.00	6.00	0.00	5.00	0.00	6.00	0.00	6.00	0.00	3.00	0.00	6.00	0.00	5.00	0.00	6.00	0.00	6.00	0.00	7.00	0.00
<b>Feature Type</b>		pool		pool		pool		pool		run		riffle		run		run		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 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: David Bender      Date: 9/23/2008



WBID # 3656

Site # 4

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

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

<b>Date &amp; Time:</b> 9/23/2008 12:30	Location Description (e.g., road crossing):
<b>Stream Name:</b> N. Fk. Charrette Cr.	Charrette Creek Road
Current Weather Conditions: clear	Facility Name(s): Gateway Refrig Warehouses
Weather Conditions for Past 10 days: 8.67 cm	Permit Number(s): MO0129721
Official Drought Conditions at time of this survey (search DNR home page for “drought”): 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): 0665668	Northing (UTM Y): 4288996	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters
Site 11	Easting (UTM X): 0665792	Northing (UTM Y): 4288813	Horizontal Accuracy: (EPE / FOM / PDOP)	5 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
126	upstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
127	downstream				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<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: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

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

**Data Sheet B – Site Characterization** (Page 2 of 3)

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<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/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> No trespass sign	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in “Photos” section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/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
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

**Substrate\*:** (These values should add up to 100%.)

10% Cobble	50% Gravel	40% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

None

**Water Characteristics\*:** (Mark all that apply.)

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 checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input 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:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Site # 4

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

**Data Sheet B – Site Characterization** (Page 3 of 3)

**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.)

D.O. not working

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

Printed Names of Personnel Collecting Data: David Bender, Chris Schuler

Surveyor's Signature: David Bender Date of Survey: 9/23/2008

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>N. Fk. Charrette Cr.</u> Waterbody ID: <u>3656</u> Site #: <u>4</u> Estimated Channel Incision: <u>2</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>0665668</u> UTM Y: <u>4288996</u> +/- <u>5</u> (meters) <b>11</b> UTM X: <u>0665792</u> UTM Y: <u>4288813</u> +/- <u>5</u> (meters) Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width) Field Staff: <u>David Bender, Chris Schuler</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/23/2008</u> Time: <u>12:30</u> Dissolved Oxygen: <u>NA</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>NA</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		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	
	1	0.60	0.20	0.50	0.60	0.30	0.05	0.10	0.05	0.50	0.05	0.20	0.01	0.50	0.05	0.60	0.15	0.60	0.35	0.70	0.05	0.70	0.05
	2	1.20	0.45	1.00	0.55	0.60	0.15	0.20	0.10	1.00	0.15	0.40	0.05	1.00	0.15	1.20	0.40	1.20	0.50	1.40	0.10	1.40	0.10
	3	1.80	0.50	1.50	0.45	0.90	0.25	0.30	0.20	1.50	0.10	0.60	0.10	1.50	0.30	1.80	0.35	1.80	0.55	2.10	0.15	2.10	0.15
	4	2.40	0.55	2.00	0.30	1.20	0.25	0.40	0.25	2.00	0.05	0.80	0.15	2.00	0.40	2.40	0.35	2.40	0.65	2.80	0.35	2.80	0.15
	5	3.00	0.55	2.50	0.25	1.50	0.20	0.50	0.30	2.50	0.05	1.00	0.25	2.50	0.45	3.00	0.45	3.00	0.80	3.50	0.40	3.50	0.15
	6	3.60	0.70	3.00	0.20	1.80	0.20	0.60	0.30	3.00	0.15	1.20	0.25	3.00	0.55	3.60	0.60	3.60	0.85	4.20	0.55	4.20	0.15
	7	4.20	0.60	3.50	0.10	2.10	0.15	0.70	0.30	3.50	0.10	1.40	0.20	3.50	0.60	4.20	0.50	4.20	0.40	4.90	0.50	4.90	0.10
	8	4.80	0.45	4.00	0.05	2.40	0.10	0.80	0.15	4.00	0.15	1.60	0.15	4.00	0.75	4.80	0.45	4.80	0.60	5.60	0.35	5.60	0.15
	9	5.40	0.20	4.50	0.05	2.70	0.05	0.90	0.05	4.50	0.15	1.80	0.05	4.50	0.25	5.40	0.20	5.40	0.30	6.30	0.25	6.30	0.05
<b>Right Bank</b>		6.00	0.00	5.00	0.00	3.00	0.00	1.00	0.00	5.00	0.00	2.00	0.00	5.00	0.00	6.00	0.00	6.00	0.00	7.00	0.00	7.00	0.00
<b>Feature Type</b>		pool		run		run		riffle		pool		run		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 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: David Bender      Date: 9/23/2008

