



Use Attainability Analysis

for

WBID 0520 Rattlesnake Creek

Submitted by  
SES, Inc.

To  
Missouri Department of Natural Resources  
Water Protection Program

On

October 14, 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): Rattlesnake Creek
Missouri Water Body Identification (WBID) Number: 520
8-digit HUC: 10280101
County(ies), Listed Upstream to Downstream: Livingston
Upstream Legal Description (from Table H): T56N R25W Sec 3
Downstream Legal Description (from Table H): T56N R25W Sec 12
Number of sites evaluated: 3
List all site numbers, <u>consecutively upstream to downstream</u> : 1, 2, 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): Southwest Livingston R-1 MO 0081345
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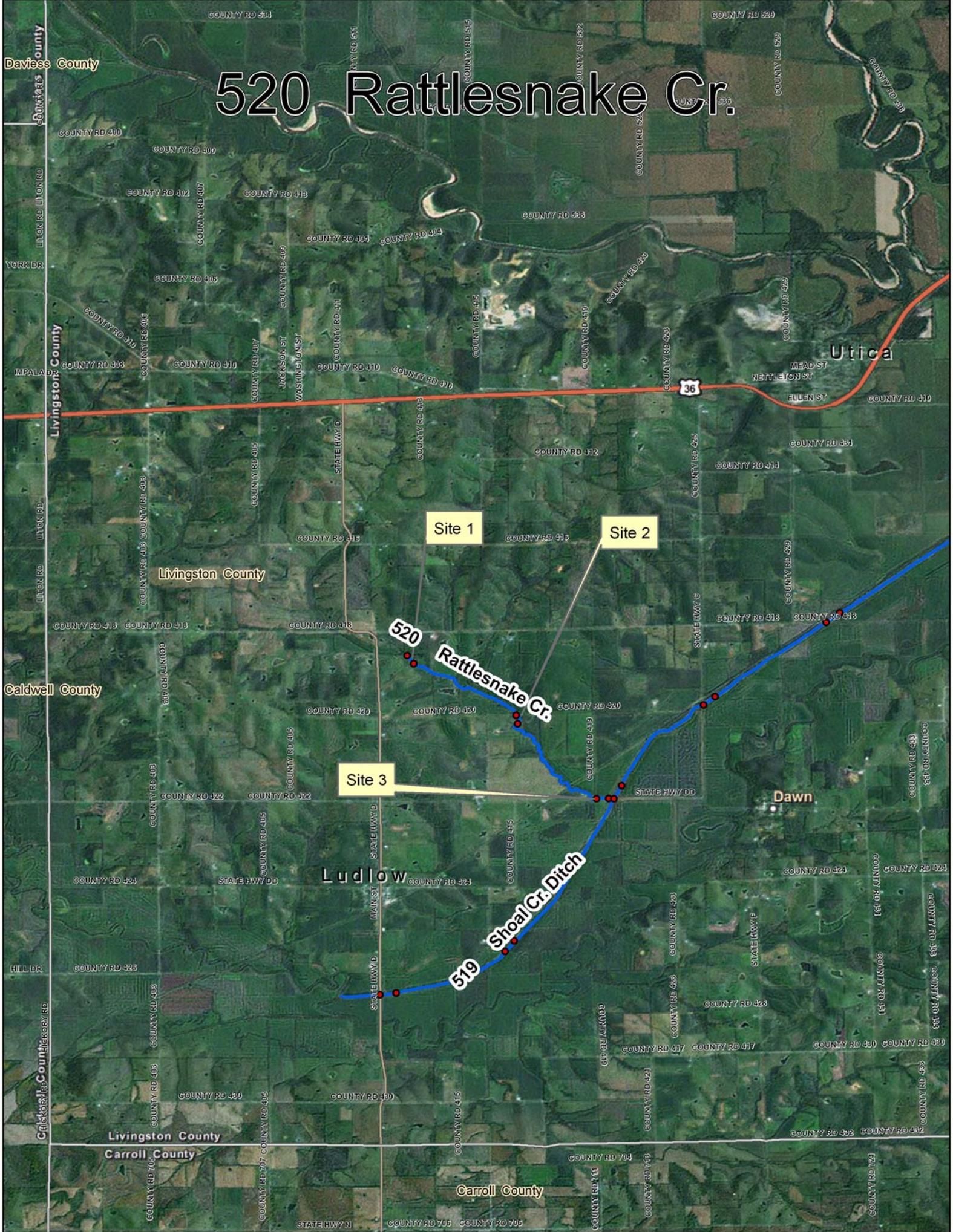
#### III. UAA Surveyor (please **PRINT** legibly)

Name of Surveyor: Gilisa Gould	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:** Gilisa Gould **Date:** 10/08/08

# 520 Rattlesnake Cr.



Site 1

Site 2

Site 3

520 Rattlesnake Cr.

519 Shoal Cr. Ditch

36

Utica

Dawn

Ludlow

Daviess County

Livingston County

Caldwell County

Livingston County

Carroll County

Carroll County

WBID # 520

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> 10/1/08      12:45	Location Description (e.g., road crossing): East of Hwy D
<b>Stream Name:</b> Rattlesnake Cr.	
Current Weather Conditions: Clear	Facility Name(s): Southwest Livingston R-1
Weather Conditions for Past 10 days: 0.62 in	Permit Number(s): MO 0081345
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): 0440175	Northing (UTM Y): 4394072	Horizontal Accuracy: (EPE / FOM / PDOP)    6 Meters
Site 11	Easting (UTM X): 0440272	Northing (UTM Y): 4393915	Horizontal Accuracy: (EPE / FOM / PDOP)    6 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
30	Downstream	31	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\*:** (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 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 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 checked="" type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	% Gravel	100% Sand	% Silt	% Mud/Clay	% 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 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:

\*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: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 10/1/08

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Rattlesnake Cr.</u> Waterbody ID: <u>520</u> Site #: <u>1</u> Estimated Channel Incision: <u>4</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>0440175</u> UTM Y: <u>4394072</u> +/- <u>6</u> (meters) <b>11</b> UTM X: <u>0440272</u> UTM Y: <u>4393915</u> +/- <u>6</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>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/1/2008</u> Time: <u>12:45</u> Dissolved Oxygen: <u>9.8</u> (mg/L) Dissolved Oxygen: _____ (% sat) Specific Cond: _____ (µS/cm) Water Temperature: <u>15.6</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
	1	0.40	0.05	0.30	0.05	0.40	0.01	0.20	0.05	0.20	0.01	0.30	0.05	0.30	0.05	0.30	0.05	0.40	0.05	0.30	0.05	0.20	0.01
	2	0.80	0.05	0.60	0.10	0.80	0.05	0.40	0.10	0.40	0.05	0.60	0.05	0.60	0.05	0.60	0.05	0.80	0.05	0.60	0.15	0.40	0.05
	3	1.20	0.05	0.90	0.05	1.20	0.01	0.60	0.05	0.60	0.05	0.90	0.10	0.90	0.05	0.90	0.01	1.20	0.05	0.90	0.05	0.60	0.05
	4	1.60	0.05	1.20	0.05	1.60	0.05	0.80	0.01	0.80	0.05	1.20	0.05	1.20	0.05	1.20	0.05	1.60	0.05	1.20	0.05	0.80	0.05
	5	2.00	0.01	1.50	0.05	2.00	0.05	1.00	0.01	1.00	0.05	1.50	0.05	1.50	0.05	1.50	0.10	2.00	0.05	1.50	0.05	1.00	0.05
	6	2.40	0.01	1.80	0.05	2.40	0.05	1.20	0.05	1.20	0.05	1.80	0.05	1.80	0.05	1.80	0.10	2.40	0.01	1.80	0.05	1.20	0.05
	7	2.80	0.05	2.10	0.01	2.80	0.05	1.40	0.05	1.40	0.10	2.10	0.05	2.10	0.05	2.10	0.05	2.80	0.01	2.10	0.05	1.40	0.05
	8	3.20	0.05	2.40	0.01	3.20	0.05	1.60	0.01	1.60	0.10	2.40	0.01	2.40	0.05	2.40	0.05	3.20	0.05	2.40	0.05	1.60	0.05
	9	3.60	0.05	2.70	0.01	3.60	0.05	1.80	0.01	1.80	0.10	2.70	0.01	2.70	0.05	2.70	0.10	3.60	0.05	2.70	0.01	1.80	0.05
<b>Right Bank</b>		4.00	0.00	3.00	0.00	4.00	0.00	2.00	0.00	2.00	0.00	3.00	0.00	3.00	0.00	3.00	0.00	4.00	0.00	3.00	0.00	2.00	0.00
<b>Feature Type</b>		run		run		run		run		run		run		run		run		run		run		riffle	

**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: Gilisa Gould      Date: 10.08.08



WBID # 520

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> 10/1/08 13:15	Location Description (e.g., road crossing): CR 420
<b>Stream Name:</b> Rattlesnake Cr.	
Current Weather Conditions: Clear	Facility Name(s): Southwest Livingston R-1
Weather Conditions for Past 10 days: 0.62 in	Permit Number(s): MO 0081345
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): 0441751	Northing (UTM Y): 4392931	Horizontal Accuracy: (EPE / FOM / PDOP) 2 Meters
Site 11	Easting (UTM X): 0441770	Northing (UTM Y): 4392781	Horizontal Accuracy: (EPE / FOM / PDOP) 3 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
32	Downstream	33	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\*:** (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 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 checked="" type="checkbox"/> None of the above	Comments / Other:			

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

5% Cobble	% Gravel	95% Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

Algae on 1% of substrate

**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 checked="" 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 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 # 2

**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: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 10/1/08

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Rattlesnake Cr.</u> Waterbody ID: <u>520</u> Site #: <u>2</u>  Estimated Channel Incision: <u>4</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>0441751</u> UTM Y: <u>4392931</u> +/- <u>2</u> (meters) <b>11</b> UTM X: <u>0441770</u> UTM Y: <u>4392781</u> +/- <u>3</u> (meters)  Average Stream Width: <u>5</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Bryan Deimeke and Gilisa Gould</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>10/1/2008</u> Time: <u>13:15</u>  Dissolved Oxygen: <u>10.4</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>15.7</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	0
1	0.40	0.10	0.40	0.15	0.40	0.10	0.40	0.05	0.60	0.10	0.60	0.30	0.50	0.20	0.60	0.15	0.20	0.05	0.10	0.01	0.50	0.05
2	0.80	0.25	0.80	0.25	0.80	0.20	0.80	0.10	1.20	0.15	1.20	0.55	1.00	0.40	1.20	0.45	0.40	0.10	0.20	0.05	1.00	0.05
3	1.20	0.30	1.20	0.35	1.20	0.20	1.20	0.10	1.80	0.25	1.80	0.75	1.50	0.55	1.80	0.50	0.60	0.10	0.30	0.15	1.50	0.01
4	1.60	0.25	1.60	0.40	1.60	0.25	1.60	0.15	2.40	0.25	2.40	1.00	2.00	0.50	2.40	0.45	0.80	0.10	0.40	0.20	2.00	0.00
5	2.00	0.15	2.00	0.50	2.00	0.30	2.00	0.20	3.00	0.25	3.00	0.80	2.50	0.45	3.00	0.40	1.00	0.10	0.50	0.20	2.50	0.00
6	2.40	0.10	2.40	0.45	2.40	0.30	2.40	0.25	3.60	0.20	3.60	0.55	3.00	0.45	3.60	0.40	1.20	0.10	0.60	0.20	3.00	0.00
7	2.80	0.10	2.80	0.35	2.80	0.30	2.80	0.25	4.20	0.20	4.20	0.35	3.50	0.45	4.20	0.35	1.40	0.05	0.70	0.15	3.50	0.05
8	3.20	0.20	3.20	0.20	3.20	0.20	3.20	0.15	4.80	0.15	4.80	0.20	4.00	0.45	4.80	0.35	1.60	0.01	0.80	0.10	4.00	0.10
9	3.60	0.20	3.60	0.10	3.60	0.15	3.60	0.05	5.40	0.05	5.40	0.05	4.50	0.35	5.40	0.20	1.80	0.01	0.90	0.05	4.50	0.05
<b>Right Bank</b>	4.00	0.00	4.00	0.00	4.00	0.00	4.00	0.00	6.00	0.00	6.00	0.00	5.00	0.00	6.00	0.00	2.00	0.00	1.00	0.00	5.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	pool		run		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: Gilisa Gould      Date: 10.08.08



WBID # 520

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> 10/1/08      13:50	Location Description (e.g., road crossing): Hwy DD
<b>Stream Name:</b> Rattlesnake Cr.	
Current Weather Conditions: Clear	Facility Name(s): Southwest Livingston R-1
Weather Conditions for Past 10 days: 0.62 in	Permit Number(s): MO 0081345
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): 0442906	Northing (UTM Y): 4391353	Horizontal Accuracy: (EPE / FOM / PDOP)      4 Meters
Site 11	Easting (UTM X): 0443086	Northing (UTM Y): 4391357	Horizontal Accuracy: (EPE / FOM / PDOP)      6 Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
34	Downstream	35	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\*:** (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 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 checked="" type="checkbox"/> None of the above	Comments / Other:			

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

% Cobble	% Gravel	50% Sand	50% 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 checked="" 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 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.)

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

Printed Names of Personnel Collecting Data: Bryan Deimeke and Gilisa Gould

Surveyor's Signature: Gilisa Gould Date of Survey: 10/1/08

Organization: SES, Inc. Position: Field Team Leader

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>Rattlesnake Cr.</u> Waterbody ID: <u>520</u> Site #: <u>3</u>  Estimated Channel Incision: <u>4</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>0442906</u> UTM Y: <u>4391353</u> +/- <u>4</u> (meters) <b>11</b> UTM X: <u>0443086</u> UTM Y: <u>4391357</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>Bryan Deimeke and Gilisa Gould</u>	<b>Dissolved Oxygen</b>  Date: <u>10/1/2008</u> Time: <u>13:50</u>  Dissolved Oxygen: <u>12.4</u> (mg/L)  Dissolved Oxygen: _____ (% sat)  Specific Cond: _____ (µS/cm)  Water Temperature: <u>15.6</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	0
1	0.20	0.01	0.40	0.20	0.20	0.05	0.20	0.05	0.10	0.01	0.20	0.15	0.40	0.15	0.10	0.05	0.20	0.05	0.20	0.01	0.20	0.05
2	0.40	0.05	0.80	0.10	0.40	0.05	0.40	0.05	0.20	0.05	0.40	0.10	0.80	0.30	0.20	0.05	0.40	0.05	0.40	0.01	0.40	0.05
3	0.60	0.05	1.20	0.10	0.60	0.10	0.60	0.05	0.30	0.05	0.60	0.10	1.20	0.45	0.30	0.05	0.60	0.05	0.60	0.05	0.60	0.05
4	0.80	0.10	1.60	0.05	0.80	0.10	0.80	0.05	0.40	0.10	0.80	0.05	1.60	0.50	0.40	0.05	0.80	0.05	0.80	0.05	0.80	0.05
5	1.00	0.10	2.00	0.01	1.00	0.10	1.00	0.10	0.50	0.15	1.00	0.05	2.00	0.55	0.50	0.05	1.00	0.05	1.00	0.05	1.00	0.05
6	1.20	0.10	2.40	0.10	1.20	0.15	1.20	0.10	0.60	0.10	1.20	0.05	2.40	0.45	0.60	0.05	1.20	0.10	1.20	0.05	1.20	0.05
7	1.40	0.05	2.80	0.30	1.40	0.10	1.40	0.05	0.70	0.05	1.40	0.05	2.80	0.30	0.70	0.05	1.40	0.10	1.40	0.10	1.40	0.05
8	1.60	0.05	3.20	0.05	1.60	0.05	1.60	0.05	0.80	0.05	1.60	0.01	3.20	0.10	0.80	0.05	1.60	0.05	1.60	0.05	1.60	0.05
9	1.80	0.05	3.60	0.01	1.80	0.01	1.80	0.01	0.90	0.05	1.80	0.01	3.60	0.10	0.90	0.05	1.80	0.05	1.80	0.05	1.80	0.05
<b>Right Bank</b>	2.00	0.00	4.00	0.00	2.00	0.00	2.00	0.00	1.00	0.00	2.00	0.00	4.00	0.00	1.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	run	pool	run	run	run	run	run	run	run	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: Gilisa Gould      Date: 10.08.08

