



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 3746 South Dry Sac River

Submitted by
Olsson Associates

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): S. Dry Sac R.
Missouri Water Body Identification (WBID) Number: 3746
8-digit HUC: 10290106
County(ies), Listed Upstream to Downstream: Greene
Upstream Legal Description (from Table H): 3,29N,20W
Downstream Legal Description (from Table H): 5, 29N, 20W
Number of sites evaluated: 3
List all site numbers, <u>consecutively upstream to downstream</u> : 1. 2. 3
Include a Site Location Map(s). 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).

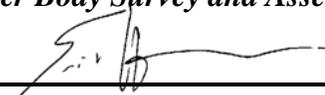
II. Facility Information (list all permitted discharges to this water body segment)

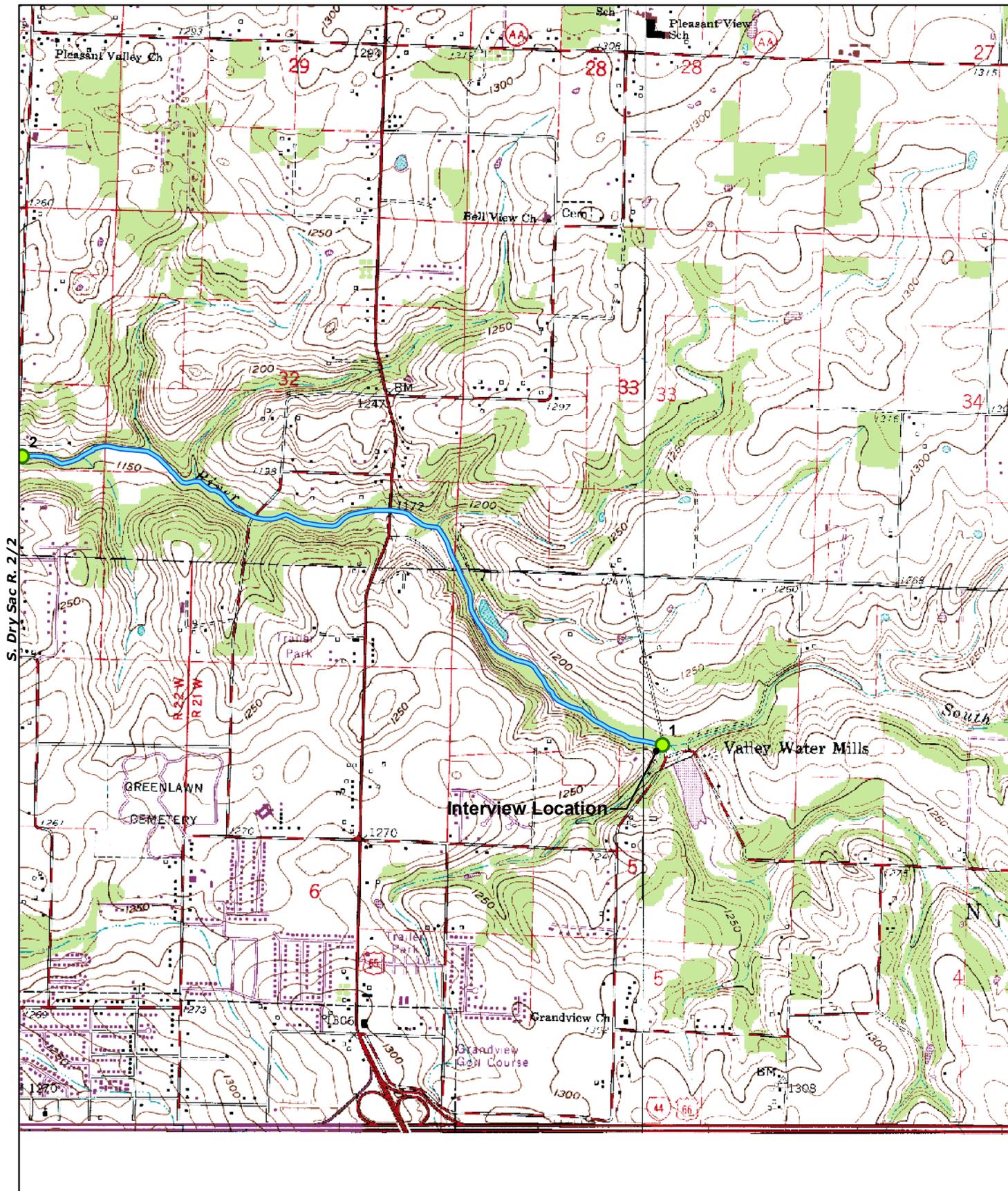
Facility Name(s) and Permit Number(s):
--

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

Name of Surveyor: Eric Hertzler	Telephone Number: 417-890-8802
Organization/Employer: Olsson Associates	

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.

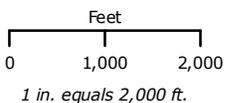
Signed:  **Date:** 08-28-08



**MISSOURI RECREATIONAL
USE ATTAINABILITY ANALYSIS**

Stream: S. Dry Sac R.
WBID: 3746

Map Sheet: 1/2
County: Greene

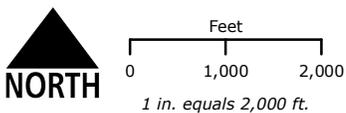


Project No. 008-1298



S. Dry Sac R. 1/2

**MISSOURI RECREATIONAL
USE ATTAINABILITY ANALYSIS**



Stream: S. Dry Sac R.
WBID: 3746

Map Sheet: 2/2
County: Greene



Project No. 008-1298

WBID # 3746

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)

Date & Time: 08-28-08 8:05 a.m.	Location Description (e.g., road crossing):
Stream Name: S. Dry Sac R.	Farm Road 171 Bridge crossing
Current Weather Conditions: sunny	Facility Name(s):
Weather Conditions for Past 10 days:	Permit Number(s):
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): 477846	Northing (UTM Y): 4124446	Horizontal Accuracy: (EPE / FOM / PDOP) 89 ft. Meters
Site 11	Easting (UTM X): 477729	Northing (UTM Y): 4124495	Horizontal Accuracy: (EPE / FOM / PDOP) 119 ft. Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3746-1-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3746-1-B	Downstream looking up				
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 checked="" 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 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: Valley water mill / MDC fishing area 500 meters upstream of transect.				

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: Farm Road 171 Bridge crossing			

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

% Cobble	80% Gravel	20% Sand	% Silt	% Mud/Clay	% Bedrock
----------	------------	----------	--------	------------	-----------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Moss and floating algae

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input checked="" type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input type="checkbox"/> Clear	<input type="checkbox"/> Green	<input checked="" 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.

Field Data Sheets for Recreational Use Stream Surveys

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

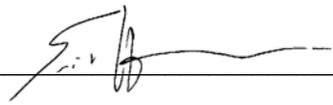
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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: Eric Hertzler

Surveyor's Signature:  Date of Survey: 08-28-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>S. Dry Sac R.</u> Waterbody ID: <u>3746</u> Site #: <u>1</u> Estimated Channel Incision: <u>0.09</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>477846</u> UTM Y: <u>4124446</u> +/- <u>89</u> ft. (meters) 11 UTM X: <u>477729</u> UTM Y: <u>4124495</u> +/- <u>119</u> ft. (meters) Average Stream Width: <u>9</u> (meters) Length of Survey Segment: <u>180</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Eric Hertzler / Austin Lohkamp</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>08-28-08</u> Time: <u>8:09 a.m.</u> Dissolved Oxygen: <u>7.92</u> (mg/L) Dissolved Oxygen: <u>85.1</u> (% sat) Specific Cond: <u>423</u> (µS/cm) Water Temperature: <u>18.7</u> (°C)
---	--

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.71	0.05	1.03	1.00	1.01	0.29	0.72	0.13	0.62	0.09	0.85	0.18	1.19	0.10	0.85	0.05	0.83	0.12	0.91	0.40	0.86	0.11
2	1.42	0.13	2.06	0.53	2.02	0.28	1.44	0.23	1.24	0.16	1.70	0.58	2.38	0.20	1.70	0.05	1.66	0.17	1.82	0.31	1.72	0.20
3	2.13	0.14	3.09	0.19	3.03	0.20	2.16	0.31	1.86	0.27	2.55	0.61	3.57	0.28	2.55	0.05	2.49	0.14	2.73	0.48	2.58	0.23
4	2.84	0.13	4.12	0.20	4.04	0.11	2.88	0.29	2.48	0.54	3.40	0.67	4.76	0.23	3.40	0.07	3.32	0.16	3.64	0.41	3.44	0.31
5	3.55	0.12	5.15	0.14	5.05	0.08	3.60	0.30	3.10	1.00	4.25	0.42	5.95	0.30	4.25	0.05	4.15	0.21	4.55	0.31	4.30	0.31
6	4.26	0.17	6.18	0.14	6.06	0.06	4.32	0.22	3.72	1.00	5.10	0.40	7.14	0.26	5.10	0.10	4.98	0.23	5.46	0.28	5.16	0.28
7	4.97	0.23	7.21	0.15	7.07	0.05	5.04	0.11	4.34	1.00	5.95	0.45	8.33	0.29	5.95	0.11	5.81	0.22	6.37	0.24	6.02	0.41
8	5.68	0.24	8.24	0.18	8.08	0.05	5.76	0.12	4.96	1.00	6.80	0.65	9.52	0.28	6.80	0.12	6.64	0.19	7.28	0.20	6.88	0.42
9	6.39	0.27	9.27	0.17	9.09	0.09	6.48	0.12	5.58	1.00	7.65	0.80	10.71	0.24	7.65	0.05	7.47	0.33	8.19	0.18	7.74	0.40
Right Bank	7.10	0.00	10.30	0.00	10.10	0.00	7.20	0.00	6.20	0.00	8.50	0.00	11.90	0.00	8.50	0.00	8.30	0.00	9.10	0.00	8.60	0.00
Feature Type	Run		Riffle		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.

MAXIMUM 1.00

MEDIAN 0.21

Surveyor's Signature: _____



Date: 8/28/2008

WBID # 3746

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)

Date & Time: 08-28-08 9:04 a.m.	Location Description (e.g., road crossing):
Stream Name: S. Dry Sac R.	Bridge crossing @ Summit Rd.
Current Weather Conditions: sunny	Facility Name(s):
Weather Conditions for Past 10 days:	Permit Number(s):
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): 474951	Northing (UTM Y): 4125938	Horizontal Accuracy: (EPE / FOM / PDOP)	23 ft. Meters
Site 11	Easting (UTM X): 474772	Northing (UTM Y): 4125812	Horizontal Accuracy: (EPE / FOM / PDOP)	110 ft. Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3746-2-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3746-2-B	Downstream looking up				
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 checked="" 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/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: Near Springfield				

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: Bridge crossing & Bike Path			

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

% Cobble	80% Gravel	20% Sand	% Silt	% Mud/Clay	% Bedrock
----------	------------	----------	--------	------------	-----------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

NONE DRY

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input 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 type="checkbox"/> None	<input checked="" type="checkbox"/> Other: DRY
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input 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)

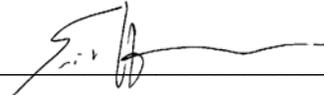
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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: Eric Hertzler

Surveyor's Signature:  Date of Survey: 08-28-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>S. Dry Sac. R.</u> Waterbody ID: <u>3746</u> Site #: <u>2</u> Estimated Channel Incision: <u>0.12</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>474951</u> UTM Y: <u>4125938</u> +/- <u>23</u> (meters) 11 UTM X: <u>474772</u> UTM Y: <u>4125812</u> +/- <u>110</u> (meters) Average Stream Width: <u>11</u> (meters) Length of Survey Segment: <u>220</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Eric Hertzler / Austin Lohkamp</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/28/2008</u> Time: <u>9:07 a.m.</u> Dissolved Oxygen: <u>0</u> (mg/L) Dissolved Oxygen: <u>0</u> (% sat) Specific Cond: <u>0</u> (µS/cm) Water Temperature: <u>0</u> (°C) *Dry
---	--

Transect Cross-Section

Station		01		02		03		04		05		06		07		08		09		10		11	
		Distance (m)	Depth (m)																				
Left Bank		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	1	0.96	0.00	0.99	0.00	1.32	0.00	1.47	0.00	1.49	0.00	0.71	0.00	0.95	0.00	1.04	0.00	1.22	0.00	1.38	0.00	0.82	0.00
	2	1.92	0.00	1.98	0.00	2.64	0.00	2.94	0.00	2.98	0.00	1.42	0.00	1.90	0.00	2.08	0.00	2.44	0.00	2.76	0.00	1.64	0.00
	3	2.88	0.00	2.97	0.00	3.96	0.00	4.41	0.00	4.47	0.00	2.13	0.00	2.85	0.00	3.12	0.00	3.66	0.00	4.14	0.00	2.46	0.00
	4	3.84	0.00	3.96	0.00	5.28	0.00	5.88	0.00	5.96	0.00	2.84	0.00	3.80	0.00	4.16	0.00	4.88	0.00	5.52	0.00	3.28	0.00
	5	4.80	0.00	4.95	0.00	6.60	0.00	7.35	0.00	7.45	0.00	3.55	0.00	4.75	0.00	5.20	0.00	6.10	0.00	6.90	0.00	4.10	0.00
	6	5.76	0.00	5.94	0.00	7.92	0.00	8.82	0.00	8.94	0.00	4.26	0.00	5.70	0.00	6.24	0.00	7.32	0.00	8.28	0.00	4.92	0.00
	7	6.72	0.00	6.93	0.00	9.24	0.00	10.29	0.00	10.43	0.00	4.97	0.00	6.65	0.00	7.28	0.00	8.54	0.00	9.66	0.00	5.74	0.00
	8	7.68	0.00	7.92	0.00	10.56	0.00	11.76	0.00	11.92	0.00	5.68	0.00	7.60	0.00	8.32	0.00	9.76	0.00	11.04	0.00	6.56	0.00
	9	8.64	0.00	8.91	0.00	11.88	0.00	13.23	0.00	13.41	0.00	6.39	0.00	8.55	0.00	9.36	0.00	10.98	0.00	12.42	0.00	7.38	0.00
Right Bank		9.60	0.00	9.90	0.00	13.20	0.00	14.70	0.00	14.90	0.00	7.10	0.00	9.50	0.00	10.40	0.00	12.20	0.00	13.80	0.00	8.20	0.00
Feature Type		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY		DRY	

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.

MAXIMUM 0.00

MEDIAN 0.00

Surveyor's Signature: _____

Date: 8/28/2008

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet B – Site Characterization (Page 1 of 3)
 (must be completed for each site)

Date & Time: 08-28-08	Location Description (e.g., road crossing):
Stream Name: s. Dry Sac R.	Upstream of sewage treatment plant Bridge crossing
Current Weather Conditions: sunny	Facility Name(s):
Weather Conditions for Past 10 days:	Permit Number(s):
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): 472454	Northing (UTM Y): 4125003	Horizontal Accuracy: (EPE / FOM / PDOP) 250 ft. Meters
Site 11	Easting (UTM X): 472548	Northing (UTM Y): 4125327	Horizontal Accuracy: (EPE / FOM / PDOP) 448 ft. Meters

Photos:

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3746-3-A	Upstream looking down				
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
3746-3-B	Downstream looking up				
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 # 3

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 checked="" 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/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: Waste water treatment facility (Springfield)				

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	80% Gravel	20% Sand	% Silt	% Mud/Clay	% Bedrock
----------	------------	----------	--------	------------	-----------

Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site.)

Moss and algae on rocks

Water Characteristics*: (Mark all that apply.)

Odor:	<input checked="" type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input 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 # 3

Field Data Sheets for Recreational Use Stream Surveys

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

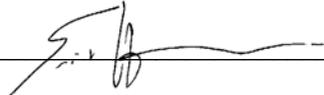
Additional Stream Morphology: (Record isolated pools or other features identified during the survey that may support recreational uses.)

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

Comments: (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Eric Hertzler

Surveyor's Signature:  Date of Survey: 08-28-08

Organization: Olsson Associates Position: Field Service

Field Data Sheets for Recreational Use Stream Surveys

Data Sheet C - Field Survey Results

Stream Name: <u>S. Dry Sac R.</u> Waterbody ID: <u>3746</u> Site #: <u>3</u> Estimated Channel Incision: <u>0.32</u> (m) (height between low bank width and water) GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate (EPE / PDOP / FOM) 01 UTM X: <u>472454</u> UTM Y: <u>4125003</u> +/- <u>250 ft.</u> (meters) 11 UTM X: <u>472548</u> UTM Y: <u>4125327</u> +/- <u>448 ft.</u> (meters) Average Stream Width: <u>6.5</u> (meters) Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach) (20x average stream width) Field Staff: <u>Eric Hertzler / Austin Lohkamp</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>8/28/2008</u> Time: <u>9:50 a.m.</u> Dissolved Oxygen: <u>1.73</u> (mg/L) Dissolved Oxygen: <u>14.1</u> (% sat) Specific Cond: <u>612</u> (µS/cm) Water Temperature: <u>21.3</u> (°C)
--	---

Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
Left Bank	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.12	0.05	0.35	0.17	0.93	0.25	0.78	0.13	0.87	0.41	0.81	0.53	0.91	0.35	0.80	0.11	0.75	0.10	0.43	0.05	0.45	0.14
2	0.24	0.07	0.70	0.79	1.86	0.41	1.56	0.29	1.74	0.32	1.62	0.71	1.82	0.42	1.60	0.16	1.50	0.11	0.86	0.10	0.90	0.23
3	0.36	0.09	1.05	0.36	2.79	0.44	2.34	0.43	2.61	0.40	2.43	0.77	2.73	0.51	2.40	0.23	2.25	0.05	1.29	0.08	1.35	0.23
4	0.48	0.10	1.40	0.41	3.72	0.36	3.12	0.47	3.48	0.44	3.24	0.74	3.64	0.54	3.20	0.21	3.00	0.05	1.72	0.08	1.80	0.26
5	0.60	0.14	1.75	0.52	4.65	0.34	3.90	0.55	4.35	0.52	4.05	0.79	4.55	0.55	4.00	0.19	3.75	0.05	2.15	0.09	2.25	0.24
6	0.72	0.11	2.10	0.55	5.58	0.32	4.68	0.53	5.22	0.61	4.86	0.72	5.46	0.60	4.80	0.20	4.50	0.05	2.58	0.14	2.70	0.21
7	0.84	0.09	2.45	0.51	6.51	0.29	5.46	0.43	6.09	0.54	5.67	0.67	6.37	0.56	5.60	0.16	5.25	0.05	3.01	0.11	3.15	0.23
8	0.96	0.07	2.80	0.20	7.44	0.41	6.24	0.29	6.96	0.44	6.48	0.61	7.28	0.39	6.40	0.18	6.00	0.09	3.44	0.10	3.60	0.24
9	1.08	0.05	3.15	0.13	8.37	0.34	7.02	0.21	7.83	0.32	7.29	0.38	8.19	0.33	7.20	0.16	6.75	0.15	3.87	0.08	4.05	0.10
Right Bank	1.20	0.00	3.50	0.00	9.30	0.00	7.80	0.00	8.70	0.00	8.10	0.00	9.10	0.00	8.00	0.00	7.50	0.00	4.30	0.00	4.50	0.00
Feature Type <small>(riffle, run, or pool)</small>	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.

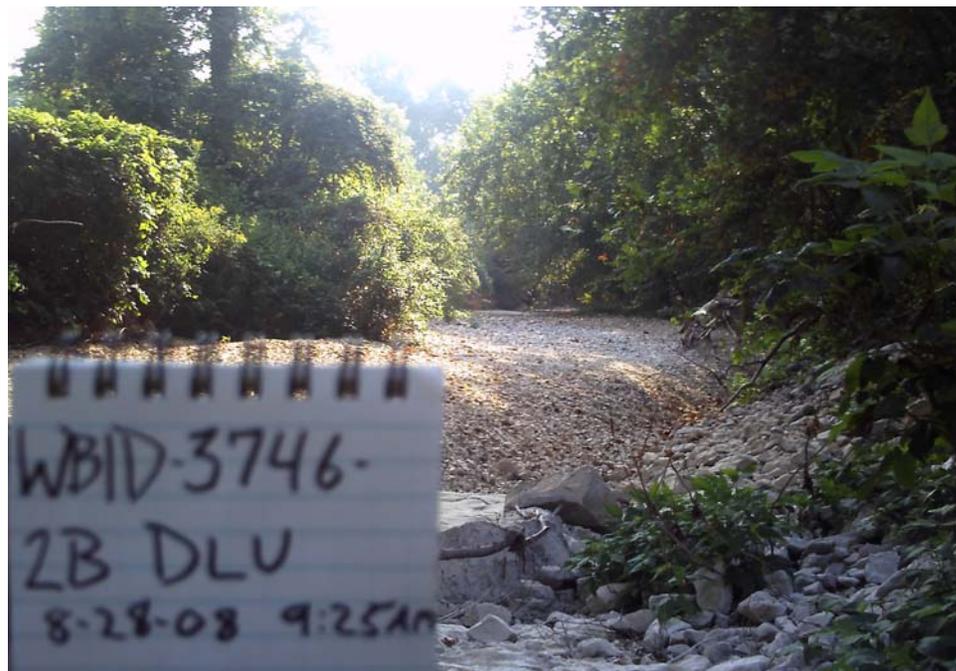
MAXIMUM 0.79

MEDIAN 0.23

Surveyor's Signature: _____



Date: 8/28/2008





Field Data Sheets for Recreational Use Stream Surveys**Data Sheet D – Recreational Use Interview**

(must be completed for each interview)

I. Introduction**Stream Name and WBID:** South Dry Sac #3746**Date & Time** (include AM or PM): 08-05-08 4:00 p.m.**Interviewed:** In person By phone By mail

(NOTE: If you are an Interviewee filling out this form to mail back to DNR, proceed to Question #1.)

Interviewee selected because (e.g., house next to stream; standing by stream, etc.) Fishing in stream with son**Interviewer introduction to Interviewee:** "My name is _____, I work for ___(name of your employer)___, and I am collecting information on how people use ___(name of the stream)___."**ASK:**

1.) Are you willing to respond to a survey about this stream? (It will just take a few minutes.)

 Yes No If yes, list contact information for the interviewee below:Legal name: Matthew SmithCurrent mailing address: 1733 W Smith Springfield, MO 65802

Daytime phone number: _____

E-mail address (optional): _____

2.a.) Do you live in this area? Yes No

If yes, how many years? _____

2.b.) If you don't live in this area, are you still familiar with this stream? Yes No

If yes, how many years? _____

If no, thank the individual for taking the time to talk to you and conclude the interview.

3.) Are you familiar with this particular stretch of the stream? (show them the map, pointing out local landmarks such as roads, bridges, property lines) Yes No

If yes, proceed to "II. Personal Use?".

If no, proceed to Section V.

II. Personal Use?1.) Have you or your family personally used the stream for recreation since November 28, 1975? Yes No

If yes, proceed to #3.

If no, proceed to, and complete #2.

2.a.) If no, list reasons stream not used. _____

b.) From here proceed to "III. Witnessed Use?".

3.) How do you use the stream?

Whole Body Contact Recreation (WBCR)

<input checked="" type="checkbox"/> Swimming	<input type="checkbox"/> Tubing	<input type="checkbox"/> Snorkeling/Skin Diving	<input type="checkbox"/> Water Skiing
--	---------------------------------	---	---------------------------------------

If Interviewee (or family) used the stream for WBCR since Nov. 28, 1975, ask:

4.a.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? Summer, fishing while wading, kids swimming

4.b.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). _____

Secondary Contact Recreation (SCR)

<input checked="" type="checkbox"/> Fishing	<input checked="" type="checkbox"/> Wading	<input type="checkbox"/> Boating	<input type="checkbox"/> Trapping	<input type="checkbox"/> Other:
---	--	----------------------------------	-----------------------------------	---------------------------------

If Interviewee (or family) used the stream for SCR since Nov. 28, 1975, ask:

4.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? Frequently during summer if rainfall is adequate.

4.d.) Where, exactly? Describe specific location *and mark on the map* (See map requirements in the protocol). _____

4.e.) Which of these times and places (if any) did children wade or play? all

III. Witnessed Use?

1.) Have you observed others using this stream for recreation since Nov. 28, 1975?

Yes No

If yes, proceed to #2.

If no, proceed to, "IV. Anecdotal Use?".

2.) What kinds of uses have you witnessed?

Whole Body Contact Recreation (WBCR)

<input checked="" type="checkbox"/> Swimming	<input type="checkbox"/> Tubing	<input type="checkbox"/> Snorkeling/Skin Diving	<input type="checkbox"/> Water Skiing
--	---------------------------------	---	---------------------------------------

If Interviewee witnessed WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? Weekends during summer

2.b.) Where, exactly? Describe specific location and mark on the map (See map requirements in the protocol).
Usually near bridge

Secondary Contact Recreation (SCR)				
<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> Wading	<input type="checkbox"/> Boating	<input type="checkbox"/> Trapping	<input type="checkbox"/> Other:

If Interviewee witnessed SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When (e.g., year(s)?; season?; only after a rain?) and how often (times/year)? summer

2.d.) Where, exactly? Describe specific location and mark on the map (See map requirements in the protocol).
Near bridge

2.e.) Which of these times and places (if any) did you specifically witness children wading or playing?
All – used by families

IV. Anecdotal Use?

1.) Have you heard about anyone using this stream since Nov. 28, 1975 for recreation – not seen or done yourself, but just heard about it? Yes No

If yes, proceed to #2.

If no, thank the individual for taking the time to talk to you and conclude the interview.

2.) What kind of uses have you heard about?

Whole Body Contact Recreation (WBCR)			
<input type="checkbox"/> Swimming	<input type="checkbox"/> Tubing	<input type="checkbox"/> Snorkeling/Skin Diving	<input type="checkbox"/> Water Skiing

If Interviewee heard of WBCR use since Nov. 28, 1975, ask the following questions:

2.a.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?

2.b.) Where, exactly? Describe specific location and mark on the map (See map requirements in the protocol).

Secondary Contact Recreation (SCR)

Fishing Wading Boating Trapping Other:

If Interviewee heard of SCR use since Nov. 28, 1975, ask the following questions:

2.c.) When did these uses take place (e.g., year(s)?; season?; only after a rain?) and how often (times/year)?

2.d.) Where, exactly? Describe specific location and mark on the map (See map requirements in the protocol)/

2.e.) Which of these times and places (if any) did you hear specifically of children wading or playing?

V. Others to Contact?

Can you recommend someone else we could contact that knows the stream? Yes No

If yes, that person's contact info (name, address, phone, directions?)

If no, thank the individual for taking the time to talk to you and conclude the interview.

VI. Additional Comments

From the Interviewee:

From the Interviewer:

VII. Information on Interviewer

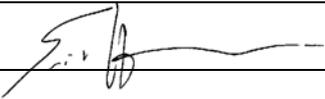
Has interviewer been trained by Missouri DNR to conduct UAA Interviews?

Yes No

If yes, how? (check all that apply):

Pre-Assessment Meeting Workshop On-line training seminar

Other. If "Other," list:

Interviewer's Signature: 

Interviewer's Name, Printed: Eric Hertzler

Employer (where applicable):

Interviewer's Phone No.: E-mail: