



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

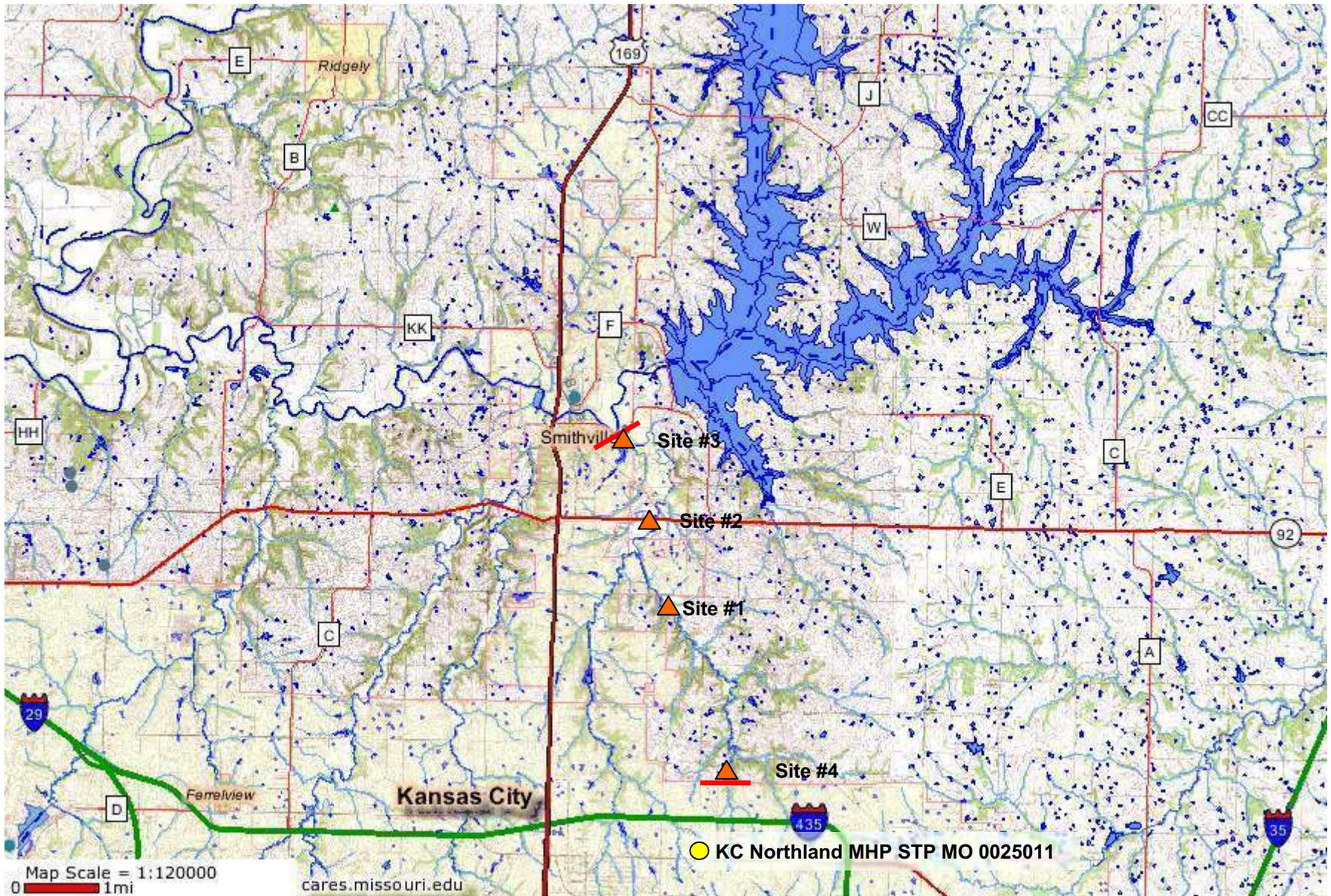
WBID 0319 Wilkerson Creek

Submitted by
BWR

to

Missouri Department of Natural Resources
Water Protection Program

Date received: July 11, 2007



Wilkerson Creek
WBID #319



WBID# 319
 Site# 13

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>May 24, 2007 0815</u>	Site Location Description (e.g., road crossing): <u>NE 144th bridge Crossing</u>
Personnel (Data Collectors): <u>Kerry Snethen, John Casey</u>	
Current Weather Conditions: <u>Cloudy, Rainy</u>	Facility Name: <u>KC Northland MHP STP</u>
Weather Conditions for Past 10 days: <u>Cloudy, Rainy</u>	Permit Number: <u>M00025B11</u>
Drought Conditions?: No drought <input checked="" type="checkbox"/> Phase I <input type="checkbox"/> Phase II <input type="checkbox"/> Phase III <input type="checkbox"/> Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Locations:

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)

Site GPS Coordinates: UTM X: 39.35172 N Y: 094.55677 W

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
	<u>Upstream</u>		<u>downstream</u>		

Uses Observed*: (Uses actually observed at 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 Data Sheet D- Recreational Use Interview when conducting interviews.)

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 type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input type="checkbox"/> Steep slopes	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

Indications of Human Use*: (attach photos)

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

Comments:

0 Channel Feature

RUN: 60
RIFFLE: 20
POOL: 20

• Page Two – Data Sheet B for WBID # 319 : Site ID #1

Stream Morphology:

Upstream View's Physical Dimensions: Is there any water present at this view? Yes No
If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? Yes No
If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

<u>30</u> % Cobble	<u>0</u> % Gravel	<u>10</u> % Sand	<u>60</u> % Silt	<u>0</u> % Mud/Clay	<u>0</u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Algae on rocks

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 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:

Comments: Please attach any additional comments () to this form.

*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 effect another use.

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

Surveyor's Signature: Kerry Smith Date of Survey: 5/24/07

Organization: BWR Position: Env. Scientist

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 1

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
Transect A	1 wetted width	< 0.1 m		1	Channel Feature: RUN	
	2 4.4 m	< 0.1 m		2		
	3	0.1 m		3		
	4 measurements	0.1 m		4	Dissolved Oxygen:	
	5 0.44 m	0.1 m		5		
	6 apart	0.1 m		6	6.36	ppm %
	7	< 0.1 m		7	63	
	8	0.1 m		8		
	9	0.1 m		9		
	10	< 0.1 m		10		
Transect B	1 wetted width	< 0.1 m		11	Channel Feature: RIFFLE	
	2 3.4 m	< 0.1 m		12		
	3	< 0.1 m		13		
	4 measurements	< 0.1 m		14	Dissolved Oxygen:	
	5 0.34 m	< 0.1 m		15		
	6 apart	< 0.1 m		16	6.52	ppm %
	7	0.1 m		17	63	
	8	0.2 m		18		
	9	< 0.1 m		19		
	10	0.1 m		20		
Transect C	1 wetted width	< 0.1 m		21	Channel Feature: RIFFLE	
	2 2.7 m	< 0.1 m		22		
	3	< 0.1 m		23		
	4 measurements	< 0.1 m		24	Dissolved Oxygen:	
	5 0.27 m	< 0.1 m		25		
	6 apart	< 0.1 m		26	6.22	ppm %
	7	0.1 m		27	62	
	8	< 0.1 m		n		
	9	< 0.1 m				
	10	< 0.1 m				

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth to the middle rank is the median depth.

If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Kerry Sprother Date: 5/24/07

Organization: BWR Position: Env Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 1

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
Transect D	1 wetted width	<0.1 m		1	Channel Feature: RUN	
	2 6.2 m	0.2 m		2		
	3	0.2 m		3		
	4 measurements	0.3 m		4	Dissolved Oxygen	
	5 0.62 m	0.3 m		5		
	6 apart	0.3 m		6	6.10	ppm %
	7	0.3 m		7	6.1	
	8	0.3 m		8		
	9	0.3 m		9		
	10	0.2 m		10		
Transect E	1 wetted width	<0.1 m		11	Channel Feature: RUN	
	2 4.7 m	0.2 m		12		
	3	0.2 m		13		
	4 measurements	0.2 m		14	Dissolved Oxygen:	
	5 0.47 m	0.2 m		15		
	6 apart	0.2 m		16	6.03	ppm %
	7	0.2 m		17	6.0	
	8	0.2 m		18		
	9	0.2 m		19		
	10	0.1 m		20		
Transect F	1 wetted width	<0.1 m		21	Channel Feature: RIFFLE	
	2 0.1 m	<0.1 m		22		
	3	<0.1 m		23		
	4 measurements	0.1 m		24	Dissolved Oxygen:	
	5 0.61 m	<0.1 m		25		
	6 apart	1.0 m		26	6.05	ppm %
	7	1.0 m		27	6.0	
	8	<1.0 m		n		
	9	1.0 m				
	10	<1.0 m				

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth to the middle rank is the median depth.

If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Kerry Snodgrass

Date: 5/24/07

Organization: BWR

Position: Env Scientist

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319 Site # 1

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	wetted width	< 0.1 m		1	Channel Feature: Pool Dissolved Oxygen: 5.95 ppm 59 %
	9.2 m	0.5 m		2	
		0.8 m		3	
	measurements	1.0 m		4	
	0.92 m	> 1.0 m		5	
	apart	> 1.0 m		6	
		> 1.0 m		7	
		71.0 m		8	
		0.7 m		9	
		0.5 m		10	
Transect H	wetted width	0.3 m		11	Channel Feature: RUN Dissolved Oxygen: 6.54 ppm 63 %
	9.5 m	0.6 m		12	
		0.7 m		13	
	measurements	0.7 m		14	
	0.95 m	0.6 m		15	
	apart	0.5 m		16	
		0.4 m		17	
		0.4 m		18	
		0.4 m		19	
		0.1 m		20	
Transect I	wetted width	< 0.1 m		21	Channel Feature: RUN Dissolved Oxygen: 6.40 ppm 64 %
	12.0 m	0.4 m		22	
		0.6 m		23	
	measurements	0.7 m		24	
	1.20 m	0.8 m		25	
	apart	0.5 m		26	
		0.3 m		.	
		0.3 m		.	
		0.4 m		n	
		0.1 m			

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth to the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Kerry Brothman Date: 5/24/07
 Organization: BWR Position: Env. Scientist

Data Sheet C – Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 21

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
J	wetted width	< 0.1 m			
	<u>5.2 m</u>	0.2 m		1	Channel Feature: RUN
		0.2 m		2	
		0.2 m		3	
	measurements	0.2 m		4	Dissolved Oxygen:
	<u>0.52 m</u>	0.2 m		5	
	apart	0.2 m		6	<u>6.60</u> ppm
		0.2 m		7	<u>66</u> %
		0.2 m		8	
		< 0.1 m		9	
K	wetted width	< 0.1 m			
	<u>4.7 m</u>	0.2 m		12	Channel Feature: RUN
		0.3 m		13	
		0.3 m		14	
	measurements	0.3 m		15	Dissolved Oxygen:
	<u>0.47 m</u>	0.4 m		16	
	apart	0.4 m		17	<u>7.20</u> ppm
		0.4 m		18	<u>72</u> %
		0.3 m		19	
		0.1 m		20	
L	wetted width				
	<u>_____ m</u>			23	Channel Feature:
				24	
				25	
	measurements			26	Dissolved Oxygen:
	<u>_____ m</u>			.	
	apart			.	<u>_____</u> ppm
				.	<u>_____</u> %
				n	

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth to the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: Kerry Luthin Date: 5/24/07
 Organization: BWR Position: Env. Scientist

WBID# 319
 Site# 2

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>06/21/07 12:00</u>	Site Location Description (e.g., road crossing): <u>Bridge Crossing @ Liberty Rd</u>
Personnel (Data Collectors): <u>Bartlett & Lunt</u>	Facility Name: <u>KC Northland MHP SFP</u>
Current Weather Conditions: <u>Sunny ~85°</u>	Permit Number: <u>MO 0725011</u>
Weather Conditions for Past 10 days: <u>Fair/Cloudy/Rain</u>	
Drought Conditions?: No drought <input checked="" type="checkbox"/> Phase I <input type="checkbox"/> Phase II <input type="checkbox"/> Phase III <input type="checkbox"/> Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Locations:

LOCATION COORDINATES UNIVERSAL TRANSVERSE MERCATOR PROJECTION IN METERS

Site GPS Coordinates: UTM X: 39,36966 Y: 94,55932

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)

Global Positioning System (GPS)		Interpolation	
Static Mode		Topographic Map or DRG	
Dynamic Mode (Kinematic)		Aerial Photograph or DOQQ	
Precise Positioning Service		Satellite Imagery	
Signal Averaging		Interpolation Other	
Real Time Differential Processing			

HORIZONTAL ACCURACY ESTIMATE

GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>319-4,5,6</u>	<u>Trans. J-K</u>	<u>319-1,2,3</u>	<u>Trans B-A</u>		

Uses Observed*: (Uses actually observed at 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 Data Sheet D- Recreational Use Interview when conducting interviews.)

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 type="checkbox"/> Campgrounds
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments:

Indications of Human Use*: (attach photos)

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

Comments: Liberty Rd

910 CHANNEL FEATURES

* Page Two - Data Sheet B for WBID # 319 : SITE #2

Run - 15%
Riffle - ~~15%~~
Pool - 85%

Upstream View's Physical Dimensions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFFLE					
RUN					
POOL					

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

% Cobble	<u>10</u>	% Gravel	<u>45</u>	% Sand	<u>45</u>	% Silt		% Mud/Clay		% Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Limited Aquatic Vegetation

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 type="checkbox"/> Clear	<input checked="" 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 checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input checked="" type="checkbox"/> Foam	<input type="checkbox"/> None	<input type="checkbox"/> Other:

Comments: Please attach any additional comments () to this form.

*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 effect another use.

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

Surveyor's Signature: [Signature] Date of Survey: 6/21/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 2

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect A	wetted width	0.1			
	<u>7.4 m</u>	0.1		1	Channel Feature:
		0.1		2	Pool
	measurements	0.1		3	
	<u>0.74 m</u>	0.1		4	Dissolved Oxygen:
	apart	0.2		5	19.98
		0.2		6	
		0.3		7	ppm
		0.4		8	%
		0.3		9	
Transect B	wetted width	0.1			
	<u>8.0 m</u>	0.1		12	Channel Feature:
		0.2		13	RUN
	measurement	0.1		14	
	<u>0.80 m</u>	0.1		15	Dissolved Oxygen:
	apart	0.2		16	7.84
		0.2		17	
		0.2		18	ppm
		0.2		19	%
		0.1		20	
Transect C	wetted width	0.1			
	<u>7.5 m</u>	0.2		23	Channel Feature:
		0.2		24	RUN
	measurements	0.1		25	
	<u>0.75 m</u>	0.1		26	Dissolved Oxygen:
	apart	0.2			8.25
		0.3			
		0.4			ppm
		0.3			%
		0.1		n	

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth is the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAS datasheet is true and accurate.

Signed: [Signature]

Date: 6/21/07

Organization: BWR CORP.

Position: ENV. SCI.

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 2

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
D	wetted width	0.7			
	7.5 m	0.3		1	Channel Feature:
		0.5		2	Pool
	measurements	0.4		3	
	0.75 m	0.4		4	Dissolved Oxygen
	apart	0.4		5	8.69
		0.4		6	
		0.3		7	ppm
		0.2		8	7
		0.1		9	
E	wetted width	0.2		10	
	9.0 m	0.6		11	
		0.9		12	Channel Feature:
	measurements	71.0		13	Pool
	0.90 m	71.0		14	
	apart	71.0		15	Dissolved Oxygen:
		71.0		16	8.21
		0.6		17	
		0.4		18	ppm
		0.3		19	7
F	wetted width	0.2		20	
	10.2 m	0.4		21	
		0.6		22	
	measurements	0.6		23	Channel Feature:
	0.12 m	0.7		24	Pool Pool
	apart	0.7		25	
		0.7		26	Dissolved Oxygen
		0.0			8.86
		0.3			
		0.3		n	ppm
	0.2			7	

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UA datasheet is true and accurate.

Signed: [Signature] Date: 6/21/07
 Organization: BWR CORP. Position: Env. Sci.

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 2

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	1 wetted width	0.2			
	2 <u>8.8 m</u>			1	Channel Feature:
	3	0.10		2	Pool
	4	0.7		3	
	5 measurements	0.5		4	Dissolved Oxygen:
	6 <u>0.88 m</u>	0.4		5	8.42
	7 apart	0.3		6	
	8	0.3		7	ppm
	9	0.2		8	%
	10	0.1		9	
Transect H	1 wetted width	0.7		10	
	2 <u>6.5 m</u>			11	
	3	0.9		12	Channel Feature:
	4 measurements	0.7 7.0		13	Pool
	5 <u>0.65 m</u>	0.8		14	
	6 apart	0.6		15	Dissolved Oxygen:
	7	0.5		16	8.72
	8	0.3		17	
	9	0.1		18	ppm
	10	0.1		19	%
Transect I	1 wetted width	0.3		20	
	2 <u>6.0 m</u>			21	
	3	0.14		22	
	4 measurements	0.8		23	Channel Feature:
	5 <u>0.60 m</u>	0.9		24	Pool
	6 apart	0.8		25	
	7	0.6		26	Dissolved Oxygen:
	8	0.4		.	9.01
	9	0.3		.	ppm
	10	0.2		n	%

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth is the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed: [Signature]

Date: 6/21/07

Organization: SWR CORP.

Position: ENV. SCI.

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

Site # 2

Transsect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1	wetted width	0.3			
	0.5 m	0.4		1	Channel Feature:
		0.7		2	Pool
	measurements	71.0		3	
	0.65 m	71.0		4	Dissolved Oxygen:
	apart	71.0		5	9.36
		71.0		6	
		0.70		7	ppm
		0.50		8	7
		0.3		9	
2	wetted width	0.3		10	
	0.1 m	0.6		11	
		0.9		12	Channel Feature:
	measurements	0.9		13	Pool
	0.71 m	0.9		14	
	apart	0.9		15	Dissolved Oxygen:
		0.9		16	7.41
		71.0		17	ppm
		0.9		18	7
		0.7		19	
3	wetted width			20	
	m			21	
				22	
	measurements			23	Channel Feature:
	m			24	
	apart			25	
				26	Dissolved Oxygen:
				.	ppm
				.	7
				n	

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this U.A. datasheet is true and accurate.

Signed: [Signature]

Date: 6/21/07

Organization: P.R. Corp.

Position: Env. Sci.

February 5, 2007

WBID# 319
 Site# 3

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
 (must be completed for each site)

Date & Time: <u>06/21/07 13:30</u>	Site Location Description (c.g., road crossing): <u>Bridge Crossing @ Hwy DD</u>
Personnel (Data Collectors): <u>Bartlett & Lunt</u>	Facility Name: <u>KC Northland MHP STP</u>
Current Weather Conditions: <u>Sunny - 85</u>	Permit Number: <u>MO0025011</u>
Weather Conditions for Past 10 days: <u>Fair/Cloudy/Rain</u>	
Drought Conditions?: No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

Site Locations:

LOCATION COORDINATES: UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS

Site GPS Coordinates: UTM X: 39,38481 Y: 094,56805

HORIZONTAL COLLECTION METHOD (Indicate the method used to determine the locational data.)
 Global Positioning System (GPS)

Static Mode	Interpolation
Dynamic Mode (Kinematic)	Topographic Map or DRG
Precise Positioning Service	Aerial Photograph or DOQQ
Signal Averaging	Satellite Imagery
Real Time Differential Processing	Interpolation Other

HORIZONTAL ACCURACY ESTIMATE:

GPS Data Quality		Interpolation Data Quality	
FOM	± _____ Meters	Source Map Scale: 1:24,000 1:100,000 Other _____	
EPE	± _____ Feet or ± _____ Meters	± _____ Feet or ± _____ Meters	
PDOP			

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>319-1,2</u>		<u>319-3,4,5,6</u>			

Uses Observed*: (Uses actually observed at 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 Data Sheet D- Recreational Use Interview when conducting interviews.)

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 type="checkbox"/> Campgrounds
<input checked="" type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Fence	<input checked="" type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: Smithville Lake is 1/4 mile from ACCESS POINT

Indications of Human Use*: (attach photos)

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

Comments: Hwy DD

910 CHANNEL FEATURES

* Page Two - Data Sheet B for WBID # 319 : SITE # 3

RUN -
RIFLE -
Pool - 100%

Upstream View's Physical Dimensions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFLE					
RUN					
POOL					

Downstream View's Physical Dimensions: Is there any water present at this view? Yes No

If so, is there an obvious current? Yes No

Select one of the following channel features:

Channel Feature	Distance from access (m)	Width (m)	Length (m)	Median Depth (m)	Max. Depth (m)
RIFLE					
RUN					
POOL					

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

% Cobble	% Gravel	20 % Sand	10 % Silt	70 % Mud/Clay	% Bedrock
----------	----------	-----------	-----------	---------------	-----------

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

NONE OBSERVED

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 type="checkbox"/> Clear	<input checked="" 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 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:

Comments: Please attach any additional comments () to this form.

*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 effect another use.

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

Surveyor's Signature: [Signature] Date of Survey: 6/21/07

Organization: BWR CORP. Position: ENV. SCI.

Data Sheet C - Cross-Sectional Depth Measurements (for estimation of median depth)

WBID # 319

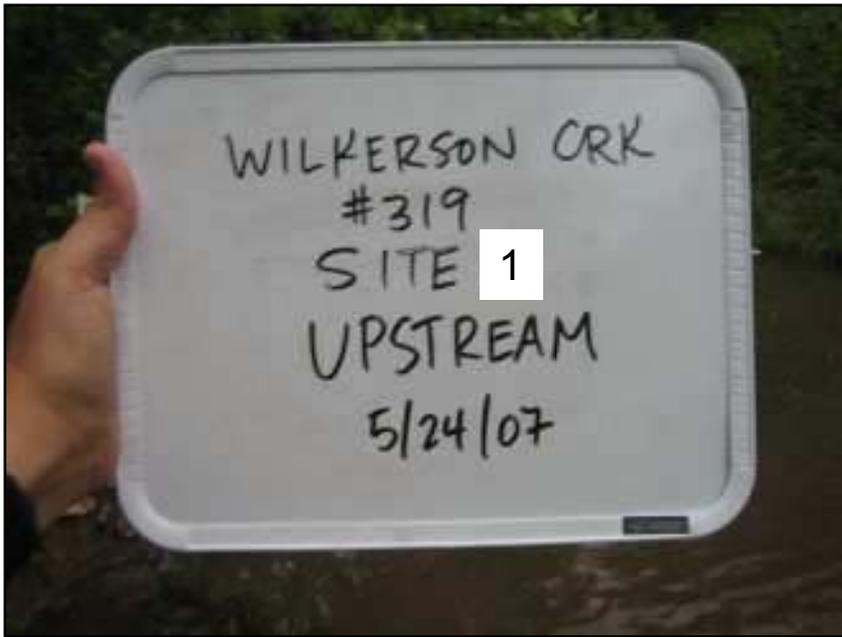
Site # 3

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect A	wetted width	0.6			
	10.5 m	0.6		1	Channel Feature:
		0.5		2	Pool
	measurements	0.8		3	
	1.50 m	0.9		4	Dissolved Oxygen:
	apart	71.0		5	9.01
		71.0		6	
		71.0		7	
		71.0		8	
		0.8		9	
Transect B	wetted width	0.5			
	10.0 m	0.5		12	Channel Feature:
		0.8		13	Pool
	measurements	0.9		14	
	m	0.9		15	Dissolved Oxygen:
	apart	0.9		16	7.66
		0.9		17	
		0.8		18	
		0.8		19	
		0.8		20	
Transect C	wetted width	0.7			
	9.9 m	0.8		23	Channel Feature:
		0.8		24	Pool
	measurements	71.0		25	
	0.95 m	71.0		26	Dissolved Oxygen:
	apart	71.0			7.2
		71.0			
		71.0			
		71.0			
		71.0			

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth the middle rank is the median depth.
 If there is an even number of entries, the median depth corresponds to the arithmetic average of the two depth values surrounding the middle rank.

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAS datasheet is true and accurate.

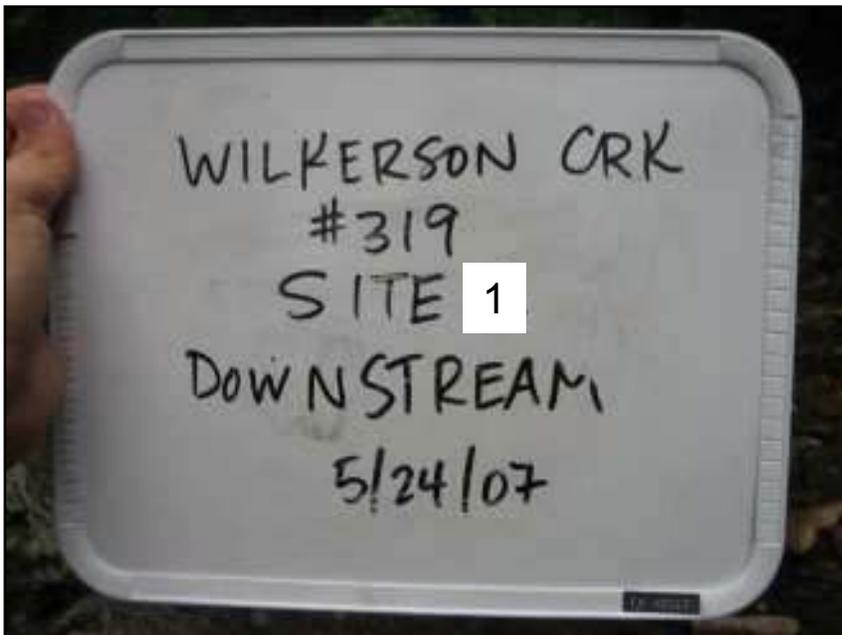
Signed: [Signature] Date: 6/21/07
 Organization: BWR CORP. Position: ENV. SCI.



Upstream (Site #1) of Wilkerson Creek.



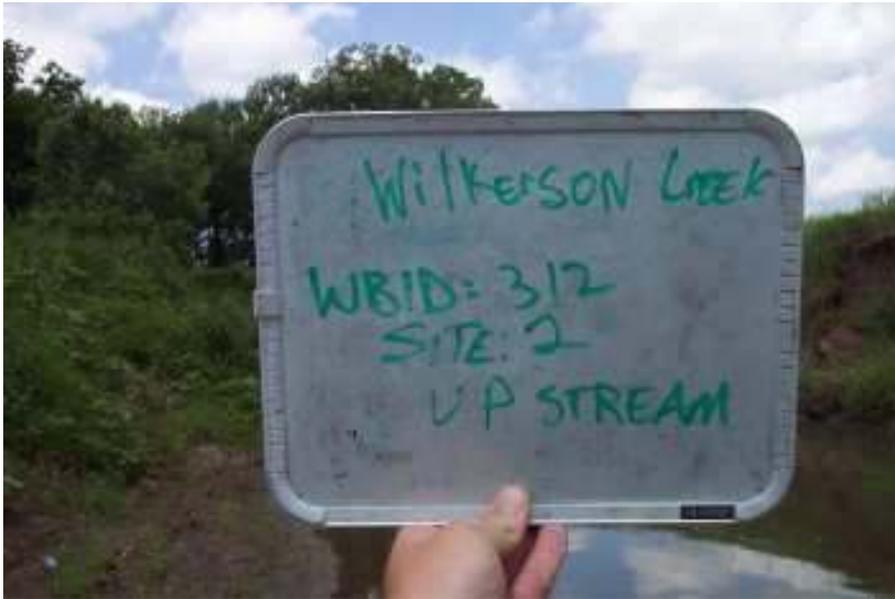
Upstream (Site #1) of Wilkerson Creek.



Downstream (Site #1) of Wilkerson Creek.



Downstream (Site #1) of Wilkerson Creek.



Upstream (Site #2) of Wilkerson Creek



Upstream (Site #2) of Wilkerson Creek



Downstream (Site #2) of Wilkerson Creek



Downstream (Site #2) of Wilkerson Creek



Upstream (Site #3) of Wilkerson Creek



Upstream (Site #3) of Wilkerson Creek



Downstream (Site #3) of Wilkerson Creek



Downstream (Site #3) of Wilkerson Creek



Upstream (Site #4) of Wilkerson Creek



Upstream (Site #4) of Wilkerson Creek



Downstream (Site #4) of Wilkerson Creek



Downstream (Site #4) of Wilkerson Creek

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

Stream Name WILKERSON CREEK (WBID # 319)

I. Introduction

Date & Time (include AM or PM): 4:00pm 5-22-07

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.) OWN PROPERTY
with Stream Access Point

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: MICHAEL SUMMERS

Current mailing address: 1220 S. LIBERTY STREET, Smithville Mo.

Daytime phone number: (816) 532-3308

E-mail address (optional):

Cell 816-522-0103

64089

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

If yes, how many years? 30 YEARS

2.b.) If you don't live nearby, 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 #2.

2.a.) List reasons stream not used.

2.b.) Proceed to "III. Witnessed Use?".

3.) How do you use the stream?

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

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)? _____

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

<i>Secondary Contact Recreation</i>				
Fishing <input type="checkbox"/>	Wading <input type="checkbox"/>	Boating <input type="checkbox"/>	Trapping <input type="checkbox"/>	Other: <input type="checkbox"/> List: _____

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)? _____

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

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?

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

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)? _____

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

Secondary Contact Recreation

Fishing Wading Boating Trapping Other: List: _____

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)? _____

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

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

Swimming Tubing Snorkeling/Skin Diving 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

Fishing Wading Boating Trapping Other: List:

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* (See map requirements in the protocol). _____

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?) _____

Monte Lowe

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

VI. Additional Comments

1.) From the Interviewee: _____

2.) 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):

Workshop? (if so, enter date): _____

On-line training seminar? _____

Followed Interview Instruction Sheets? _____

Other _____

Interviewer Information:

Signature: _____

Printed Name: _____

Employer (where applicable): _____

Interviewer's phone #: _____ E-mail: _____

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

Stream Name WILKERSON CREEK (WBID # 319)

I. Introduction

Date & Time (include AM or PM): 4:30 pm 5-22-07

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.) _____

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: Connie & LEONARD LUKON
Current mailing address: 1215 County Road Dd, Smitzville Mo
Daytime phone number: (316) 523-0127 64089
E-mail address (optional):

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

If yes, how many years? Several years

2.b.) If you don't live nearby, 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 #2.

2.a.) List reasons stream not used.

Never had a use for it

2.b.) Proceed to "III. Witnessed Use?".

3.) How do you use the stream?

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

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)? _____

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

<i>Secondary Contact Recreation</i>				
Fishing <input type="checkbox"/>	Wading <input type="checkbox"/>	Boating <input type="checkbox"/>	Trapping <input type="checkbox"/>	Other: <input type="checkbox"/> List:

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)? _____

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

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?

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

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)? _____

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

Secondary Contact Recreation

Fishing | Wading | Boating | Trapping | Other: List: _____

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)? _____

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

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

Swimming | Tubing | Snorkeling/Skin Diving | 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

Fishing Wading Boating Trapping Other: List:

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* (See map requirements in the protocol). _____

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

1.) From the Interviewee: _____

2.) From the Interviewer: this Property has a Small lake
That Combines with CREEK when water
is up

VII. Information on Interviewer

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

Yes No If yes, how (check all that apply):

Workshop? (if so, enter date): _____

On-line training seminar? _____

Followed Interview Instruction Sheets? _____

Other _____

Interviewer Information:

Signature: _____

Printed Name: _____

Employer (where applicable): _____

Interviewer's phone #: _____ E-mail: _____