



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 0441 Big Muddy Creek

Submitted by
BWR

to

Missouri Department of Natural Resources
Water Protection Program

Date received: July 11, 2007

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):	BIG MUDDY CREEK		
Missouri Water Body Identification (WBID) Number:	441		
8-digit HUC:	10280101	County:	DAVIESS
Upstream Legal Description (from Table H):	33,60N, 27W		
Downstream Legal Description (from Table H):	09,61N, 27W		
Number of sites evaluated			
List all sites numbers, listed consequently upstream to downstream:	3, 2, 4, 1, 5, 6		

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

II. Subsegmentation (fill this section out only in cases where subsegmentation is being proposed)

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Upstream Coordinates:		Downstream Coordinates:	
UTM X	Y	UTM X	Y
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	_____	
PDOP		± _____ Feet or ± _____ Meters	

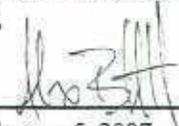
III. Discharger Facility Information (list all permitted dischargers on the stream)

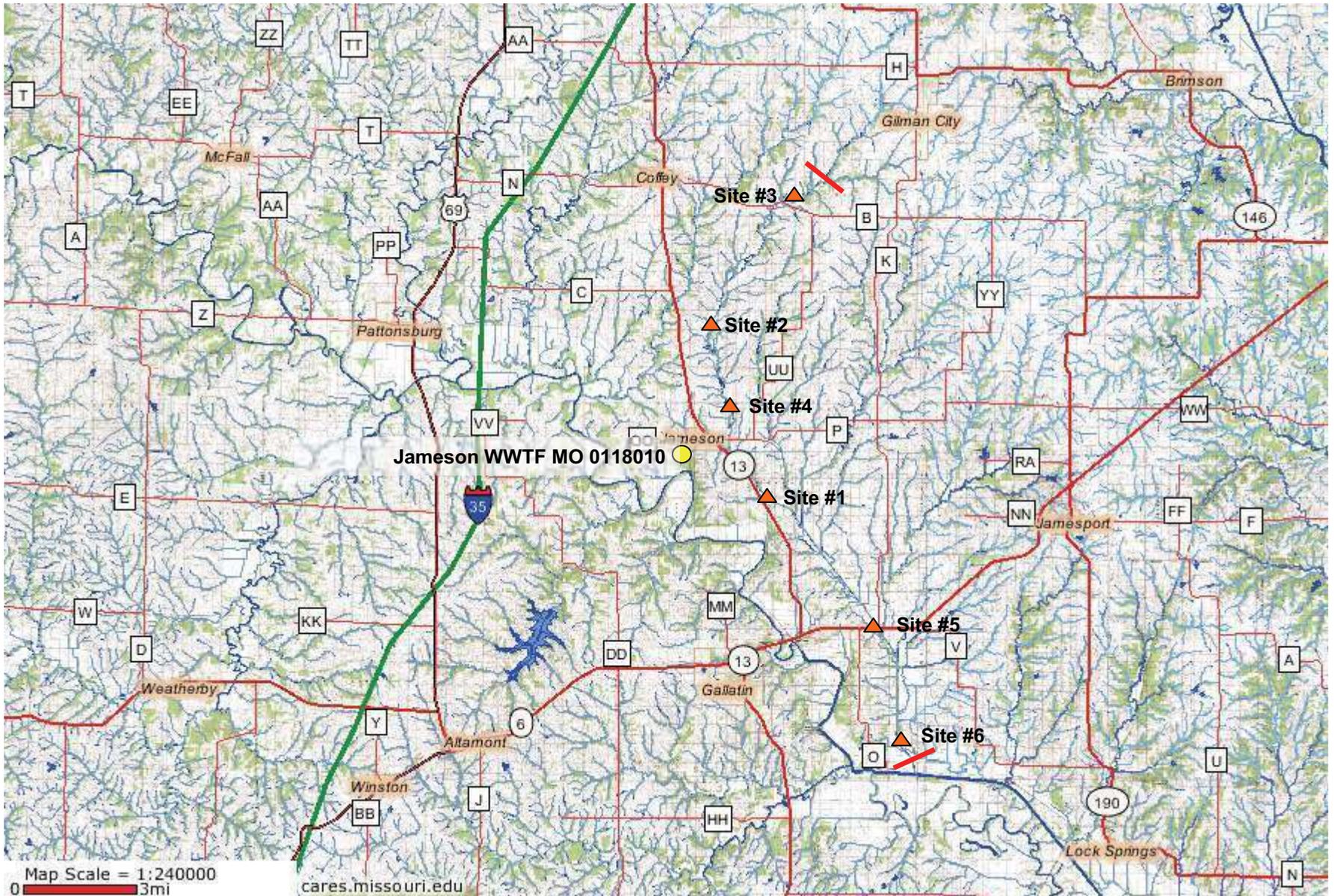
Discharger Facility Name(s):	JAMESON WWTF
Discharger Permit Number(s):	MO 0118010

IV. UAA Surveyor (please print legibly)

Name of Surveyor	Mark Griffith	Telephone Number:	(816) 363-2191
Organization/Employer:	BWR		
Position:	Environmental Scientist		

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

Signed:  Date: 6/15/07



Big Muddy Creek WBID #441



WBID# 441
 Site#

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

Date & Time: <u>5/21/07 1030</u>	Site Location Description (c.g., road crossing):
Personnel (Data Collectors): <u>Mark Griffiths/John Casoy</u>	<u>at bridge 235th St. SE of Jameson</u>
Current Weather Conditions: <u>Sunny, mild</u>	Facility Name: <u>- JAMESON WWTF</u>
Weather Conditions for Past 10 days: <u>sunny, mild</u>	Permit Number: <u>- MD0118010</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: <u>39 98890</u>	Y: <u>093.95733</u>
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	
FOM ± _____ Meters	Interpolation Data Quality
EPE ± _____ Feet or ± _____ Meters	
PDOP	
Source Map Scale: 1:24,000 1:100,000 Other _____	
± _____ Feet or ± _____ Meters	

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u> </u>	<u>PHOTOS MISSING DUE TO CAMERA MALFUNCTION</u>	<u> </u>	<u>PHOTOS MISSING DUE TO CAMERA MALFUNCTION</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: Hwy 13 in med west.

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:

90 CHANNEL FEATURES
 Run = 70%
 RIFFLE = 30%
 Pool = 0

* Page Two – Data Sheet B for WBID # 441 : Site #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

flow obvious in shallows

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> </u> % Cobble	<u>40</u> % Gravel	<u>40</u> % Sand	<u>20</u> % Silt	<u> </u> % Mud/Clay	<u> </u> % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

None

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input 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:

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: Mahaffey Date of Survey: 5-21-07
 Organization: BWR/EAE Position: Ecologist

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

WBID # 441 Site # 1

Transsect A
Start at Right

Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1 wetted width	0.1 (0)		1	Channel Feature:
2 6.8 m	0.3		2	run
3	0.3		3	
4 measurements	0.3		4	Dissolved Oxygen:
5 .6 m	0.4		5	
6 apart	0.4	DO 7.9	6	7.9 ppm
7	0.3	19.1°C	7	%
8	0.4		8	
9	0.3		9	
10	0.3		10	
			11	
Transsect B 1 wetted width	0.1 (.1)		12	Channel Feature:
2 6.8 m	0.3		13	run
3	.3		14	
4 measurements	.3	DO 7.9	15	Dissolved Oxygen:
5 .6 m	.3		16	
6 apart	.3		17	7.9 ppm
7	.3		18	%
8	.3		19	
9	.3		20	
10	.1		21	
			22	
Transsect C 1 wetted width	.1 (.2)		23	Channel Feature:
2 8.1 m	.2		24	run
3	.2		25	
4 measurements	.2		26	Dissolved Oxygen:
5 .8 m	.2		.	
6 apart	.2		.	7.7 ppm
7	.2	7.700	.	%
8	.3		n	
9	.2			
10	.1			

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: [Signature] Date: 5/21/07

Organization: BWR Corp. Position: ENV. Sci.

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

WBID # 441

Site # 1

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect D	1 wetted width	.1 (1.0)		1 Channel Feature:	
	2 4.9 m	.1		2	run
	3	.1		3	
	4 measurements	.2		4 Dissolved Oxygen:	
	5 .4 m	.3		5	
	6 apart	.3	7.7 00	6 7.7	ppm
	7	.3		7	%
	8	.3		8	
	9	.2		9	
	10	.1		10	
Transect E	1 wetted width	.1 (.7)	Mud Sand Bar	12 Channel Feature:	
	2 3.5 m	.1	Small Riffle	13	run
	3	.2	below	14	
	4 measurements	.2		15 Dissolved Oxygen:	
	5 .3 m	.2	7.7 00	16	
	6 apart	.2		17 7.7	ppm
	7	.3		18	%
	8	.3		19	
	9	.3		20	
	10	.2		21	
Transect F	1 wetted width	.1 (.7)	Gravel Bar	23 Channel Feature:	
	2 3.2 m	.1	above Riffle	24	run
	3	.1		25	
	4 measurements	.1		26 Dissolved Oxygen:	
	5 .2 m	.1		.	
	6 apart	<.1	7.8 00	. 7.8	ppm
	7	<.1		.	%
	8	<.1		n	
	9	<.1			
	10	<.1			

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: [Signature] Date: 5/21/07

Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 4A1 Site # 1

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	1 wetted width	.1 (.2)	Gravel Bot.	1	Channel Feature:
	2 <u>2.4 m</u>	.1		2	Run
	3	.1		3	
	4 measurements	.1		4	Dissolved Oxygen
	5 <u>.2 m</u>	.1	7.800	5	
	6 apart	.1		6	7.8 ppm
	7	.1		7	7%
	8	.1		8	
	9	.1		9	
	10	.1		10	
Transect H	1 wetted width	.1 (.2)		12	Channel Feature:
	2 <u>4.3 m</u>	.1		13	RUN
	3	.2		14	
	4 measurements	.2	7.500	15	Dissolved Oxygen:
	5 <u>.4 m</u>	.1		16	
	6 apart	.1		17	7.5 ppm
	7	.1		18	7%
	8	.1		19	
	9	.1		20	
	10	.1		21	
Transect I	1 wetted width	.1	Gravel, Cobble	23	Channel Feature:
	2 <u>4.9 m</u>	.1	Riffle	24	Riffle
	3	.1		25	
	4 measurements	.1		26	Dissolved Oxygen
	5 <u>0 m</u>	0		.	
	6 apart	.1		.	7.7 ppm
	7	.1		.	7%
	8	.1		n	
	9	.2	7.700		
	10	.1			

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: [Signature] Date: 5/21/07

Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 4A1 Site # 1

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
J	wetted width	.1 (.1)	Broken Bedrock	1	Channel Feature :
	<u>2.9</u> m	.2	Substrate	2	Run
		.3		3	
	measurements	.3	7.3	4	Dissolved Oxygen
	<u>2</u> m	.3		5	
	apart	.2		6	7.3 ppm
		.2		7	ppm
		.1		8	%
		.1		9	
		<.1		10	
K	wetted width	.1 (0)	Stone Riffle	12	Channel Feature :
	<u>2.1</u> m	.2	00 7.5	13	Riffle
		.1		14	
	measurements	0		15	Dissolved Oxygen :
	<u>2</u> m	<.1		16	
	apart	<.1		17	7.5 ppm
		<.1		18	ppm
		<.1		19	%
		0		20	
		<.1		21	
L	wetted width			23	Channel Feature :
	<u> </u> m			24	
				25	
	measurements			26	Dissolved Oxygen
	<u> </u> m			.	
	apart			.	ppm
				.	%
				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: [Signature] Date: 5/21/07

Organization: BWR CORP. Position: ENV. SCI.

WBID# 441
 Site# 2

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

Date & Time: <u>5/21/07 1135</u>	Site Location Description (e.g., road crossing): <u>Bridge at Forest Ave</u>
Personnel (Data Collectors): <u>MG/JC</u>	
Current Weather Conditions: <u>Sunny mild</u>	Facility Name: <u>JAMESON WWTF</u>
Weather Conditions for Past 10 days: <u>sunny mild</u>	Permit Number: <u>MO 0118010</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: <u>40.05231</u>	Y: <u>093.97758</u>
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	
FOM ± _____ Meters	Interpolation Data Quality Source Map Scale: 1:24,000 1:100,000 Other _____ ± _____ Feet or ± _____ Meters
EPE ± _____ Feet or ± _____ Meters	
PDOP	

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
	PHOTOS MISSING DUE TO CAMERA MALFUNCTION		PHOTOS MISSING DUE TO CAMERA MALFUNCTION		

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: forest/residential/

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:

90% CHANNEL FEATURES

RUN = 100%

RIFFLE = 0

POOL = 0

very shallow meanders

* Page Two - Data Sheet B for WBID # 441 : SITE #2
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%.)

~ % Cobble	20% Gravel	60% Sand	20% 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 checked="" type="checkbox"/> Sewage <i>slight</i>	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear <i>crystal</i>	<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:

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: *Mahaffey* Date of Survey: 5-21-07

Organization: BWR / EAE Position: Ecologist

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

WBID # AA1 Site # 2

Transect A
Start on
Right
Side

Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1 wetted width	<.1		1	Channel Feature :
2 2.5 m	<.1		2	Run
3	.1		3	
4 measurements	<.1	5.6 DO	4	Dissolved Oxygen
5 .2 m	<.1		5	
6 apart	<.1		6	5.6 ppm
7	<.1		7	%
8	<.1		8	
9	<.1		9	
10	<.1		10	
			11	
12 wetted width	<.1		12	Channel Feature :
13 2.1 m	<.1		13	Run
14	<.1		14	
15 measurements	<.1		15	Dissolved Oxygen :
16 .2 m	<.1		16	
17 apart	<.1		17	5.4 ppm
18	<.1		18	%
19	<.1		19	
20	.1	DO 5.4	20	
21	<.1		21	
			22	
23 wetted width	.1	5.1 DO	23	Channel Feature :
24 4.4 m	<.1	Sand/Silt Bottom	24	Run
25	<.1		25	
26 measurements	<.1		26	Dissolved Oxygen
27 .4 m	<.1			
28 apart	<.1			5.1 ppm
29	0			%
30	0		n	
31	<.1			

Transect C

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: [Signature] Date: 5/21/07
 Organization: BWR Corp. Position: Env. Sci.

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

WBID # 441 Site # 2

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
Transect D	1 wetted width	<.1		1	Channel Feature:	
	2 3.8 m	0		2		Run
	3	0		3		
	4 measurements	<.1		4	Dissolved Oxygen	
	5 3 m	0.1 0.1	5.1 no	5		
	6 apart	0.1		6	5.1	ppm
	7	0.1		7		%
	8	<.1		8		
	9	<.1		9		
	10	<.1		10		
Transect E	1 wetted width	<.1		12	Channel Feature:	
	2 2.8 m	<.1		13		Run
	3	<.1		14		
	4 measurements	<.1		15	Dissolved Oxygen:	
	5 2 m	<.1		16		
	6 apart	<.1		17	4.5	ppm
	7	0.1		18		%
	8	0.1	DO 9.5	19		
	9	0.1		20		
	10	<0.1		21		
Transect F	1 wetted width	<.1		23	Channel Feature:	
	2 2.5 m	<.1		24		Run
	3	<.1		25		
	4 measurements	0.1		26	Dissolved Oxygen	
	5 2 m	0.1		.		
	6 apart	<.1		.	4.5	ppm
	7	0.1		.		%
	8	0.1	DO 9.5	n		
	9	0.1				
	10	<.1				

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: [Signature] Date: 5/21/07

Organization: BWR Corp. Position: Env. Sci.

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

WBID # 441

Site # 2

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	1 wetted width	<.1		1	Channel Feature: Run
	2 3.9 m	0.1		2	
	3	0.1		3	
	4 measurements	0.1		4	Dissolved Oxygen: 3.9 ppm %
	5 .3 m	0.1	DO 3.9	5	
	6 apart	<.1	19.1°C	6	3.9
	7	<.1		7	
	8	<.1		8	
	9	<.1		9	
	10	<.1		10	
Transect H	1 wetted width	<.1		11	Channel Feature: Run
	2 4.2 m	<.1		12	
	3	0.1	DO 3.7	13	
	4 measurements	<.1		14	Dissolved Oxygen: 3.7 ppm %
	5 .4 m	<.1		15	
	6 apart	0		16	3.7
	7	<.1		17	
	8	<.1		18	
	9	<.1		19	
	9	<.1		20	
10	0.1		21		
Transect I	1 wetted width	0.1 (.3)		22	Channel Feature: Run
	2 4.6 m	0.1		23	
	3	0.1	DO 3.6	24	
	4 measurements	<.1		25	Dissolved Oxygen: 3.6 ppm %
	5 .4 m	<.1		26	
	6 apart	<.1		.	3.6
	7	<.1		.	
	8	<.1		n	
	9	0.1			
	10	0.1			

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: [Signature] Date: 5/21/07

Organization: BWR Corp. Position: Env. Sci.

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

WBID # 441 Site # 2

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
J	1 wetted width	<.1		1	Channel Feature:
	2 <u>2.1 m</u>	<.1		2	Run
	3	<.1		3	
	4 measurements	<.1		4	Dissolved Oxygen
	5 <u>.3 m</u>	<.1		5	
	6 apart	<.1		6	<u>3.5</u> ppm
	7	<.1		7	<u>7%</u>
	8	<.1		8	
	9	0.1	DO 3.5	9	
	10	<.1		10	
K	1 wetted width	0.1 (.3)		11	
	2 <u>3.7 m</u>	0.1	DO 2.5	12	Channel Feature:
	3	<.1		13	Run
	4 measurements	<.1		14	
	5 <u>.3 m</u>	<.1		15	Dissolved Oxygen:
	6 apart	<.1		16	
	7	<.1		17	<u>2.5</u> ppm
	8	<.1		18	<u>7%</u>
	9	<.1		19	
	10	<.1		20	
L	1 wetted width			21	
	2 <u> </u> m			22	Channel Feature:
	3			23	
	4 measurements			24	
	5 <u> </u> m			25	Dissolved Oxygen:
	6 apart			26	
	7				<u> </u> ppm
	8				<u> </u> %
	9			n	
	10				

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: [Signature] Date: 5/11/07

Organization: BWR CORP. Position: ENV. SCI.

WBID# 441
 Site# 3

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

Date & Time: <u>5/21/07 1225</u>	Site Location Description (e.g., road crossing): <u>upstream of bridge on 252nd St</u>
Personnel (Data Collectors): <u>MG/JC</u>	Facility Name: <u>JAMESON WWTF</u>
Current Weather Conditions: <u>Sunny Mild</u>	Permit Number: <u>MD0118016</u>
Weather Conditions for Past 10 days: <u>Sunny Mild</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: <u>40.10036</u>	Y: <u>093 93011</u>
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	
FOM ± _____ Meters	Interpolation Data Quality
EPE ± _____ Feet or ± _____ Meters	
PDOP	
Source Map Scale: 1:24,000 1:100,000 Other _____	
± _____ Feet or ± _____ Meters	

Photos:

Upstream Photos		Downstream Photos		Other Photos	
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
	<u>PHOTOS MISSING DUE TO CAMERA MALFUNCTION</u>		<u>PHOTOS MISSING DUE TO CAMERA MALFUNCTION</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 type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: cropland on both sides of riparian corridor

Indications of Human Use*: (attach photos)

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

Comments: trap at pool - in water

0% CHANNEL FEATURES
 RUN = 80%
 RIFFLE = 10%
 POOL = 10%

* Page Two - Data Sheet B for WBID # 441 : SITE # 3

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

Flow obvious in shalla

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>20</u>	% Gravel	<u>30</u>	% Sand	<u>40</u>	% Silt	<u>10</u>	% Mud/Clay		% Bedrock
----------	-----------	----------	-----------	--------	-----------	--------	-----------	------------	--	-----------

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

none

Water Characteristics*: (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input 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:

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: Mahaffey Date of Survey: 5-21-07
 Organization: BWR/ERE Position: Ecologist

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

WBID # 441 Site # 3

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect A Right	1 wetted width	0.1 (.4)		1	Channel Feature:
	2 5.9 m	0.3		2	Run
	3	0.4	DO 8.5	3	
	4 measurements	0.3		4	Dissolved Oxygen
	5 .5 m	0.3		5	
	6 apart	0.2		6	8.5 ppm
	7	0.2		7	ppm
	8	0.1		8	%
	9	0.3		9	
	10	0.1		10	
Transect B	1 wetted width	0.1 (.2)		11	
	2 6.2 m	0.3		12	Channel Feature:
	3	0.3		13	Run
	4 measurements	0.4	DO 8.6	14	
	5 .6 m	0.4		15	Dissolved Oxygen:
	6 apart	0.3		16	
	7	0.3		17	8.6 ppm
	8	0.3		18	ppm
	9	0.3		19	%
	10	0.3		20	
Transect C	1 wetted width			21	
	2 3.5 m	0.1 (.1)		22	
	3	0.2		23	Channel Feature:
	4 measurements	0.3		24	Run
	5 .3 m	0.3		25	
	6 apart	0.4	DO 8.0	26	Dissolved Oxygen
	7	0.4		.	8.0 ppm
	8	0.2		.	ppm
	9	0.1		n	%
	10	< 0.1			

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: [Signature] Date: 5/21/07

Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 441 Site # 3

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect D Start @ Right	1 wetted width	0.1 (0.1)		1	Channel Feature:
	2 6.5 m	0.4		2	Run
	3	0.4	008.0	3	
	4 measurements	0.3		4	Dissolved Oxygen
	5 .6 m	0.3		5	
	6 apart	0.3		6	8.0 ppm
	7	0.4		7	‰
	8	0.3		8	
	9	0.3		9	
	10	0.1		10	
Transect E	1 wetted width	0.1 (0.2)		12	Channel Feature:
	2 7.2 m	0.2		13	Run
	3	0.4		14	
	4 measurements	0.4		15	Dissolved Oxygen:
	5 .7 m	0.4	007.6	16	
	6 apart	0.4	21.3°C	17	7.6 ppm
	7	0.5		18	‰
	8	0.4		19	
	9	0.3		20	
	10	0.1		21	
Transect F	1 wetted width	0.1 (0.2)		23	Channel Feature:
	2 6.8 m	0.4		24	Pool
	3	0.8	7.0	25	
	4 measurements	0.9		26	Dissolved Oxygen
	5 .6 m	1.0	Pool Caused	.	
	6 apart	1.0	by log Jam	.	7.0 ppm
	7	0.9		.	‰
	8	0.7		n	
	9	0.5			
	10	0.2			

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: [Signature] Date: 5/21/07

Organization: BWR Corp. Position: Env. Sci.

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

WBID # 441 Site # 3

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	1 wetted width	<.1		1	Channel Feature:
	2 0.9 m	<.1		2	Run
	3	<.1		3	
	4 measurements	<.1		4	Dissolved Oxygen
	5 0.1 m	0.1	9.4	5	
	6 apart	0.1		6	9.4 ppm
	7	<.1		7	%
	8	<.1		8	
	9	<.1		9	
	10	<.1		10	
Transect H	1 wetted width	<.1	Sand +	12	Channel Feature:
	2 1.2 m	<.1	Gravel	13	Riffle
	3	<.1		14	
	4 measurements	<.1		15	Dissolved Oxygen:
	5 0.1 m	0.1	8.7	16	
	6 apart	0.1		17	8.7 ppm
	7	0.1		18	%
	8	<.1		19	
	9	<.1		20	
	10	<.1		21	
Transect I	1 wetted width	0.1 (0)		23	Channel Feature:
	2 2.0 m	0.2		24	Pool (small)
	3	0.2		25	
	4 measurements	0.2		26	Dissolved Oxygen
	5 0.2 m	0.3	8.4		
	6 apart	0.3			8.4 ppm
	7	0.3			%
	8	0.3		n	
	9	0.2			
	10	0.1			

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: [Signature] Date: 5/21/07

Organization: ENR Corp. Position: ENR SCI

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

WBID # 4A1 Site # 3

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect J	1 wetted width	0.1 (.3)		1 Channel feature:	
	2 1.9 m	0.1		2	run
	3	0.1		3	
	4 measurements	0.1		4 Dissolved Oxygen	
	5 .1 m	0.1		5	
	6 apart	0.1	DO 8.8	6 8.8	ppm
	7	0.1		7	%
	8	0.1		8	
	9	0.1		9	
	10	0.1		10	
Transect K	1 wetted width	0.1 (.4)		12 Channel Feature:	
	2 4.3 m	0.2 .3		13	run
	3	0.9 0.3		14	
	4 measurements	0.2 0.1		15 Dissolved Oxygen:	
	5 .4 m	0.2 0.1	DO	16	
	6 apart	< 0.1		17 8.5	ppm
	7	< 0.1		18	%
	8	0.1		19	
	9	0.1		20	
	10	< 0.1		21	
Transect	1 wetted width			23 Channel Feature:	
	2 _____ m			24	
	3			25	
	4 measurements			26 Dissolved Oxygen	
	5 _____ m			.	
	6 apart			.	ppm
	7			.	%
	8			n	
	9				
	10				

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: Mahly Date: 5-21-07

Organization: BWR / EAE Position: Ecologist

WBID# 441
 Site# 4

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

Date & Time: <u>6/15/07 0900</u>	Site Location Description (e.g., road crossing): <u>BRIDGE CROSSING @ ISLE RD. (UPSTREAM)</u>
Personnel (Data Collectors): <u>BARTLET & LONT</u>	Facility Name: <u>JAMESON WWTF</u>
Current Weather Conditions: <u>CLEAR ~75°</u>	Permit Number: <u>MO 0118010</u>
Weather Conditions for Past 10 days: <u>FAIR</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: 40.02043 Y: 093.97250

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>441-3.4</u>	<u>TRANS-K</u>	<u>441-1.2</u>	<u>TRANS-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 checked="" 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: ISLE RD.

0 CHANNEL FEATURES

* Page Two - Data Sheet B for WBID # 441 : SITE # 4

RUN - 100
RIFFLER -
POOL -

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)
RIFFLER					
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)
RIFFLER					
RUN					
POOL					

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

% Cobble	15 % Gravel	85 % Sand	% Silt	% Mud/Clay	% Bedroc
----------	-------------	-----------	--------	------------	----------

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 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: [Signature] Date of Survey: 6/15/07

Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 440

Site # 4

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect A	1	wetted width	< 0.1		
	2	1.5 m	< 0.1	1	Channel Feature:
	3		< 0.1	2	RUN 100
	4	measurements	< 0.1	3	
	5	0.15 m	< 0.1	4	Dissolved Oxygen:
	6	apart	< 0.1	5	
	7		< 0.1	6	9.62
	8		< 0.1	7	ppm
	9		< 0.1	8	%
	10		< 0.1	9	
Transect B	1	wetted width	< 0.1		
	2	3.0 m	< 0.1	12	Channel Feature:
	3		< 0.1	13	RUN 100
	4	measurements	< 0.1	14	
	5	0.30 m	< 0.1	15	Dissolved Oxygen:
	6	apart	< 0.1	16	
	7		< 0.1	17	9.72
	8		< 0.1	18	ppm
	9		< 0.1	19	%
	10		< 0.1	20	
Transect C	1	wetted width	< 0.1		
	2	3.2 m	< 0.1	23	Channel Feature:
	3		< 0.1	24	RUN
	4	measurements	< 0.1	25	
	5	0.32 m	< 0.1	26	Dissolved Oxygen:
	6	apart	< 0.1		
	7		< 0.1		9.75
	8		< 0.1		ppm
	9		< 0.1		%
	10		< 0.1	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 UA datasheet is true and accurate.

Signed: [Signature]

Date: 6/15/07

Organization: RWR CORP.

Position: ENV. SCI.

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

WBID # 441

Site # 4

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
D	1 wetted width	<0.1			
	2 <u>3.0 m</u>	<0.1		1	Channel Feature:
	3	<0.1		2	RUN
	4	<0.1		3	
	5 measurements	<0.1		4	Dissolved Oxygen:
	6 <u>0.30 m</u>	<0.1		5	
	7 apart	<0.1		6	9.95 ppm
	8	<0.1		7	
	9	<0.1		8	
	10	<0.1		9	
E	1 wetted width	<0.1			
	2 <u>2.4 m</u>	<0.1		12	Channel Feature:
	3	<0.1		13	RUN
	4	<0.1		14	
	5 measurements	<0.1		15	Dissolved Oxygen:
	6 <u>0.24 m</u>	<0.1		16	
	7 apart	<0.1		17	10.06 ppm
	8	<0.1		18	
	9	<0.1		19	
	10	<0.1		20	
F	1 wetted width	<0.1			
	2 <u>2.0 m</u>	<0.1		23	Channel Feature:
	3	<0.1		24	RUN
	4	<0.1		25	
	5 measurements	<0.1		26	Dissolved Oxygen:
	6 <u>0.20 m</u>	<0.1			
	7 apart	<0.1			9.86 ppm
	8	<0.1			
	9	<0.1			
	10	<0.1		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 UA datasheet is true and accurate.

Signed: [Signature] Date: 6/15/07
 Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 441

Site # 4

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	wetted width	<0.1			
	<u>2.7 m</u>	<0.1		1	Channel Feature:
		<0.1		2	RUN
		<0.1		3	
	measurements	<0.1		4	Dissolved Oxygen:
	<u>0.27 m</u>	<0.1		5	
	apart	<0.1		6	<u>9.87</u> ppm
		<0.1		7	<u>7</u> %
		<0.1		8	
		<0.1		9	
Transect H	wetted width	<0.1			
	<u>2.8 m</u>	<0.1		11	
		<0.1		12	Channel Feature:
		<0.1		13	RUN
	measurements	<0.1		14	
	<u>0.78 m</u>	<0.1		15	Dissolved Oxygen:
	apart	<0.1		16	
		<0.1		17	<u>10.09</u> ppm
		<0.1		18	<u>7</u> %
		<0.1		19	
Transect I	wetted width	<0.1			
	<u>2.5 m</u>	<0.1		22	
		<0.1		23	Channel Feature:
		0.1		24	RUN
	measurements	0.1		25	
	<u>0.29 m</u>	0.1		26	Dissolved Oxygen:
	apart	0.1		.	
		0.1		.	<u>10.00</u> ppm
		<0.1		.	<u>7</u> %
		<0.1		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 UAS datasheet is true and accurate.

Signed: [Signature] Date: 6/15/07
 Organization: RWR CORP. Position: ENV. SCI.

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

WBID # 441

Site # 4

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect 1	wetted width	< 0.1			
	<u>2.8 m</u>	< 0.1		1	Channel Feature:
		< 0.1		2	RUN
		< 0.1		3	
	measurements	< 0.1		4	Dissolved Oxygen:
	<u>0.28 m</u>	< 0.1		5	
	apart	< 0.1		6	<u>10.20</u> ppm
		< 0.1		7	<u>7</u> %
		< 0.1		8	
		< 0.1		9	
Transect 2	wetted width	< 0.1			
	<u>2.4 m</u>	< 0.1		11	
		< 0.1		12	Channel Feature:
		< 0.1		13	RUN
	measurements	< 0.1		14	
	<u>0.24 m</u>	< 0.1		15	Dissolved Oxygen:
	apart	< 0.1		16	
		< 0.1		17	<u>10.04</u> ppm
		< 0.1		18	<u>7</u> %
		< 0.1		19	
Transect 3	wetted width				
	<u> </u> m			21	
				22	
				23	Channel Feature:
	measurements			24	
	<u> </u> m			25	
	apart			26	Dissolved Oxygen:
				.	
				.	<u> </u> ppm
				n	<u> </u> %

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: 6/15/07
 Organization: BWR CORP. Position: ENV. SCI.

WBID# 441
 Site# 5

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

Date & Time: <u>6/15/07 1000</u>	Site Location Description (e.g., road crossing): <u>BRIDGE CROSSING @ HWY 6 (UPSTREAM)</u>
Personnel (Data Collectors): <u>BARTLETT & LUNT</u>	Facility Name: <u>JAMESON WWTF</u>
Current Weather Conditions: <u>CLEAR, ~75°</u>	Permit Number: <u>MO 0118010</u>
Weather Conditions for Past 10 days: <u>FAIR</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: 39.93493 Y: 093.89719

~~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>441-7,8</u>	<u>TRAN J-K</u>	<u>441-5,6</u>	<u>TRAN 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 checked="" 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: HWY 6 & HWY K

90 CHANNEL FEATURES

• Page Two – Data Sheet B for WBID # 441: SITE # 5

Run - 40
Riffle -
Pool - 60

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	15 % Gravel	75 % Sand	10 % Silt	% Mud/Clay	% Bedroc
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

SOME (SPARSE) ALGAL GROWTH ON SAND IN SHALLOW AREAS

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: [Signature] Date of Survey: 6/15/07

Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 441

Site # 5

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect A	1 wetted width	<0.1			
	2 <u>4.8 m</u>	<0.1		1	Channel Feature:
	3	0.1		2	RUN
	4	<0.1		3	
	5 measurements	0.1		4	Dissolved Oxygen
	6 <u>0.48 m</u>	0.1		5	
	7 apart	0.1		6	<u>9.62</u> ppm
	8	0.1		7	<u>7</u> %
	9	0.3		8	
	10	0.2		9	
Transect B	1 wetted width	<0.1		10	
	2 <u>7.2 m</u>	<0.1		11	
	3	<0.1		12	Channel Feature:
	4	0.1		13	RUN TO
	5 measurements	0.1		14	POOL TO
	6 <u>0.72 m</u>	0.1		15	Dissolved Oxygen:
	7 apart	0.1		16	
	8	0.1		17	<u>9.64</u> ppm
	9	0.1		18	<u>7</u> %
	10	0.1		19	
Transect C	1 wetted width	<0.1		20	
	2 <u>5.9 m</u>	0.1		21	
	3	0.2		22	
	4	0.2		23	Channel Feature:
	5 measurements	0.3		24	POOL
	6 <u>0.60 m</u>	0.3		25	
	7 apart	0.3		26	Dissolved Oxygen
	8	0.4			<u>9.55</u> ppm
	9	0.3			<u>7</u> %
	10	0.2		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 UA datasheet is true and accurate.

Signed: [Signature]

Date: 6/15/07

Organization: BWR CORP.

Position: ENV. Sci.

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

WBID # 441

Site # 5

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
D	wetted width	<0.1				
	<u>8.0 m</u>	0.1		1	Channel Feature:	
		0.1		2	Pool	
	measurements	0.2		3		
	<u>0.80 m</u>	0.3		4	Dissolved Oxygen:	
	apart	0.4		5		
		0.4		6	9.45	ppm
		0.4		7		%
		0.3		8		
		0.3		9		
E	wetted width	<0.1				
	<u>7.6 m</u>	0.1		11		
		0.2		12	Channel Feature:	
	measurements	0.4		13	Pool	
	<u>0.76 m</u>	0.5		14		
	apart	0.7		15	Dissolved Oxygen:	
		0.5		16		
		0.5		17	10.01	ppm
		0.4		18		%
		0.3		19		
F	wetted width	<0.1				
	<u>5.5 m</u>	0.1		22		
		0.2		23	Channel Feature:	
	measurements	0.3		24	Pool	
	<u>0.55 m</u>	0.4		25		
	apart	0.4		26	Dissolved Oxygen:	
		0.5				
		0.5			10.11	ppm
		0.4				%
		0.3		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 UA datasheet is true and accurate.

Signed: [Signature] Date: 6/15/07
 Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 441

Site # 5

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect G	wetted width	<0.1			
	<u>7.2 m</u>	0.2		1	Channel Feature:
		0.2		2	POOL
	measurements	0.2		3	
	<u>0.72 m</u>	0.2		4	Dissolved Oxygen:
	apart	0.3		5	
		0.3		6	<u>10.18</u> ppm
		0.4		7	<u>7</u> %
		0.5		8	
		0.5		9	
Transect H	wetted width	0.1		10	
	<u>5.4 m</u>	0.1		11	
		0.1		12	Channel Feature:
	measurements	0.1		13	POOL
	<u>0.54 m</u>	<0.1		14	
	apart	0.1		15	Dissolved Oxygen:
		<0.1		16	
		<0.1		17	<u>10.97</u> ppm
		<0.1		18	<u>7</u> %
		<0.1		19	
Transect I	wetted width	<0.1		20	
	<u>5.0 m</u>	0.1		21	
		0.2		22	
	measurements	0.2		23	Channel Feature:
	<u>0.50 m</u>	0.2		24	RUN
	apart	0.2		25	
		0.1		26	Dissolved Oxygen:
		0.1		.	<u>10.09</u> ppm
		<0.1		.	<u>7</u> %
		<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 UAA datasheet is true and accurate.

Signed: [Signature] Date: 6/15/07
 Organization: BWR CORP. Position: ENV. SCI

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

WBID # 441

Site # 5

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
Transect 1	wetted width	<0.1				
	4.5 m	<0.1		1	Channel Feature:	
				2	RUN	
	measurements	0.1		3		
	0.45 m	0.1		4	Dissolved Oxygen:	
	apart	0.1		5		
		0.1		6	10.51	ppm
		0.1		7		%
		0.1		8		
		0.1		9		
Transect 2	wetted width	<0.1		10		
	7.2 m	<0.1		11		
		<0.1		12	Channel Feature:	
	measurements	<0.1		13	RUN	
	0.72 m	<0.1		14		
	apart	<0.1		15	Dissolved Oxygen:	
		<0.1		16		
		<0.1		17	10.76	ppm
		<0.1		18		%
		<0.1		19		
Transect 3	wetted width			20		
	m			21		
				22		
	measurements			23	Channel Feature:	
	m			24		
	apart			25	Dissolved Oxygen:	
				26		
				.		
				.	ppm	
				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 UA datasheet is true and accurate.

Signed: [Signature] Date: 2/15/07
 Organization: BWR CORP. Position: ENV. SCI.

WBID# 441
 Site# 6

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

Date & Time: <u>6/15/07 1100</u>	Site Location Description (e.g., road crossing): <u>BRIDGE CROSSING @ RIDGE RD. (UPSTREAM)</u>
Personnel (Data Collectors): <u>BARTLETT & LUNT</u>	Facility Name: <u>JAMESON WHITE</u>
Current Weather Conditions: <u>CLEAR ~80°</u>	Permit Number: <u>MO0118010</u>
Weather Conditions for Past 10 days: <u>FAIR</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: 39.88401 Y: 093.87923

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>441-1,12</u>		<u>441-9,10</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: RIDGE RD.

* Page Two - Data Sheet B for WBID # 441 : SITE # 6

RUN - 25
RIFLE -
POOL - 75

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)
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	10% Gravel	60% Sand	30% Silt	% Mud/Clay	% Bedrock
----------	------------	----------	----------	------------	-----------

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

VERY SPARSE ALGAL GROWTH ON SAND.

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 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: 6/15/07
 Organization: BWR CORP. Position: ENV. SCI.

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

WBID # 441

Site # 6

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
Transect A	1 wetted width	< 0.1			
	2 7.5 m	0.1		1	Channel Feature:
	3	0.1		2	Pool
	4 measurements	0.2		3	
	5 0.75 m	0.3		4	Dissolved Oxygen:
	6 apart	0.3		5	
	7	0.3		6	9.21
	8	0.4		7	ppm
	9	0.3		8	%
	10	0.2		9	
Transect B	1 wetted width	< 0.1		10	
	2 10.5 m	0.1		11	
	3	0.1		12	Channel Feature:
	4 measurements	0.1		13	Pool
	5 1.05 m	0.2		14	
	6 apart	0.2		15	Dissolved Oxygen:
	7	0.3		16	
	8	0.3		17	18.18
	9	0.4		18	ppm
	10	0.3		19	%
Transect C	1 wetted width	0.3		20	
	2 15.0 m	0.5		21	
	3	0.5		22	
	4 measurements	0.5		23	Channel Feature:
	5 1.50 m	0.5		24	Pool
	6 apart	0.5		25	
	7	0.4		26	Dissolved Oxygen:
	8	0.5		.	8.66
	9	0.5		.	ppm
	10	0.3		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 UA datasheet is true and accurate.

Signed: [Signature] Date: 6/15/07
 Organization: BWR CORP. Position: ENV. SCI.

February 5, 2007

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

WBID # 441

Site # 6

Transect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
D	1 wetted width	0.3			
	2 1.0 m	0.9		1	Channel Feature:
	3	0.8		2	Pool
	4 measurements	0.7		3	
	5 1.50 m	0.6		4	Dissolved Oxygen
	6 apart	0.5		5	
	7	0.4		6	8.90 ppm
	8	0.5		7	7
	9	0.6		8	
	10	0.8		9	
E	1 wetted width	0.3		10	
	2 1.0 m	0.5		11	
	3	0.5		12	Channel Feature:
	4 measurements	0.4		13	Pool
	5 1.60 m	0.5		14	
	6 apart	0.7		15	Dissolved Oxygen:
	7	0.9		16	
	8	>1.0		17	9.01 ppm
	9	>1.0		18	7
	10	>1.0		19	
F	1 wetted width	<0.1		20	
	2 4.0 m	<0.1		21	
	3	<0.1		22	
	4 measurements	<0.1		23	Channel Feature:
	5 0.40 m	<0.1		24	Run
	6 apart	0.1		25	
	7	0.2		26	Dissolved Oxygen
	8	0.3			9.55 ppm
	9	0.3			7
	10	0.1		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 UA datasheet is true and accurate.

Signed: [Signature] Date: 6/15/07
 Organization: BWR Corp. Position: ENV. SCI.

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

WBID # 441

Site # 6

Transsect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
G	wetted width	< 0.1			
	4.5 m	0.1		1	Channel Feature:
		0.1		2	RUN
		0.1		3	
	measurements	0.1		4	Dissolved Oxygen:
	0.45 m	0.1		5	
	apart	0.1		6	9.40 ppm
		0.1		7	7
		0.1		8	
		0.1		9	
H	wetted width	< 0.1		10	
	17.6 m	0.2		11	
		0.2		12	Channel Feature:
		0.2		13	RUN
	measurements	< 0.1		14	
	1.75 m	< 0.1		15	Dissolved Oxygen:
	apart	< 0.1		16	
		< 0.1		17	9.30 ppm
		< 0.1		18	7
		0.1		19	
I	wetted width	0.1		20	
	9.16 m	0.2		21	
		0.2		22	Channel Feature:
		0.2		23	RUN
	measurements	0.1		24	
	0.916 m	0.1		25	Dissolved Oxygen:
	apart	0.1		26	
		0.2			9.08 ppm
		0.2			7
		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: 6/15/07

Organization: BWR CORP.

Position: ENV. SCI.

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

WBID # 441

Site # 6

Transsect	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1	wetted width	0.6			
	<u>12.2 m</u>	0.5		1	Channel Feature:
		0.7		2	POOL
	measurements	0.7		3	
	<u>1.72 m</u>	0.7		4	Dissolved Oxygen:
	apart	0.6		5	
		0.5		6	9.42
		0.5		7	ppm
		0.4		8	%
		0.4		9	
2	wetted width	0.6		10	
	<u>13.0 m</u>	0.9		11	
		0.8		12	Channel Feature:
	measurements	0.8		13	POOL
	<u>1.30 m</u>	0.9		14	
	apart	0.9		15	Dissolved Oxygen:
		0.9		16	
		0.9		17	8.96
		0.9		18	ppm
		0.8		19	%
3	wetted width			20	
	<u> m</u>			21	
				22	
	measurements			23	Channel Feature:
	<u> m</u>			24	
	apart			25	
				26	Dissolved Oxygen:
					ppm
				n	%

If there is an odd number of entries find middle rank $[(n+1)/2]$. The corresponding sorted value depth t 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: 6/15/07
 Organization: BIAR CORP. Position: ENV. SCI.

**Big Muddy WBID 441 photographs missing for
Sites #1, #2 & #3 due to camera malfunction.**



Downstream (Site 4) of Big Muddy Creek



Downstream (Site 4) of Big Muddy Creek



Upstream (Site 4) of Big Muddy Creek



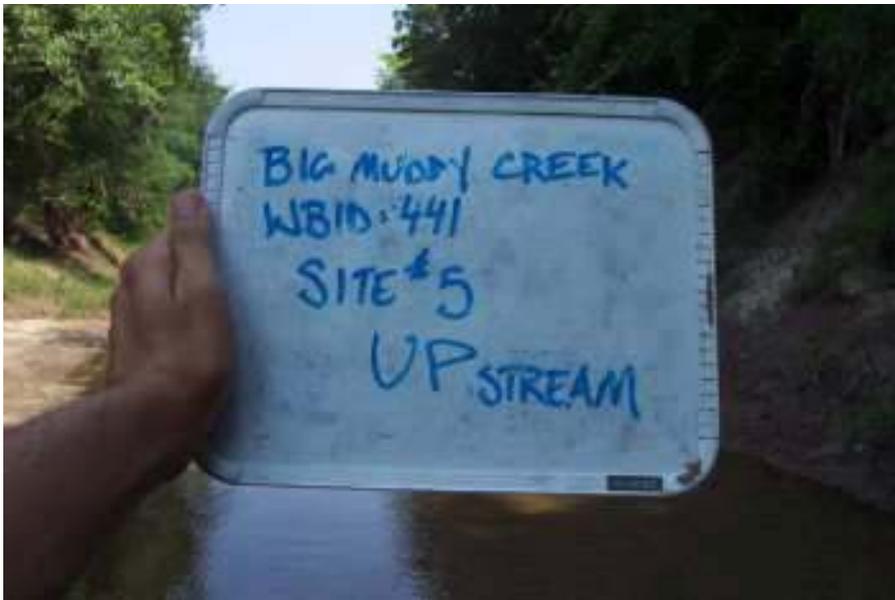
Upstream (Site 4) of Big Muddy Creek



Downstream (Site 5) of Big Muddy Creek



Downstream (Site 5) of Big Muddy Creek



Upstream (Site 5) of Big Muddy Creek



Upstream (Site 5) of Big Muddy Creek



Downstream (Site 6) of Big Muddy Creek



Downstream (Site 6) of Big Muddy Creek



Upstream (Site 6) of Big Muddy Creek



Upstream (Site 6) of Big Muddy Creek

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

Stream Name Big Muddy Creek (WBID # 441)

I. Introduction

Date & Time (include AM or PM): 05-09-07 11:35 A.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.) Owns land on the upstream section (255th & Cedar Ave)

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: Doug Reed
Current mailing address: 11589 255 St Billman, MO
Daytime phone number: (660) 878-5477
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 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.

Mr. Reed really didn't have an answer for why him or his family didn't use Big Muddy Creek

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)? 11

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 checked="" 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)? 10-15 times

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)? Mr. Reed
has witnessed people using the stream (did not know
the people) for fishing purposes. about 2-3 times
a year he see someone fishing in Big Muddy

2.d.) Where, exactly? Describe specific location *and mark on the map* (Seemap requirements in the protocol). He Mr. Reed did not have specific location,
He has seen people on his ~~at~~ near his property
Big Muddy creek runs on some of his' property
(255th & Cedar Ave)

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)?

REFER to ABOVE questions
for REMARKS

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: Mr. Reed says Big Muddy rarely goes dry during summer months. He mentioned beavers dam up the creek keeping water in the creek

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: Ryan M. Lunt

Printed Name: Ryan M. Lunt

Employer (where applicable): Seagull Environmental

Interviewer's phone #: E-mail: rlunt@seagullenvirotech.com

Field Data Sheet for Recreational Use Stream Survey

Data Sheet D—Recreational Use Interview

Stream Name Big Muddy Creek (WBID # 441)

I. Introduction

Date & Time (include AM or PM): 05-09-07 13:30

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.) Owns the property along the stream. Mrs. Critten is manager of Landmark Company

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: Lola Critten

Current mailing address: Landmark Company

Daytime phone number: (____) N/A

E-mail address (optional): N/A

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

If yes, how many 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.

Much rather use the Grand River

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 checked="" type="checkbox"/>	Wading <input checked="" 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)? *Mrs. CRITTEN DOES NOT KNOW how often people use the Big Muddy, she says people mainly use the stream during the spring & fall.*

2.d.) Where, exactly? Describe specific location *and mark on the map* (Seemap requirements in the protocol). *Mrs. CRITTEN SAYS people mainly fish & wade where the Big Muddy enters the Grand River. (Between Quirk Ave & Ridge Ave)*

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)?

ON 2.c. & 2.d. REFER TO ABOVE QUESTIONS FOR REMARKS

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: Big Muddy rarely goes dry during the summer. Mrs. Crippen mentions again more people use the Grand River.

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: Ryan M. Lunt

Printed Name: Ryan M. Lunt

Employer (where applicable): Seagull Environmental Technologies

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