



Missouri
Department of
Natural Resources

Use Attainability Analysis

for

WBID 3294 Tributary to Bird Branch

Submitted by
BWR

to

Missouri Department of Natural Resources
Water Protection Program

Date received: June 29, 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): <i>Tributary to Bird Branch</i>
Missouri Water Body Identification (WBID) Number: <i>3294</i>
8-digit HUC: <i>10290109</i> - <i>Lake of the Ozarks</i> County: <i>Benton County</i>
Upstream Legal Description (from Table H): <i>Mouth</i>
Downstream Legal Description (from Table H): <i>14, 41N, 22W</i>
Number of sites evaluated <i>3</i>
List all sites numbers, listed consequently upstream to downstream: <i>Cross Section #1, Cross Section #2, Cross Section #3</i>

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

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

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	

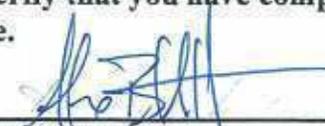
III. Discharger Facility Information (list all permitted dischargers on the stream)

Discharger Facility Name(s): <i>Rigby Bankhouse Suites</i>
Discharger Permit Number(s): <i>MO0121487</i>

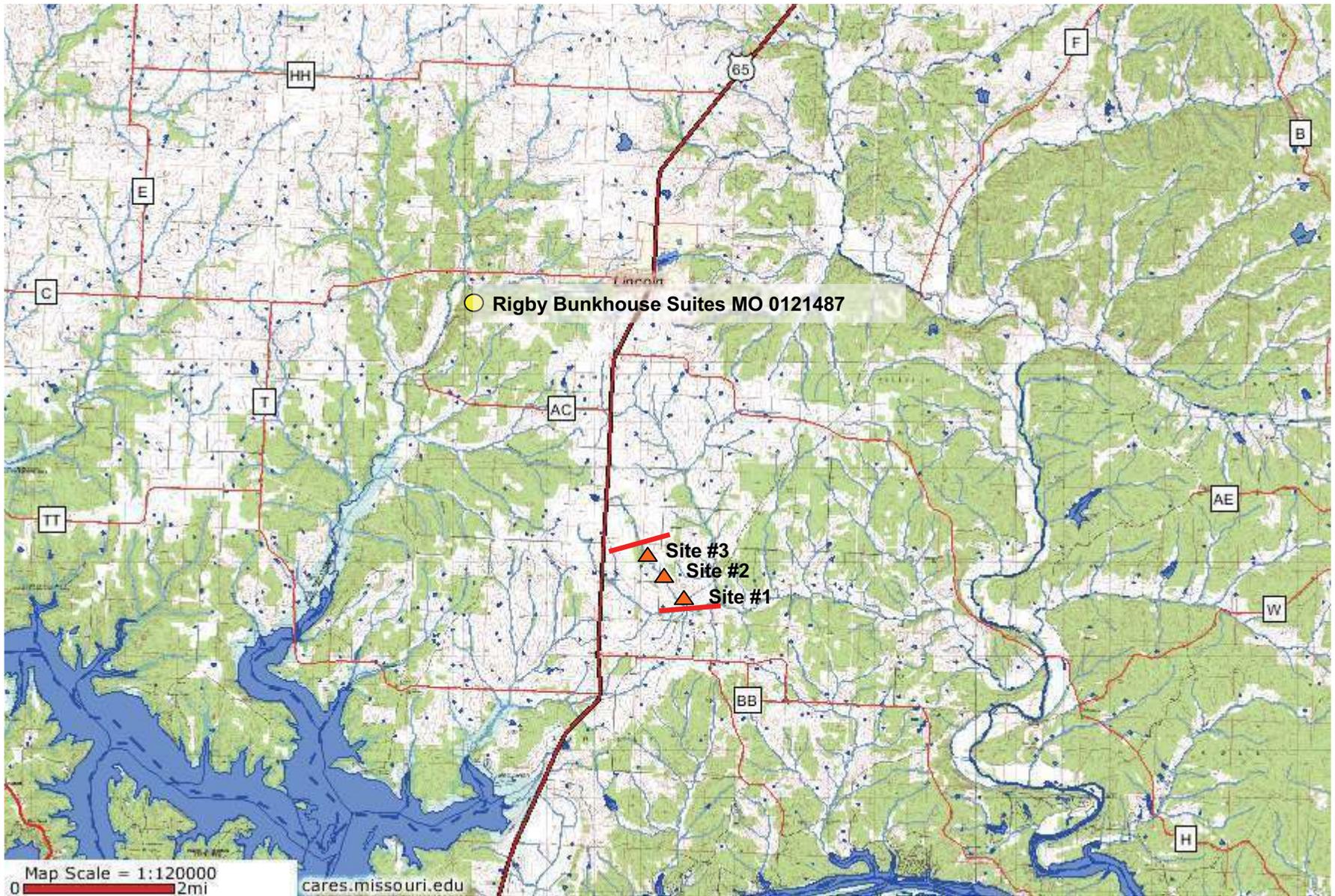
IV. UAA Surveyor (please print legibly)

Name of Surveyor: <i>Alex Bartlett</i>	Telephone Number: <i>816.363.2696</i>
Organization/Employer: <i>BWR</i>	
Position: <i>Environmental Scientist</i>	

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

Signed: 

Date: *6/20/07*



Tributary to Bird Branch
WBID #3294



WBID# 3294
 Site# 1

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

Date & Time: <u>6/20/07 1200</u>	Site Location Description (e.g., road crossing): <u>BRIDGE CROSSING AT BUTTERFIELD TRAIL (UPSTREAM) (CR 291 SW)</u>
Personnel (Data Collectors): <u>BARTLETT & LUNT</u>	Facility Name: <u>RIGBY BUNKHOUSE SUITES</u>
Current Weather Conditions: <u>OVERCAST, 75°F</u>	Permit Number: <u>MO 121487</u>
Weather Conditions for Past 10 days: <u>FAIR, RAINY</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>38.32807</u>	Y: <u>095.32120</u>
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 _____ ± _____ 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
<u>3294-3/4</u>	<u>TRAN J-K</u>	<u>3294-1/2</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 type="checkbox"/> Steep slopes	<input type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Comments: Property owned by Dick Krise

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 checked="" 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:

CHANNEL FEATURE %

* Page Two - Data Sheet B for WBID # 3294 : #1

RUN: _____ RIFFLE: _____
~~RIFFLE~~
POOL: 100%

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%.)

60 % Cobble	20 % Gravel	% Sand	% Silt	% Mud/Clay	20 % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

limited / sparse 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 checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

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

3294 #1

TA

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1	WETTED WIDTH	<0.1		1	CHANNEL FEATURE:
2	1.5	0.1		2	POOL
3		0.1		3	
4	MEASUREMENTS	0.1		4	DISSOLVED OXYGEN:
5	0.15 m	0.1		5	
6	APART	0.1		6	8.88 ppm
7		0.1		7	
8		0.1		8	
9		<0.1		9	
10		<0.1		10	
				11	
1	WETTED WIDTH	0.1		12	CHANNEL FEATURE:
2	3.2	0.2		13	POOL
3		0.3		14	
4	MEASUREMENTS	0.2		15	DISSOLVED OXYGEN:
5	0.32 m	0.2		16	
6	APART	0.2		17	7.10 ppm
7		0.3		18	
8		0.3		19	
9		0.2		20	
10		0.2		21	
				22	CHANNEL FEATURE:
1	WETTED WIDTH	0.2		23	POOL
2	2.0	0.2		24	
3		0.2		25	DISSOLVED OXYGEN:
4	MEASUREMENTS	0.3		26	
5	0.20 m	0.3		.	6.95 ppm
6	APART	0.3		.	
7		0.2		.	
8		0.2		n	
9		0.2			
10		0.2			

TB

TC

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: Prozella Date: 6/20/07

Organization: RWR CORP. Position: ENV. SCI.

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

3294 #1

T_D

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1	WETTED WIDTH	0.1		1	CHANNEL FEATURE :
2	1.0	0.1		2	POOL
3		0.1		3	
4	MEASUREMENTS	0.1		4	DISSOLVED OXYGEN :
5	0.10 m	0.1		5	
6	APART	0.1		6	5.58 ppm
7		0.1		7	
8		0.1		8	
9		0.1		9	
10		0.1		10	
				11	CHANNEL FEATURE :
1	WETTED WIDTH	< 0.1		12	POOL
2	0.5	< 0.1		13	
3		0.1		14	DISSOLVED OXYGEN :
4	MEASUREMENTS	0.1		15	
5	0.05 m	0.1		16	8.36 ppm
6	APART	0.1		17	
7		0.1		18	
8		0.1		19	
9		< 0.1		20	
10		< 0.1		21	
				22	CHANNEL FEATURE :
1	WETTED WIDTH	< 0.1	DRY	23	
2	NO (K)	< 0.1	↓	24	DRY
3		< 0.1	↓	25	
4	MEASUREMENTS	< 0.1	↓	26	DISSOLVED OXYGEN :
5	DATA	< 0.1	↓		
6	APART	< 0.1	↓		(K) ppm
7		< 0.1	↓		
8		< 0.1	↓	n	
9		< 0.1	↓		
10		< 0.1	↓		

E

F

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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

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

3294 #1

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
T _G	1 WETTED WIDTH	0.2		1 CHANNEL FEATURE :	
	2 1.5	0.2		2 POOL	
	3	0.2		3	
	4 MEASUREMENTS	0.2		4 DISSOLVED OXYGEN :	
	5 0.15 m	0.3		5	
	6 APART	0.2		6 2.10	ppm
	7	0.1		7	
	8	0.1		8	
	9	0.1		9	
	10	0.1		10	
T _H	1 WETTED WIDTH	0.1		12 CHANNEL FEATURE :	
	2 3.5	0.2		13 POOL	
	3	0.3		14	
	4 MEASUREMENTS	0.3		15 DISSOLVED OXYGEN :	
	5 0.35 m	0.3		16	
	6 APART	0.4		17 3.05	ppm
	7	0.4		18	
	8	0.4		19	
	9	0.3		20	
	10	0.2		21	
T _I	1 WETTED WIDTH	< 0.1	DRY	23 CHANNEL FEATURE :	
	2 (K)	< 0.1		24 DRY	
	3	< 0.1		25	
	4	< 0.1		26 DISSOLVED OXYGEN :	
	5 MEASUREMENTS	< 0.1		.	
	6 (K) m	< 0.1		.	(K) ppm
	7 APART	< 0.1		.	
	8	< 0.1		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: 6/20/07

Organization: BWP CORP. Position: ENV. SCI.

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

3294 #1

T
J

Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1 WETTED WIDTH	< 0.1	DRY	1 CHANNEL FEATURE:	
2 (K)	< 0.1		2 DRY	
3	< 0.1		3	
4 MEASUREMENTS	< 0.1		4 DISSOLVED OXYGEN:	
5 <u> </u> m	< 0.1		5	
6 APART	< 0.1		6 (K)	ppm
7	< 0.1		7	
8	< 0.1		8	
9	< 0.1		9	
10	< 0.1	↓	10	
			11	
1 WETTED WIDTH	< 0.1	DRY	12 CHANNEL FEATURE:	
2 (K)	< 0.1		13 DRY	
3	< 0.1		14	
4 MEASUREMENTS	< 0.1		15 DISSOLVED OXYGEN:	
5 <u> </u> m	< 0.1		16	
6 APART	< 0.1		17 (K)	ppm
7	< 0.1		18	
8	< 0.1		19	
9	< 0.1		20	
10	< 0.1	↓	21	
			22	
			23	
			24	
			25	
			26	
			.	
			.	
			.	
			n	

K

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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

WBID# 3294

Site# 2

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

Date & Time: 6/20/07 12:45	Site Location Description (e.g., road crossing): 150 m UPSTREAM from SITE# 1 TRANSECT K
Personnel (Data Collectors): LUNT & Bertlett	Facility Name: RIGBY BUNKHOUSE SUITES
Current Weather Conditions: OVERCAST, ~70°F	Permit Number: MO#121487
Weather Conditions for Past 10 days: fair	
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: 38.33019	Y: 093.32385
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
3294-7,8	TRAN J-K	3294-5,6	TRAN B-A		

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 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 checked="" 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:

CHANNEL FEATURE %
 RUN: _____ RIFFLE: _____
 POOL: _____ No water

* Page Two – Data Sheet B for WBID # 3294 : #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%.)

75 % Cobble	20 % Gravel	% Sand	% Silt	% Mud/Clay	10 % Bedrock
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Aquatic Vegetation*: (Note amount of vegetation or algal growth at the assessment site)

Presence of 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 type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: NO water
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input checked="" type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Other: NO water

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: 6/20/07

Organization: BWR Corp. Position: ENV. Sci.

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

3294 #2

TA

Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1 WETTED WIDTH	< 0.1	DRY	1	CHANNEL FEATURE:
2 (K)	< 0.1	↓	2	DRY
3	< 0.1	↓	3	
4 MEASUREMENTS	< 0.1	↓	4	DISSOLVED OXYGEN:
5 _____ m	< 0.1	↓	5	
6 APART	< 0.1	↓	6	(F) ppm
7	< 0.1	↓	7	
8	< 0.1	↓	8	
9	< 0.1	↓	9	
10	< 0.1	↓	10	
			11	
1 WETTED WIDTH	< 0.1	DRY	12	CHANNEL FEATURE:
2 (K)	< 0.1	↓	13	DRY
3	< 0.1	↓	14	
4 MEASUREMENTS	< 0.1	↓	15	DISSOLVED OXYGEN:
5 _____ m	< 0.1	↓	16	
6 APART	< 0.1	↓	17	(G) ppm
7	< 0.1	↓	18	
8	< 0.1	↓	19	
9	< 0.1	↓	20	
10	< 0.1	↓	21	
			22	CHANNEL FEATURE:
1 WETTED WIDTH	< 0.1	DRY	23	DRY
2 (K)	< 0.1	↓	24	
3	< 0.1	↓	25	DISSOLVED OXYGEN:
4 MEASUREMENTS	< 0.1	↓	26	
5 _____ m	< 0.1	↓	.	(H) ppm
6 APART	< 0.1	↓	.	
7	< 0.1	↓	.	
8	< 0.1	↓	n	
9	< 0.1	↓		
10	< 0.1	↓		

TB

TC

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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

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

3294 #2

F_D

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1	WETTED WIDTH	< 0.1	DRY	1 CHANNEL	FEATURE :
2	(K)	< 0.1	↓	2 DRY	
3		< 0.1		3	
4	MEASUREMENTS	< 0.1		4 DISSOLVED	OXYGEN :
5	m	< 0.1		5	
6	APART	< 0.1		6 (K)	ppm
7		< 0.1		7	
8		< 0.1		8	
9		< 0.1		9	
10		< 0.1		10	
					11 CHANNEL
1	WETTED WIDTH	< 0.1	DRY	12 DRY	
2	(K)	< 0.1	↓	13	
3		< 0.1		14 DISSOLVED	OXYGEN :
4	MEASUREMENTS	< 0.1		15	
5	m	< 0.1		16 (K)	ppm
6	APART	< 0.1		17	
7		< 0.1		18	
8		< 0.1		19	
9		< 0.1		20	
10		< 0.1		21	
					22 CHANNEL
1	WETTED WIDTH	< 0.1	DRY	23 DRY	
2	(K)	< 0.1	↓	24	
3		< 0.1		25	
4	MEASUREMENTS	< 0.1		26 DISSOLVED	OXYGEN :
5	m	< 0.1		.	
6	APART	< 0.1		.	(K) ppm
7		< 0.1		.	
8		< 0.1		n	
9		< 0.1			
10		< 0.1			

F_F

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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

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

3294 #2

T_G

T_H

T_I

Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
1 WETTED WIDTH	< 0.1	DRY	1 CHANNEL FEATURE :	
2	< 0.1		2 DRY	
3	< 0.1		3	
4 MEASUREMENTS	< 0.1		4 DISSOLVED OXYGEN :	
5 _____ m	< 0.1		5	
6 APART	< 0.1		6	ppm
7	< 0.1		7	
8	< 0.1		8	
9	< 0.1		9	
10	< 0.1		10	
			11	
1 WETTED WIDTH	< 0.1	DRY	12 CHANNEL FEATURE :	
2	< 0.1		13 DRY	
3	< 0.1		14	
4 MEASUREMENTS	< 0.1		15 DISSOLVED OXYGEN :	
5 _____ m	< 0.1		16	
6 APART	< 0.1		17	ppm
7	< 0.1		18	
8	< 0.1		19	
9	< 0.1		20	
10	< 0.1		21	
			22	
1 WETTED WIDTH	< 0.1	DRY	23 CHANNEL FEATURE :	
2	< 0.1		24 DRY	
3	< 0.1		25	
4	< 0.1		26 DISSOLVED OXYGEN :	
5 MEASUREMENTS	< 0.1		.	
6 _____ m	< 0.1		.	ppm
7 APART	< 0.1		.	
8	< 0.1		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: 6/20/07

Organization: BWRCORP. Position: ENV. SCI.

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

3294 # 2

T
J

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
1	WETTED WIDTH	< 0.1	DRY ↓	1	CHANNEL FEATURE:	
2		< 0.1		2	DRY	
3		< 0.1		3		
4	MEASUREMENTS	< 0.1		4	DISSOLVED OXYGEN:	
5	<u> </u> m	< 0.1		5		
6	APART	< 0.1		6		ppm
7		< 0.1		7		
8		< 0.1		8		
9		< 0.1		9		
10		< 0.1		10		
			↓	11		
1	WETTED WIDTH	< 0.1	DRY ↓	12	CHANNEL FEATURE:	
2		< 0.1		13	DRY	
3		< 0.1		14		
4	MEASUREMENTS	< 0.1		15	DISSOLVED OXYGEN:	
5	<u> </u> m	< 0.1		16		
6	APART	< 0.1		17		ppm
7		< 0.1		18		
8		< 0.1		19		
9		< 0.1		20		
10		< 0.1		21		
			↓	22		
				23		
				24		
				25		
				26		
				.		
				.		
				.		
				n		

K

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: 6/20/07

Organization: 6/20/07 Position: ENV. SCI.

WBID# 3294
 Site# 3

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

Date & Time: <u>06/20/07 13:13</u>	Site Location Description (e.g., road crossing): <u>BRIDGE CROSSING AT MT. PLEASANT RD. (CRSW 281) DOWNSTREAM</u>
Personnel (Data Collectors): <u>Lunt & Bartlett</u>	Facility Name: <u>RIGBY BUNKHOUSE SUITES</u>
Current Weather Conditions: <u>Fair, B. Overcast 95%</u>	Permit Number: <u>MO#121487</u>
Weather Conditions for Past 10 days: <u>Fair, Rainy</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>38.33459</u>	Y: <u>093.32722</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
<u>3294-11,12</u>	<u>TRAN J-K</u>	<u>3294-9,10</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 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:

MT. PLEASANT Rd.

CHANNEL FEATURE %

* Page Two – Data Sheet B for WBID # 3294:
Stream Morphology:

#3

RUN: _____ RIFFLE: _____

~~RIFFLE~~

POOL: _____

No water

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%.)

75 % Cobble	20 % Gravel	% Sand	% Silt	% Mud/Clay	5 % Bedrock
-------------	-------------	--------	--------	------------	-------------

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

Presence of Aquatic Vegetations / Macrophytes

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 type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input checked="" type="checkbox"/> Other: No water
Bottom Deposit:	<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

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

3294 #3

T
D

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
1	WETTED WIDTH	< 0.1	DRY	1	CHANNEL FEATURE :	
2	(K)	< 0.1		2	DRY	
3		< 0.1		3		
4	MEASUREMENTS	< 0.1		4	DISSOLVED OXYGEN :	
5	m	< 0.1		5		
6	APART	< 0.1		6	(K)	ppm
7		< 0.1		7		
8		< 0.1		8		
9		< 0.1		9		
10		< 0.1		10		
				11	CHANNEL FEATURE :	
1	WETTED WIDTH	< 0.1	DRY	12	(K) DRY	
2	(K)	< 0.1		13		
3		< 0.1		14	DISSOLVED OXYGEN :	
4	MEASUREMENTS	< 0.1		15		
5	m	< 0.1		16	(K)	ppm
6	APART	< 0.1		17		
7		< 0.1		18		
8		< 0.1		19		
9		< 0.1		20		
10		< 0.1		21		
				22	CHANNEL FEATURE :	
1	WETTED WIDTH	< 0.1	DRY	23	(K) DRY	
2	(K)	< 0.1		24		
3		< 0.1		25		
4	MEASUREMENTS	< 0.1		26	DISSOLVED OXYGEN :	
5	m	< 0.1		.		
6	APART	< 0.1		.	(K)	ppm
7		< 0.1		.		
8		< 0.1		n		
9		< 0.1				
10		< 0.1				

E

F

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.

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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: 6/20/07

Organization: BWR CORP. Position: ENV. SCI.

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

3294 #3

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth
T _G	1 WETTED WIDTH	< 0.1	DRY	1 CHANNEL FEATURE :	
	2 (K)	< 0.1		2 DRY	
	3	< 0.1		3	
	4 MEASUREMENTS	< 0.1		4 DISSOLVED OXYGEN :	
	5 _____ m	< 0.1		5	
	6 APART	< 0.1		6 (K) ppm	
	7	< 0.1		7	
	8	< 0.1		8	
	9	< 0.1		9	
	10	< 0.1		10	
T _H	1 WETTED WIDTH	< 0.1	DRY	12 CHANNEL FEATURE :	
	2 (K)	< 0.1		13 DRY	
	3	< 0.1		14	
	4 MEASUREMENTS	< 0.1		15 DISSOLVED OXYGEN :	
	5 _____ m	< 0.1		16	
	6 APART	< 0.1		17 (K) ppm	
	7	< 0.1		18	
	8	< 0.1		19	
	9	< 0.1		20	
	10	< 0.1		21	
T _I	1 WETTED WIDTH	< 0.1	DRY	23 CHANNEL FEATURE :	
	2 (K)	< 0.1		24 DRY	
	3	< 0.1		25	
	4	< 0.1		26 DISSOLVED OXYGEN :	
	5 MEASUREMENTS	< 0.1		.	
	6 _____ m	< 0.1		.	(K) ppm
	7 APART	< 0.1		.	
	8	< 0.1		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.

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Signed: [Signature] Date: 6/20/07

Organization: BWP CORP. Position: ENV. SCI.

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

3294 #3

T
J

	Distance from Stream edge	Depth	Rank	Assigned Rank	Sorted depth	
1	WETTED WIDTH	< 0.1	↓ DRY	1	CHANNEL FEATURE:	
2	(K)	< 0.1		2	DRY	
3		< 0.1		3		
4	MEASUREMENTS	< 0.1		4	DISSOLVED OXYGEN:	
5	<u> </u> m	< 0.1		5		
6	APART	< 0.1		6	(K)	ppm
7		< 0.1		7		
8		< 0.1		8		
9		< 0.1		9		
10		< 0.1		10		
			11			
1	WETTED WIDTH	< 0.1	↓ DRY	12	CHANNEL FEATURE:	
2	(K)	< 0.1		13	DRY	
3		< 0.1		14		
4	MEASUREMENTS	< 0.1		15	DISSOLVED OXYGEN:	
5	<u> </u> m	< 0.1		16		
6	APART	< 0.1		17	(K)	ppm
7		< 0.1		18		
8		< 0.1		19		
9		< 0.1		20		
10		< 0.1		21		
			22			
			23			
			24			
			25			
			26			
			.			
			.			
			.			
			n			

K

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: 2/20/07

Organization: BWP CORP. Position: ENV. SCI.



Downstream (Site 1) of Tributary to Bird Branch



Downstream (Site 1) of Tributary to Bird Branch



Upstream (Site 1) of Tributary to Bird Branch



Upstream (Site 1) of Tributary to Bird Branch



Downstream (Site 2) of Tributary to Bird Branch



Downstream (Site 2) of Tributary to Bird Branch



Upstream (Site 2) of Tributary to Bird Branch



Upstream (Site 2) of Tributary to Bird Branch



Downstream (Site 3) of Tributary to Bird Branch



Downstream (Site 3) of Tributary to Bird Branch



Upstream (Site 3) of Tributary to Bird Branch



Upstream (Site 3) of Tributary to Bird Branch