



Missouri  
Department of  
Natural Resources

Use Attainability Analysis  
for  
WBID 2787 McKenzie Creek

Submitted by  
MEC/ERC

To  
Missouri Department of Natural Resources  
Water Protection Program

On  
October 24, 2008

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet A – Water Body Identification**

**I. Water Body Information** (for water body being surveyed)

Water Body Name (from USGS 7.5' quad):	McKenzie Creek
Missouri Water Body Identification (WBID) Number:	2787
8-digit HUC:	11010007, Upper Black
County(ies), Listed Upstream to Downstream:	Wayne
Upstream Legal Description (from Table H):	34, 30 N, 3 E
Downstream Legal Description (from Table H):	23, 29 N, 3 E
Number of sites evaluated:	3
List all site numbers, <u>consecutively upstream to downstream</u> :	1) Big Hill 49 off private drive downstream 2) upstream off Co Rd 349B 3) upstream off Co Rd 349
<b>Include a Site Location Map(s).</b> The map must include all requirements detailed in the <i>Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol</i> (Section IV.D.8.a).	

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

Facility Name(s) and Permit Number(s):
Piedmont Industrial Park MO0117129
Gads Hill Quarry MO0110051

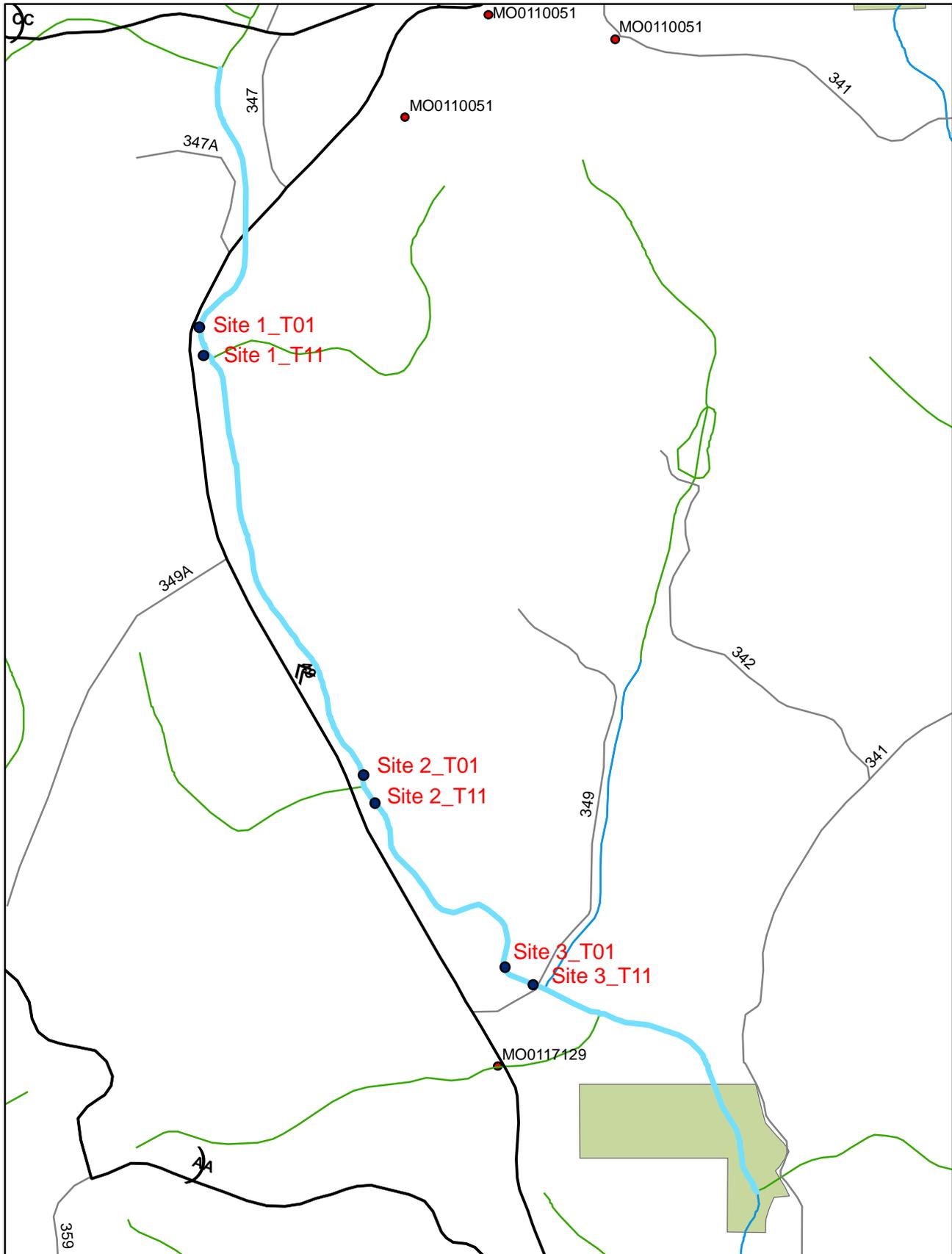
**III. UAA Surveyor** (please PRINT legibly)

Name of Surveyor: Abigail L. Lynn	Telephone Number: (573) 634-7078
Organization/Employer: ERC	

Please verify that you have completed all sections of all data sheets, checked all applicable boxes, provided a map (that includes all requirements listed in the *Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol*) and that this form is complete.

Signed: Abigail L. Lynn Date: 9/26/08

# WBID # 2787 - McKenzie Creek Wayne County



0 700 1,400 2,800 Meters

## Weather Conditions

Weather conditions ten days previous to stream assessment are listed in the tables below. The date(s) that the stream was assessed are shaded.

Data from the [WeatherUnderground.com](http://WeatherUnderground.com)  
Poplar Bluff, MO

<b>Date</b>	<b>Precipitation (Inches)</b>	<b>Min. Temp (°F)</b>	<b>Max. Temp (°F)</b>	<b>Avg. Temp (°F)</b>
9/16/2008	0.00	62.0	73.0	51.0
9/17/2008	0.02	62.0	77.0	50.0
9/18/2008	0.01	67.0	81.0	53.0
9/19/2008	0.58	72.0	82.0	62.0
9/20/2008	2.27	67.0	73.0	62.0
9/21/2008	0.04	68.0	75.0	62.0
9/22/2008	0.00	71.0	84.0	60.0
9/23/2008	0.01	72.0	86.0	60.0
9/24/2008	0.01	74.0	84.0	63.0
9/25/2008	0.01	70.0	82.0	59.0
9/26/2008	0.01	67.0	80.0	55.0

WBID # 2787

Site # 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>9-26-08 9:05</u>	Location Description (e.g., road crossing):
Stream Name: <u>McKenzie Creek</u>	<u>By Hwy 49 appropriate drive Downstream</u>
Current Weather Conditions: <u>clr 70°</u>	Facility Name(s): <u>Piedmont Ind. Park</u> <u>Gads Hill Quarry</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MO 0117129</u> <u>MO 0110051</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"):	
No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>1550702487</u>	Northing (UTM Y): <u>4121895</u>	Horizontal Accuracy: <u>(EPE) / FOM / PDOP</u> <u>5</u> Meters
Site 11	Easting (UTM X): <u>1550702509</u>	Northing (UTM Y): <u>4121738</u>	Horizontal Accuracy: <u>(EPE) / FOM / PDOP</u> <u>6</u> Meters

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>201</u>	<u>transect 1 Downstream</u>	<u>202</u>	<u>transect 9 Road through stream</u>	<u>203</u>	<u>transect 11 Upstream</u>
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use <i>Data Sheet D- Recreational Use Interview</i> when conducting interviews.)				

Stream Name & WBID # McKenzie Creek 2787

Date of Survey 9-26-09

Site # 1

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization (Page 2 of 3)**

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input checked="" type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <u>by Hwy 49</u>				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section.)

<input checked="" type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input type="checkbox"/> None of the above	Comments / Other:			

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

<u>30</u> % Cobble	<u>50</u> % Gravel	<u>20</u> % Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

<u>10% algaegrowth</u>
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # McKenzie Creek 2787

Date of Survey 9-26-08

Site # 1

**Field Data Sheets for Recreational Use Stream Surveys**

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

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

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

**Comments:** (Please record any additional comments here.)

None

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

Printed Names of Personnel Collecting Data: Abby Lynn & Travis R. Howell

Surveyor's Signature: Travis R. Howell Date of Survey: 9-26-08

Organization: ERC Position: Field Crew

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>McKenzie Creek</u> Waterbody ID: <u>2787</u> Site #: <u>1</u>  Estimated Channel Incision: <u>0.15</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate ( <u>EPE</u> / PDOP / FOM) <b>01</b> UTM X <u>15S0702487</u> UTM Y: <u>4121895</u> +/- <u>5</u> (meters) <b>11</b> UTM X <u>15S0702509</u> UTM Y: <u>4121738</u> +/- <u>6</u> (meters)  Average Stream Width: <u>6</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Abby Lynn and Travis Howell (AL &amp; TH)</u>	<b>Dissolved Oxygen</b>  Date: <u>9/26/2008</u> Time: <u>9:05</u>  Dissolved Oxygen: <u>700014</u> (mg/L)  Dissolved Oxygen: <u>73.8</u> (% sat)  Specific Cond: <u>218.5</u> (µS/cm)  Water Temperature: <u>17</u> (°C)
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#### Transect Cross-Section

		01		02		03		04		05		06		07		08		09		10		11	
Station		Distance (m)	Depth (m)																				
<b>Left Bank</b>		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	<b>1</b>	0.71	0.14	0.43	0.16	0.7	0.31	0.58	0.56	0.72	0.14	0.6	0.09	0.79	0.09	0.85	0.09	0.37	0.04	0.34	0.45	0.32	0.02
	<b>2</b>	1.42	0.13	0.86	0.16	1.4	0.34	1.16	0.83	1.44	0.27	1.2	0.14	1.58	0.15	1.7	0.14	0.74	0.03	0.68	0.57	0.64	0.04
	<b>3</b>	2.13	0.17	1.29	0.27	2.1	0.31	1.74	0.7	2.16	0.32	1.8	0.22	2.37	0.22	2.55	0.21	1.11	0.03	1.02	0.7	0.96	0.02
	<b>4</b>	2.84	0.22	1.72	0.28	2.8	0.35	2.32	0.56	2.88	0.35	2.4	0.33	3.16	0.34	3.4	0.27	1.48	0.07	1.36	0.67	1.28	0.05
	<b>5</b>	3.55	0.26	2.15	0.2	3.5	0.3	2.9	0.51	3.6	0.44	3	0.49	3.95	0.46	4.25	0.3	1.85	0.09	1.7	0.5	1.6	0.04
	<b>6</b>	4.26	0.38	2.58	0.18	4.2	0.2	3.48	0.5	4.32	0.44	3.6	0.65	4.74	0.67	5.1	0.34	2.22	0.08	2.04	0.41	1.92	0.03
	<b>7</b>	4.97	0.27	3.01	0.19	4.9	0.2	4.06	0.49	5.04	0.34	4.2	0.66	5.53	0.66	5.95	0.32	2.59	0	2.38	0.32	2.24	0.03
	<b>8</b>	5.68	0.21	3.44	0.14	5.6	0.22	4.64	0.34	5.76	0.29	4.8	0.34	6.32	0.23	6.8	0.26	2.96	0.05	2.72	0.3	2.56	0.03
	<b>9</b>	6.39	0.2	3.87	0.06	6.3	0.18	5.22	0.17	6.48	0.3	5.4	0.19	7.11	0.19	7.65	0.19	3.33	0.12	3.06	0.16	2.88	0.03
<b>Right Bank</b>		7.1	0	4.3	0	7	0	5.8	0	7.2	0	6	0	7.9	0	8.5	0	3.7	0	3.4	0	3.2	0
<b>Feature Type</b>		Pool		Run		Run		Pool		Run		Run		Run		Run		Riffle		Run		Riffle	

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Abigail L. Lynn      Date: 9/26/2008

WBID # 2787

Site # 2

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>9-26-08 9:39</u>	Location Description (e.g., road crossing):
Stream Name: <u>McKenzie Creek</u>	<u>off road 349B upstream</u>
Current Weather Conditions: <u>dr 70°</u>	Facility Name(s): <u>Piedmont Ind. Park</u> <u>Sads Hill Quarry</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MO 0117129</u> <u>MO 0110051</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"):	
No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>155070337</u>	Northing (UTM Y): <u>4119460</u>	Horizontal Accuracy: <u>7</u> Meters (EPE) FOM / PDOP
Site 11	Easting (UTM X): <u>1550703439</u>	Northing (UTM Y): <u>4119309</u>	Horizontal Accuracy: <u>4</u> Meters (EPE) FOM / PDOP

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>204</u>	<u>transect 11 upstream</u>	<u>205</u>	<u>transect 1 downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:
Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)				

Stream Name & WBID # McKenzie Creek 2787

Date of Survey 9-26-09

Site # 2

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization (Page 2 of 3)**

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments:				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

<u>30</u> % Cobble	<u>50</u> % Gravel	<u>20</u> % Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

10% algae growth

**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # McKenzie Creek 2787

Date of Survey 9-26-08

Site # 2

**Field Data Sheets for Recreational Use Stream Surveys**

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

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

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

**Comments:** (Please record any additional comments here.)

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

Printed Names of Personnel Collecting Data: Abby Lynn + Travis R. Howell

Surveyor's Signature: Travis R. Howell Date of Survey: 9-26-08

Organization: ERC Position: Field Crew

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>McKenzie Creek</u> Waterbody ID: <u>2787</u> Site #: <u>2</u>  Estimated Channel Incision: _____ (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate ( <u>EPE</u> / PDOP / FOM) <b>01</b> UTM X <u>15S0703377</u> UTM Y: <u>4119460</u> +/- _____ (meters) <b>11</b> UTM X <u>15S0703439</u> UTM Y: <u>4119309</u> +/- _____ (meters)  Average Stream Width: <u>7</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Abby Lynn and Travis Howell (AL &amp; TH)</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/26/2008</u> Time: <u>9:39</u>  Dissolved Oxygen: <u>7.01</u> (mg/L)  Dissolved Oxygen: <u>74.5</u> (% sat)  Specific Cond: <u>224.5</u> (µS/cm)  Water Temperature: <u>18.1</u> (°C)
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#### Transect Cross-Section

	01		02		03		04		05		06		07		08		09		10		11	
	Station	Distance (m)	Depth (m)																			
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.58	0.2	0.69	0.11	0.31	0.02	0.54	0.08	0.39	0.08	0.78	0.03	0.67	0.12	0.3	0.11	0.39	0.17	0.38	0.06	0.62	0.08
2	1.16	0.27	1.38	0.19	0.62	0.05	1.08	0.07	0.78	0.09	1.56	0.07	1.34	0.16	0.6	0.12	0.78	0.38	0.76	0.09	1.24	0.21
3	1.74	0.29	2.07	0.27	0.93	0.03	1.62	0.08	1.17	0.18	2.34	0.09	2.01	0.17	0.9	0.08	1.17	0.41	1.14	0.1	1.86	0.2
4	2.32	0.26	2.76	0.34	1.24	0.09	2.16	0.11	1.56	0.19	3.12	0.08	2.68	0.15	1.2	0.12	1.56	0.45	1.52	0.16	2.48	0.21
5	2.9	0.19	3.45	0.4	1.55	0.07	2.7	0.11	1.95	0.2	3.9	0.05	3.35	0.18	1.5	0.12	1.95	0.45	1.9	0.16	3.1	0.23
6	3.48	0.18	4.14	0.32	1.86	0.08	3.24	0.11	2.34	0.2	4.68	0.16	4.02	0.17	1.8	0.09	2.34	0.41	2.28	0.16	3.72	0.26
7	4.06	0.18	4.83	0.22	2.17	0.06	3.78	0.09	2.73	0.22	5.46	0.24	4.69	0.12	2.1	0.12	2.73	0.34	2.66	0.11	4.34	0.17
8	4.64	0.13	5.52	0.15	2.48	0.1	4.32	0.08	3.12	0.22	6.24	0.18	5.36	0.09	2.4	0.08	3.12	0.24	3.04	0.1	4.96	0.11
9	5.22	0.11	6.21	0.08	2.79	0.08	4.86	0.08	3.51	0.18	7.02	0.17	6.03	0.05	2.7	0.02	3.51	0.12	3.42	0.1	5.58	0.07
<b>Right Bank</b>	5.8	0	6.9	0	3.1	0	5.4	0	3.9	0	7.8	0	6.7	0	3	0	3.9	0	3.8	0	6.2	0
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	Run		Pool		Riffle		Riffle		Run		Run		Run		Riffle		Run		Riffle		Run	

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width

GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.

Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)

Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)

All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Travis R. Howell      Date: 9/26/2008

WBID # 2787

Site # 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization** (Page 1 of 3)

(must be completed for each site)

Date & Time: <u>7-26-08 10:05</u>	Location Description (e.g., road crossing):
Stream Name: <u>McKenzie Creek</u>	<u>upstream off Co Rd 349</u>
Current Weather Conditions: <u>cln 75°</u>	Facility Name(s): <u>Piedmont Ind. Park</u> <u>Gods Hill Quarry</u>
Weather Conditions for Past 10 days: <u>attached</u>	Permit Number(s): <u>MO 0117129</u> <u>MO 0110051</u>
Official Drought Conditions at time of this survey (search DNR home page for "drought"): No drought <input checked="" type="checkbox"/> ; Phase I <input type="checkbox"/> ; Phase II <input type="checkbox"/> ; Phase III <input type="checkbox"/> ; Phase IV <input type="checkbox"/> ; Unknown <input type="checkbox"/>	

**Site Location:**

LOCATION COORDINATES (UNIVERSAL TRANSVERSE MERCATOR PROJECTION, IN METERS)			
Site 01	Easting (UTM X): <u>1550704148</u>	Northing (UTM Y): <u>4118417</u>	Horizontal Accuracy: <u>7</u> Meters (EPE) FOM / PDOP
Site 11	Easting (UTM X): <u>1556704298</u>	Northing (UTM Y): <u>4118317</u>	Horizontal Accuracy: <u>7</u> Meters (EPE) FOM / PDOP

**Photos:**

Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
<u>206</u>	<u>transect 11 upstream</u>	<u>207</u>	<u>transect 1 downstream</u>		
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose
Photo ID#	Photo Purpose	Photo ID#	Photo Purpose	Photo ID#	Photo Purpose

**Uses Observed\*:** (Uses actually observed at the time of survey.)

<input type="checkbox"/> Swimming	<input type="checkbox"/> Skin diving	<input type="checkbox"/> SCUBA diving	<input type="checkbox"/> Tubing	<input type="checkbox"/> Water skiing
<input type="checkbox"/> Wind surfing	<input type="checkbox"/> Kayaking	<input type="checkbox"/> Boating	<input type="checkbox"/> Wading	<input type="checkbox"/> Rafting
<input type="checkbox"/> Hunting	<input type="checkbox"/> Trapping	<input type="checkbox"/> Fishing	<input checked="" type="checkbox"/> None of the above	<input type="checkbox"/> Other:

Describe: (Include number of individuals recreating, photo-documentation of evidence of recreational uses, etc. Use Data Sheet D- Recreational Use Interview when conducting interviews.)

Stream Name & WBID # Mackenzie Creek 2787

Date of Survey 7-26-09

Site # 3

**Field Data Sheets for Recreational Use Stream Surveys**

**Data Sheet B – Site Characterization (Page 2 of 3)**

**Surrounding Conditions\*:** (Mark all that promote or impede recreational uses. Attach photos of evidence or unusual items of interest.)

<input type="checkbox"/> City/county parks	<input type="checkbox"/> Playgrounds	<input type="checkbox"/> MDC conservation lands	<input type="checkbox"/> Urban areas	<input checked="" type="checkbox"/> Rural Residential
<input type="checkbox"/> Campgrounds	<input type="checkbox"/> State parks	<input type="checkbox"/> National forests	<input type="checkbox"/> Nature trails	<input type="checkbox"/> Stairs/walkway
<input type="checkbox"/> Boating accesses	<input type="checkbox"/> Fence	<input type="checkbox"/> No trespass sign	<input type="checkbox"/> Steep slopes	<input type="checkbox"/> Other:
Comments: <u>Pastures &amp; Wooded</u>				

**Evidence of Human Use\*:** (Attach photos and reference in "Photos" section.)

<input type="checkbox"/> Roads	<input type="checkbox"/> Foot paths/prints	<input type="checkbox"/> Dock/platform	<input type="checkbox"/> Camping Sites	<input type="checkbox"/> Rope swings
<input type="checkbox"/> RV / ATV Tracks	<input type="checkbox"/> Fire pit/ring	<input type="checkbox"/> NPDES Discharge	<input type="checkbox"/> Fishing Tackle	<input type="checkbox"/> Livestock Watering
<input checked="" type="checkbox"/> None of the above	Comments / Other:			

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

<u>40</u> % Cobble	<u>56</u> % Gravel	<u>10</u> % Sand	% Silt	% Mud/Clay	% Bedrock
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**Aquatic Vegetation\*:** (Note amount of vegetation or algal growth at the assessment site.)

<u>&lt; 10% algae growth</u>
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**Water Characteristics\*:** (Mark all that apply.)

Odor:	<input type="checkbox"/> Sewage	<input type="checkbox"/> Musky	<input type="checkbox"/> Chemical	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Color:	<input checked="" type="checkbox"/> Clear	<input type="checkbox"/> Green	<input type="checkbox"/> Gray	<input type="checkbox"/> Milky	<input type="checkbox"/> Other:
Bottom Deposit:	<input type="checkbox"/> Sludge	<input type="checkbox"/> Solids	<input type="checkbox"/> Fine sediments	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:
Surface Deposit:	<input type="checkbox"/> Oil	<input type="checkbox"/> Scum	<input type="checkbox"/> Foam	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Other:

\*This information is not to be used solely for removal of a recreational use designation but rather is to provide a more comprehensive understanding of water conditions. Consequently, this information is not intended to directly influence a decision on the recreation use analysis but may point to conditions that need further analysis or that affect another use.

Stream Name & WBID # McKenzie Creek 2787 Date of Survey 9-26-08  
 Site # 3

**Field Data Sheets for Recreational Use Stream Surveys**

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

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

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

**Comments:** (Please record any additional comments here.)

*None*

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

Printed Names of Personnel Collecting Data: Abby Lynn & Travis R. Howell  
 Surveyor's Signature: [Signature] Date of Survey: 9/26/08  
 Organization: ERC Position: Field Manager

## Field Data Sheets for Recreational Use Stream Surveys

### Data Sheet C - Field Survey Results

Stream Name: <u>McKenzie Creek</u> Waterbody ID: <u>2787</u> Site #: <u>3</u>  Estimated Channel Incision: <u>0.15</u> (m) (height between low bank width and water)  GPS Location - Easting (UTM X), Northing (UTM Y), Horizontal Accuracy Estimate ( <u>EPE</u> / PDOP / FOM) <b>01</b> UTM X <u>15S0704148</u> UTM Y: <u>4118417</u> +/- <u>7</u> (meters) <b>11</b> UTM X <u>15S0704299</u> UTM Y: <u>4118320</u> +/- <u>5</u> (meters)  Average Stream Width: <u>8</u> (meters)      Length of Survey Segment: <u>150</u> (meters) (To determine Length of Reach)      (20x average stream width)  Field Staff: <u>Abby Lynn and Travis Howell (AL &amp; TH)</u>	<h4 style="text-align: center; margin: 0;">Dissolved Oxygen</h4> Date: <u>9/26/2008</u> Time: <u>10:05</u>  Dissolved Oxygen: <u>6.1</u> (mg/L)  Dissolved Oxygen: <u>64.7</u> (% sat)  Specific Cond: <u>240.2</u> (µS/cm)  Water Temperature: <u>18.8</u> (°C)
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#### Transect Cross-Section

Station	01		02		03		04		05		06		07		08		09		10		11	
	Distance (m)	Depth (m)																				
<b>Left Bank</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0.51	0.65	0.62	0.74	0.25	0.05	0.47	0.07	0.24	0.04	1.18	0.26	0.69	0.2	0.65	0.03	1.19	0.41	1.47	0.23	0.13	0.07
2	1.02	0.64	1.24	0.77	0.5	0.09	0.94	0.12	0.48	0.06	2.36	0.34	1.38	0.25	1.3	0.09	2.38	0.45	2.94	0.36	0.26	0.09
3	1.53	0.57	1.86	0.74	0.75	0.06	1.41	0.15	0.72	0.05	3.54	0.61	2.07	0.21	1.95	0.1	3.57	0.42	4.41	0	0.39	0.11
4	2.04	0.56	2.48	0.53	1	0.25	1.88	0.25	0.96	0.15	4.72	0.81	2.76	0.17	2.6	0.11	4.76	0.25	5.88	0	0.52	0.09
5	2.55	0.61	3.1	0.44	1.25	0.25	2.35	0.26	1.2	0.16	5.9	0.753	3.45	0.16	3.25	0.11	5.95	0.23	7.35	0.08	0.65	0.11
6	3.06	0.55	3.72	0.3	1.5	0.25	2.82	0.31	1.44	0.15	7.08	0.48	4.14	0.15	3.9	0.12	7.14	0.16	8.82	0.17	0.78	0.09
7	3.57	0.36	4.34	0.15	1.75	0.24	3.29	0.28	1.68	0.16	8.26	0.36	4.83	0.14	4.55	0.08	8.33	0.06	10.29	0.29	0.91	0.1
8	4.08	0.22	4.96	0.09	2	0.17	3.76	0.31	1.92	0.1	9.44	0.09	5.52	0.12	5.2	0.06	9.52	0.06	11.76	0.26	1.04	0.07
9	4.59	0.17	5.58	0.1	2.25	0.11	4.23	0.25	2.16	0.07	10.62	0.07	6.21	0.04	5.85	0.08	10.71	0.04	13.23	0.29	1.17	0.03
<b>Right Bank</b>	5.1	0	6.2	0	2.5	0	4.7	0	2.4	0	11.8	0	6.9	0	6.5	0	11.9	0	14.7	0	1.3	0
<b>Feature Type</b> <small>(riffle, run, or pool)</small>	Run		Pool		Run		Run		Riffle		Pool		Run		Riffle		Pool		Run		Riffle	

**Notes:** Transects will be measured beginning on left descending bank (0 depth) and finishing on right descending bank (0 depth). This width is the wetted width  
 GPS locations corresponds to Transect 01 and 11. Transects ordered in upstream to downstream order.  
 Depth measurements taken at 10 equally spaced locations along transect (determine by dividing wetted width by ten)  
 Mark dry depth measurements as 0; record actual measurements to 0.1 meter unless depth is too deep to measure (then record as > 1)  
 All measurements to be taken to the nearest 0.01 meter.

Surveyor's Signature: Abigail L. Lynn      Date: 9/26/2008



