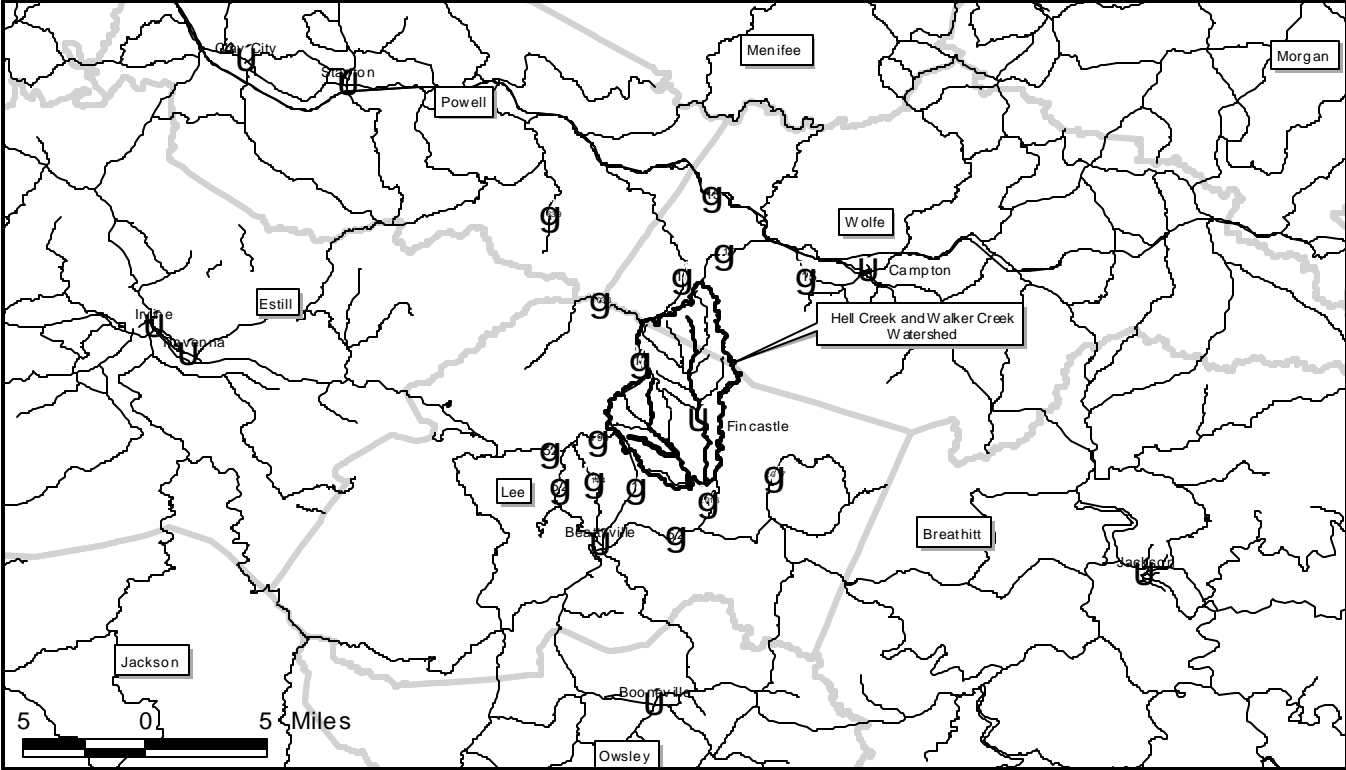


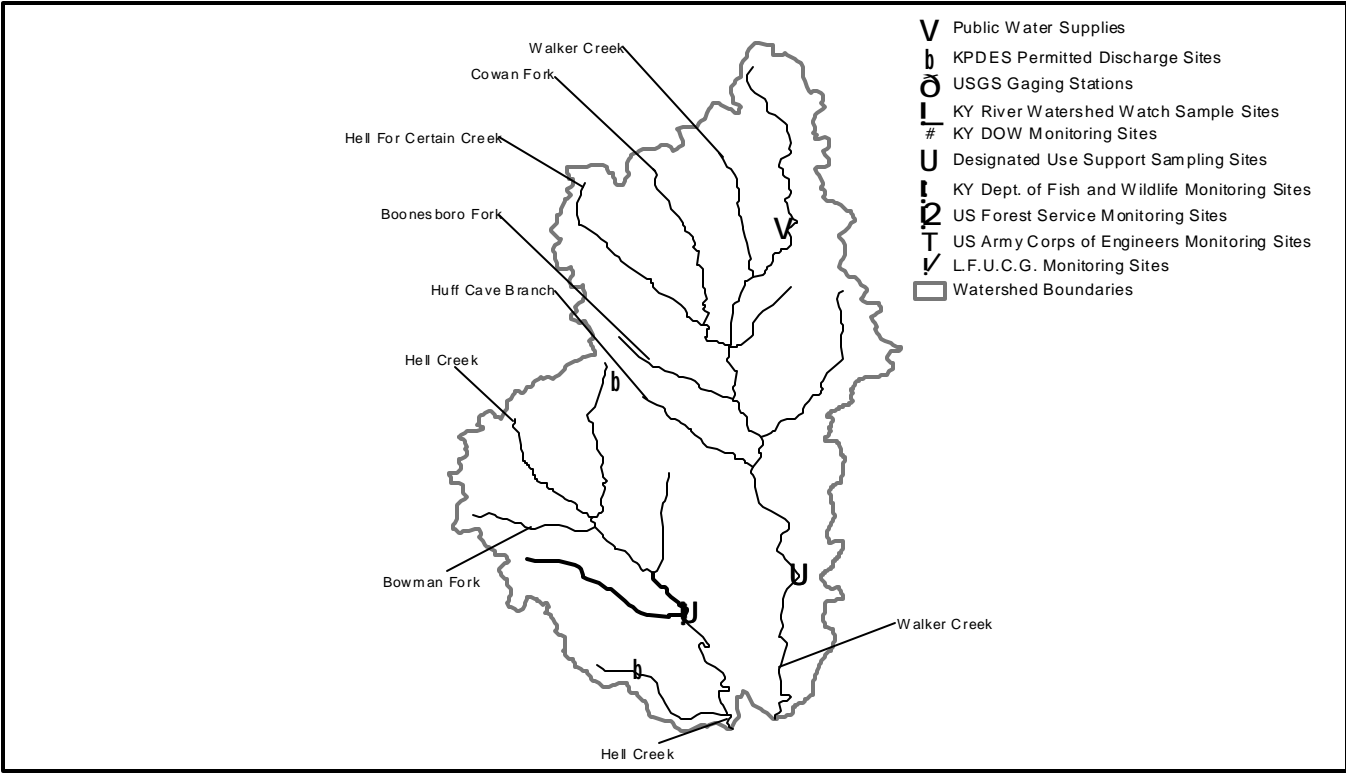
Hell Creek and Walker Creek Watershed

Watershed Number: 05100201220

Location Map



Watershed Features



Geography. The Hell Creek & Walker Creek watershed is in northern Lee County and extends into Wolfe County. The land is in the plateau area of the Eastern Kentucky Coal Field physiographic region, characterized by rolling terrain, medium to rapid surface runoff, and slow to moderate groundwater drainage. The watershed is underlain by coals, sandstones, and shales: this geology is generally conducive to productive wells, although water quality may be low for wells that draw from coal layers. Parts of the watershed lie over sandstone aquifers.

Waterways. Walker Creek empties into the North Fork Kentucky River just west of Airedale, and Hell Creek empties into the North Fork just west of Walker Creek. Among the creeks that feed Walker Creek are Hell for Certain Creek, Boonesboro Fork, and Huff Cave Branch. Bowman Fork feeds into Hell Creek.

Land and water use. Land in the watershed is mainly rural and wooded, but about 10% is agricultural. Two businesses and organizations hold permits for discharges into the creeks. See tables for details.

Agency data assessment. The assessed segment of Walker Creek fully supports its designated uses, and the assessed segment of Hell Creek only partially supports its designated uses, based on biological and/or water-quality data. Habitat alterations contribute to the impairment of the stream. See tables for details.

Watershed rankings. The ranking formula provides a preliminary ranking by synthesizing a broad spectrum of watershed characteristics, current conditions, and threats. This watershed ranks in the group with a moderate need for protection and/or restoration. This rating is for the watershed on average: particular sites and particular waters within the watershed may vary widely. See tables for details.

Volunteer data. No volunteer data were collected in this watershed in 1999.

This report was prepared by the Kentucky Water Research Institute as a product of the statewide Kentucky Watershed Management process. Information presented in this report was collected from many sources. Reasonable attempts were made to ensure that information and figures are as accurate as possible, but no representation or guarantee is made as to either the correctness or suitability of information for particular purposes. All critical information should be independently verified. Please address questions or corrections to Basin Coordinator, KWRI, Rm. 233 Mining and Minerals Resources Building, University of Kentucky, Lexington, Kentucky 40506-0107.

Summary of Basin Characteristics and Facilities

General Land-use Characteristics:

<i>Total Land Area (Acres):</i>	<input type="text" value="13,827"/>	<i>Acres</i>	<i>% of Total</i>		
<i>Residential Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>	<i>Number of Mine Permits:</i>	<input type="text" value="1"/>
<i>Commercial Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>	<i>Total Permitted Mining Area (Acres):</i>	<input type="text" value="15"/>
<i>Industrial Area:</i>	<input type="text" value="78"/>		<input type="text" value="0.6"/>	<i>Number of Identified Wetland Areas:</i>	<input type="text" value="0"/>
<i>Agricultural Area:</i>	<input type="text" value="1,360"/>		<input type="text" value="9.9"/>	<i>Total Wetland Area (Acres):</i>	<input type="text" value="0"/>
<i>Rural and Wooded Area:</i>	<input type="text" value="12,369"/>		<input type="text" value="89.6"/>		
<i>Other Land-use Area:</i>	<input type="text" value="0"/>		<input type="text" value="0.0"/>		

Withdrawal and Discharge Sites:

<i>Number of Public Water Supplies and Water Withdrawal Sites:</i>	<input type="text" value="1"/>	<i>Number of KPDES Discharge Permits:</i>	<input type="text" value="2"/>
<i>Surface Water Withdrawals:</i>	<input type="text" value="1"/>		
<i>Groundwater Withdrawals:</i>	<input type="text" value="0"/>		
<i>No. of Potable Water Treatment Facilities:</i>	<input type="text" value="1"/>		

Sampling Site Statistics:

<i>Number of USGS Gaging Stations:</i>	<input type="text" value="0"/>
<i>Number of Kentucky Division of Water Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of Kentucky Dept. of Fish and Wildlife Sampling Sites:</i>	<input type="text" value="1"/>
<i>Number of US Forest Service Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of US Army Corps of Engineers Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of Kentucky River Watershed Watch Sampling Sites:</i>	<input type="text" value="0"/>
<i>Number of Lexington-Fayette Urban Co. Gov. Sampling Sites:</i>	<input type="text" value="0"/>

Watershed Indicators and Ranking Categories:

Overall Watershed Ranking:

Protection Ranking	Observed Impacts	Potential Impacts	Restoration Ranking
Medium	Medium	Low	Medium

Medium

Protection Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Wetland Areas	0	Acres	0 - 106	12
Surface Drinking Water Sources	0	No. of sources	0 - 14	2
Ground Drinking Water Sources	0	No. of sources	0 - 17	1
Groundwater Sensitivity	3.00	Score	2 - 5	3.21
KY Dept. of Fish and Wildlife Management Areas	0	Acres	0 - 2951	93
U.S. Forest Service Management Areas	6,674	Acres	0 - 155253	12,600
Kentucky State Park Areas	0	Acres	0 - 1928	42
Nature Preserves Commission Areas	0	Acres	0 - 1430	32
Nature Conservancy Areas	0	Acres	0 - 2473	28
Reference Reach Watersheds	0.00	Score	0 - 100	3.08
Outstanding Resource Watersheds	0.00	Score	0 - 0	0.00
Recognized Stream Resources	0	No. of resources	0 - 8	1
Kentucky Rivers Assessment Scores	0.78	Score	0 - 11	1.80

Observed Impact Categories:

Human Health Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Flood Declarations	4	Number since 1970	0 - 10	4
Water Supply Inadequacy	0.00	Score	0 - 2	0.22
Observed Impacts to Surface Drinking Water	1.00	Score	1 - 1	1.00
Observed Impacts to Fish Consumption	1.00	Score	1 - 1	1.00
Observed Impacts to Primary Water Contact	1.00	Score	1 - 3	1.33
Contamination Sites Impacting Human Health	0	Number of sites	0 - 71	4

Ecological Health Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Observed Impacts to Aquatic Life	1.39	Score	1 - 3	1.31
Contamination Sites Impacting Ecological Health	0	Number of sites	0 - 71	4

Potential Impact Categories:

Indicator	Value	Units	Range of All Watersheds	Mean of All Watersheds
Potential Contamination Sites	2	Number of sites	1 - 121	12
Potential Pesticide Loading	1	Est. sales in tons	0 - 45	10
Potential Fertilizer Loading	27	Est. tons applied	0 - 2747	394
Agricultural Erosion Potential	6.21	Est. tons erosion / acre	0 - 9	3.20
Livestock Operations Potential Impact	258	Animal units	55 - 43826	7,021
KPDES Discharge Violations	0	Number of violations	0 - 541	39
KY Division of Water Citizen Complaints	2	Number of complaints	0 - 53	9
Toxic Release Inventory	0	Score	0 - 11547626	231,638
Population Change Projection	91	Number of persons	-149 - 11030	448
Population Not on Public Sewer Systems	12	Number of persons	12 - 4511	1,114
Mining Area	15	Acres	0 - 6305	355
Surface Water Runoff Potential	60.47	SCS Curve Number	60 - 79	68
KPDES Permitted Discharges	2	Number of sites	0 - 56	6

Stream and Waterbody Use Support Summary

Total Stream Miles: <input type="text" value="35.75"/>	<i>Number of Segments</i>	<i>Stream Miles Assessed</i>	<i>Miles * Fully Supportina</i>	<i>Miles * Partially Supportina</i>	<i>Miles * Not Supportina</i>	<i>Miles * Threatened</i>
Segments Assessed:	2	8.9	5.4	3.5	0.0	0.0
Designated Uses						
Aquatic Life:	2	8.9	5.4	3.5	0.0	0.0
Primary Contact:						
Fish Consumption:						
Drinking Water:						

* Blank values indicate no assessed segments for this category.

Assessed Stream Segments and Waterbodies					
<i>Stream or Waterbody Name *</i>	<i>Starting Milepoint</i>	<i>Ending Milepoint</i>	<i>Segment Length (miles)</i>	<i>Designated Uses *</i>	<i>Overall Level of Support</i>
Hell Creek	0	3.5	3.5	AL	Partially Supporting
Walker Creek	0	5.4	5.4	AL	Fully Supporting

**Abbreviations: AL - Aquatic Life Support, PC - Primary Contact Recreation, SC - Secondary Contact Recreation, FC - Fish Consumption, DW - Drinking Water Supply, UT - Unnamed Tributary*

Causes for Nonsupport or Impairment of Designated Uses					
<i>Stream or Waterbody Name *</i>	<i>Starting Milepoint</i>	<i>Ending Milepoint</i>	<i>Segment Length (miles)</i>	<i>Impaired or Threatened Designated Use</i>	<i>Level of Support</i>
Hell Creek	0	3.5	3.5	Aquatic Life Support	Partially Supporting
Possible Causes of Impairment:			Possible Sources For Impairment:		
Other habitat alterations			Inactive mining, Petroleum Activities, Resource Extraction, Silvicultural Point Sources, Silviculture, Surface Mining		

**Abbreviations: UT - Unnamed Tributary*

Watershed Name: Hell Creek & Walker Creek

11-Digit Watershed Identity Number: 05100201220

Withdrawal Sites and Discharge Facilities:

<i>Public Water Supplies and Water Withdrawal</i>			
<i>Facility</i>	<i>Origin of Source</i>	<i>Type of Facility</i>	<i>Permit ID Number</i>
CAMP SHAWNEE	Surface Water	Water Treatment Plant	0363260

<i>KPDES Permitted Discharge Facilities</i>		
<i>Facility</i>	<i>Type of Facility</i>	<i>KPDES Site ID Number</i>
FRIEND & FRIEND VENTURES INC	CRUDE PETROLEUM & NATURAL GAS	KY0084867
KY DOP NATURAL BRIDGE ST PK	AMUSEMENT AND RECREATION, NEC	KY0095516

Gaging Stations and Sampling Sites:

<i>KY Dept of Fish and Wildlife Sampling / Assessment Sites</i>					
<i>Stream Segment</i>	<i>Upstream Description</i>	<i>Downstream Description</i>	<i>Total Length of Segment</i>	<i>Upstream Mile Point</i>	<i>Downstream Mile Point</i>
Hell Creek	Bowman Fork	Mouth	5.2	3.5	0