

Total Maximum Daily Load Synopsis

State: Kentucky

Major River Basin: Big Sandy

USGS HUC8: 05070203

Counties: Floyd and Knott

Impaired Use(s): Primary and Secondary Contact Recreation

Pollutants of Concern: Fecal Coliform, E. coli

The Beaver Creek Watershed is located in the Big Sandy River Basin in Floyd and Knott Counties and encompasses the cities of Wheelwright and Pippa Passes in its headwaters, Wayland in its midst, and Martin and Allen near its confluence with Levisa Fork. A map depicting the location of the Beaver Creek Watershed is in Figure S.1.

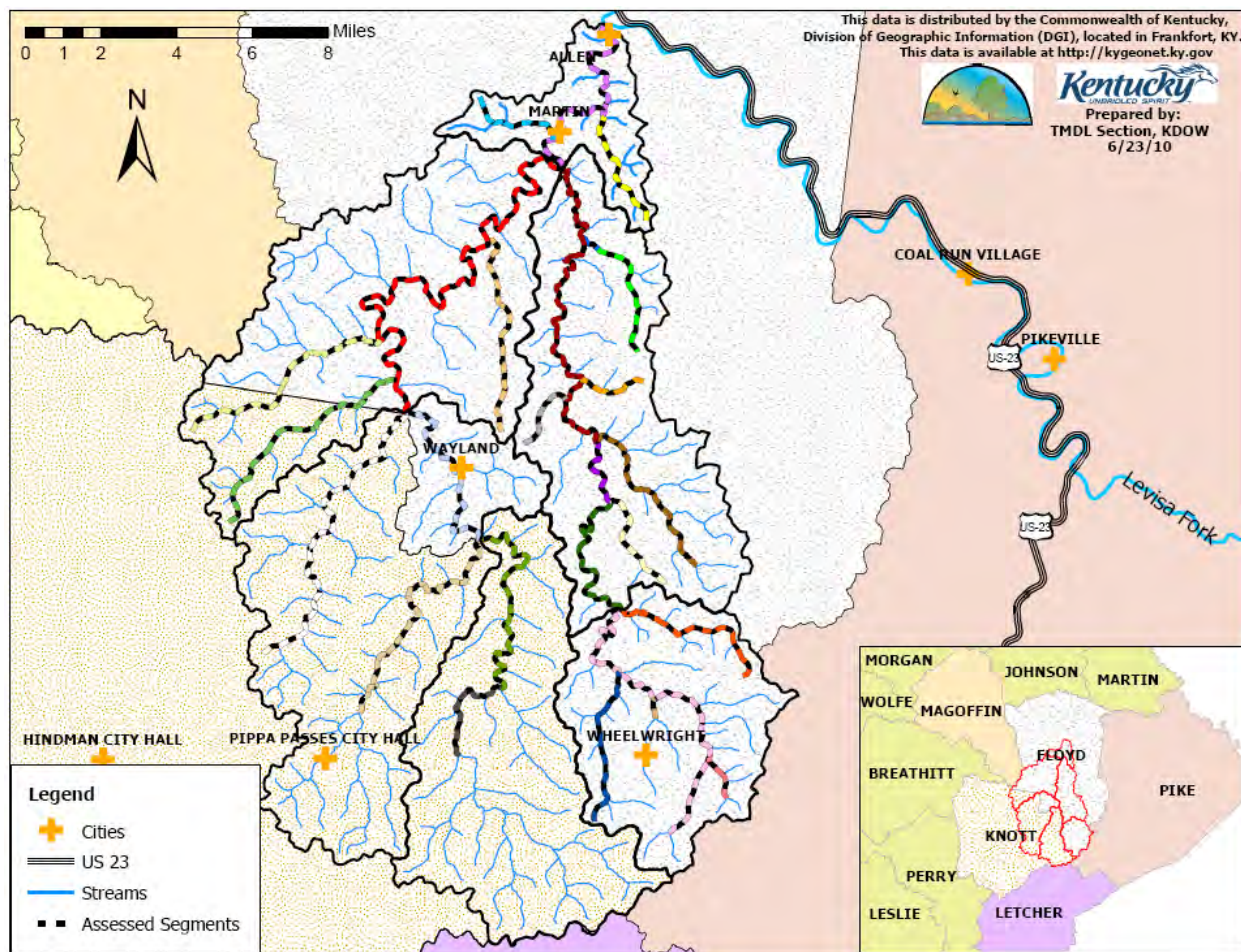


Figure S.1 Location of Beaver Creek Watershed in Floyd and Knott Counties of Eastern KY

The Kentucky Division of Water (KDOW) contracted with Eastern Kentucky University (EKU) to monitor for Escherichia coli (a pathogen indicator) in the Beaver Creek watershed, including the Right Fork and Left Fork of Beaver Creek and their major tributaries. This sampling was performed by the students and staff of the Eastern Kentucky Environmental Research Institute at EKU under the direction of Dr. Alice Jones and Environmental Specialist Reagan Butcher. This

document contains the monitoring results and describes TMDL development for pathogen indicators in the Beaver Creek watershed as required under Section 303(d) of the Clean Water Act. Table S.1 indicates the pathogen indicator impaired segments for which TMDLs are developed in this document.

Table S.1 Impaired Waterbodies Addressed in this TMDL Document

Waterbody & Segment	Total Size	Waterbody ID	County	Assessment Category	Use	Impairment	Suspected Source(s)
Arkansas Creek 0.0 to 3.6	3.6 miles	KY486027_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Beaver Creek 0.0 to 7.1	7.1 miles	KY486610_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	Municipal (Urbanized High Density Area), On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges, Unspecified Domestic Waste
Buck Branch 0.0 to 2.8	2.8 miles	KY488192_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Caleb Fork 0.0 to 1.2	1.2 miles	KY488598_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Caney Fork 0.0 to 7.5	7.5 miles	KY488862_01	Knott	5-NS	PCR	<u>Escherichia coli</u>	Package Plant or Other Permitted Small Flows Discharges
Clear Creek 0.0 to 4.9	4.9 miles	KY489611_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Frasure Creek 0.0 to 5.2	5.2 miles	KY492468_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges
Jacks Creek 0.0 to 4.4	4.4 miles	KY495089_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)

Waterbody & Segment	Total Size	Waterbody ID	County	Assessment Category	Use	Impairment	Suspected Source(s)
Jones Fork 0.0 to 9.9	9.9 miles	KY495499_01	Knott	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Left Fork Beaver Creek 0.0 to 11.4	11.4 miles	KY496194_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges
Left Fork Beaver Creek 11.4 to 13.55	2.15 miles	KY496194_02	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges
Left Fork Beaver Creek 18.7 to 28.6	5.3 miles	KY496194_04	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Otter Creek 0.0 to 0.5	0.5 miles	KY500021_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	Package Plant or Other Permitted Small Flows Discharges
Right Fork Beaver Creek 0.0 to 17.4	17.4 miles	KY501863_01	Floyd	5-NS, 5-NS	PCR, SCR	<u>Escherichia coli</u> , Fecal coliform	Inappropriate Waste Disposal
Right Fork Beaver Creek 17.4 to 23.3	5.9 miles	KY501863_02	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges
Right Fork Beaver Creek 30.3 to 33.4	2.9 miles	KY501863_04	Knott	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems), Package Plant or Other Permitted Small Flows Discharges
Salt Lick Creek 0.0 to 6.8	6.8 miles	KY502845_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)

Waterbody & Segment	Total Size	Waterbody ID	County	Assessment Category	Use	Impairment	Suspected Source(s)
Simpson Branch 0.0 to 1.8	1.8 miles	KY503532_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Sizemore Branch 0.0 to 2.0	2 miles	KY503590_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Spewing Camp Branch 0.0 to 3.1	3.1 miles	KY504061_01	Floyd	5-PS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Spurlock Creek 0.0 to 0.6	0.6 miles	KY504191_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)
Turkey Creek 0.0 to 5.9	5.9 miles	KY505598_01	Floyd	5-NS	PCR	<u>Escherichia coli</u>	On-Site Treatment Systems (Septic Systems and Similar Decentralized Systems)

Kentucky Water Quality Criteria (WQC):

According to 401 KAR 10:031,

“The following criteria shall apply to waters designated as primary contact recreation use during the primary contact recreation season of May 1 through October 31: Fecal coliform content or Escherichia coli content shall not exceed 200 colonies per 100 ml or 130 colonies per 100 ml respectively as a geometric mean based on not less than five (5) samples taken during a thirty (30) day period. Content also shall not exceed 400 colonies per 100 ml in twenty (20) percent or more of all samples taken during a thirty (30) day period for fecal coliform or 240 colonies per 100 ml for Escherichia coli.”

Additionally,

“The following criteria shall apply to waters designated for secondary contact recreation use during the entire year: Fecal coliform content shall not exceed 1000 colonies per 100 ml as a thirty (30) day geometric mean based on not less than five (5) samples; nor exceed 2000 colonies per 100 ml in twenty (20) percent or more of all samples taken during a thirty (30) day period.”

TMDL Components and Target:

A TMDL calculation is performed as follows:

$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS}$$

Where:

TMDL = the Water Quality Criterion. This is defined as an instantaneous E. coli concentration of 240 colonies/100 ml.

WLA = the Waste Load Allocation. For this TMDL document, there are two types of WLAs: WLAs for KPDES-permitted sources and a Future Growth WLA. The KPDES-permitted WLAs are allowable loadings of pollutants into the stream from KPDES-permitted sources such as sewage treatment plants, package plants, and home units. The Future Growth WLA is a portion of the loading reserved for expanding and new KPDES-permitted sources.

LA = the Load Allocation, which is the allowable loading of pollutants into the stream from sources not permitted by KPDES and from natural background.

MOS = the Margin of Safety, which can be an implicit or explicit additional reduction applied to sources of pollutants that accounts for uncertainties in the data or TMDL calculations. For this TMDL an explicit MOS of 10% was applied and an implicit MOS was incorporated by calculating WLAs for KPDES-sources at their maximum design capacity.

TMDL Target = the TMDL minus the MOS (or 240 colonies/100 ml – 10% = 216 colonies/100 ml).

Seasonality

In Kentucky regulations, the PCR use is defined to apply to the period beginning May 1 and ending October 31. For this TMDL, seasonality is considered because samples were collected twice a month to provide data over the entire PCR season.

Critical Condition

The critical condition for nonpoint source E. coli (or fecal coliform) loadings is typically an extended dry period followed by a rainfall runoff event. Conversely, the critical condition for point source loading typically occurs during periods of low stream flow when dilution is minimized. Sampling was performed during both types of conditions (during or following rain events and during extended dry periods). The Beaver Creek watershed contains both types of sources; therefore the critical condition for each impaired segment is defined by the sample showing the greatest concentration, which was generally collected during rainfall events.

TMDL Methodology:

Mean Annual Flows (MAFs): MAFs were used to convert concentrations of E. coli into loads of E. coli. The MAF for each site was adjusted by either adding or subtracting flow based on any KPDES-permitted dischargers of pathogen indicators or KDOW permitted stream water withdrawals in the watershed upstream of a sample site (yielding the Adjusted MAF for that site).

Existing Loads: For each sample site, the sample with the greatest concentration of E. coli was used as the existing concentration for the site. Existing loads were calculated as:

$$\begin{array}{rcccccc} \text{Greatest} & & \text{Adjusted} & & \text{Conversion Factor} & & \\ \text{Concentration} & \times & \text{MAF} & \times & & = & \text{Existing Load (billion} \\ \text{(colonies/100ml)} & & \text{(cfs)} & & .0244657584 & & \text{colonies/day)} \end{array}$$

where the conversion factor converts cfs to ml/day and colonies to billion colonies.

Total TMDL: Total TMDLs were calculated for each site using the E. coli criterion of 240 colonies/100 ml:

$$\begin{array}{rcccccc} 240 & & \text{Adjusted} & & \text{Conversion Factor} & & \\ \text{(colonies/100ml)} & \times & \text{MAF} & \times & & = & \text{Total TMDL (billion} \\ & & \text{(cfs)} & & .0244657584 & & \text{colonies/day)} \end{array}$$

MOS: A 10% explicit MOS (i.e., 10% of the WQC, or 24 colonies/100ml,) was set. Additionally, an implicit MOS was incorporated in loading calculations for KPDES-permitted sources by setting their flow at the maximum design capacity. The explicit MOS load for each site was calculated as:

$$\begin{array}{rcccccc} 24 & & \text{Adjusted} & & \text{Conversion Factor} & & \\ \text{(colonies/100ml)} & \times & \text{MAF} & \times & & = & \text{MOS (billion} \\ & & \text{(cfs)} & & .0244657584 & & \text{colonies/day)} \end{array}$$

Target Load: The Target Load was calculated for each site by subtracting the explicit MOS from the Total TMDL (Target Load = Total TMDL – MOS).

Percent Reduction: Percent Reduction (%) = [(Existing Load – Target Load) / Existing Load] * 100

Calculation of WLAs for Each KPDES-permitted Source: The WLAs are calculated based on the permitted concentration limits expressed in terms of E. coli limits and facility design flow (in units of cfs) using the following equation:

$$\begin{array}{rcccccc} 240 & & \text{Design} & & \text{Conversion Factor} & & \\ \text{(colonies/100ml)} & \times & \text{Flow} & \times & & = & \text{KPDES WLA (billion} \\ & & \text{(cfs)} & & .0244657584 & & \text{colonies/day)} \end{array}$$

The design capacity in MGD was converted to cfs by multiplying by 1.54723 to convert days to seconds and million gallons to cubic feet.

Calculation of Remainder: The Remainder is not part of the TMDL; however, it is used in the TMDL calculations. It is determined as the Target Load minus the sum of all WLAs for KPDES-permitted sources.

Calculation of Future Growth WLA: Future growth is represented by a portion of the TMDL Target that is set aside (i.e., is not part of the LA nor is it part of the WLA for current/known sources). The Future Growth WLA was calculated as the Remainder multiplied by the appropriate percentage from Table S.2 (Future Growth WLA = Remainder * Future Growth WLA percentage).

Table S.2 Future Growth WLA Formula

Percent Developed Area	% of Remainder Set Aside for Future Growth WLA
≥25%	5%
≥20% – <25%	4%
≥15% – <20%	3%
≥10% – <15%	2%
≥5% – <10%	1%
<5%	0.5%

Calculation of LA: Load Allocations are calculated as LA= Remainder – Future Growth WLA. The available sampling data were insufficient to apportion the existing loading among the various LA sources; therefore, it is lumped to all LA sources.

TMDLs for Impaired Segments:

TMDLs and loading allocations are summarized for each segment in Table S.3. All loads are expressed in units of billion E. coli colonies per day while percent reduction is expressed as a percentage.

Translation of WLAs into Permit Limits:

All WLAs will be translated into KPDES permit limits as an E. coli effluent gross limit of 130 colonies/100 ml as a monthly average and 240 colonies/100 ml as a maximum weekly average or as a Fecal coliform effluent gross limit of 200 colonies/100 ml as a monthly average and 400 colonies/100 ml as a maximum weekly average.

Table S.3 TMDLs for Impaired Segments

Loads are in units of billion E. coli colonies/day	Percent Reduction is expressed as a percentage		Caleb Fork RM 0.0 to 1.2	Clear Creek RM 0.0 to 4.9	Jacks Creek RM 0.0 to 4.4	Otter Creek RM 0.0 to 0.5	Left Fork Beaver Creek RM 18.7 to 28.6	Frasure Creek RM 0.0 to 5.2	Simpson Branch RM 0.0 to 1.8	Spurlock Creek RM 0.0 to 0.6	Sizemore Branch RM 0.0 to 2.0	Spewing Camp Branch RM 0.0 to 3.1	Left Fork Beaver Creek RM 11.4 to 13.55	Left Fork Beaver Creek RM 0.0 to 11.4	Right Fork Beaver Creek RM 30.3 to 33.4	Caney Fork RM 0.0 to 7.5	Jones Fork RM 0.0 to 9.9	Right Fork Beaver Creek RM 17.4 to 23.3	Salt Lick Creek RM 0.0 to 6.8	Turkey Creek RM 0.0 to 5.9	Right Fork Beaver Creek RM 0.0 to 17.4	Arkansas Creek RM 0.0 to 3.6	Buck Branch RM 0.0 to 2.8	Beaver Creek 0.0 to 7.1	
		Existing Load	5284.6038	13901.0933	1783.7241	9686.2876	69257.5721	27154.7145	3436.0145	6117.7027	3704.6737	4327.5145	90650.1145	126755.5507	1994.2419	549.4722	3243.4191	10391.2139	27133.8788	10107.7083	65184.6057	8035.3679	5798.3369	147268.9800	
		Total TMDL	15.8538	41.7033	47.5660	29.0589	207.7727	91.7906	15.2712	29.9643	12.3489	19.9731	315.3047	573.9874	251.9042	191.1208	181.0280	608.2662	98.6687	41.1161	1203.4081	24.1061	21.7438	1860.2397	
		MOS	1.5854	4.1703	4.7566	2.9059	20.7773	9.1791	1.5271	2.9964	1.2349	1.9973	31.5305	57.3987	25.1904	19.1121	18.1028	60.8266	9.8669	4.1116	120.3408	2.4106	2.1744	186.0240	
		TMDL Target	14.2684	37.5330	42.8094	26.1530	186.9954	82.6115	13.7441	26.9678	11.1140	17.9758	283.7743	516.5887	226.7138	172.0087	162.9252	547.4396	88.8018	37.0045	1083.0673	21.6955	19.5694	1674.2158	
AI #	KPDES #	percent reduction	99.73	99.73	97.60	99.73	99.73	99.70	99.60	99.56	99.70	99.58	99.69	99.59	88.63	68.70	94.98	94.73	99.67	99.63	98.34	99.73	99.66	98.86	
1133	KYG400642	KPDES WLA																						0.0045	
1134	KY0085791	KPDES WLA												0.1817											0.1817
1143	KYG400479	KPDES WLA												0.0045											0.0045
1158	KYG400787	KPDES WLA																						0.0045	0.0045
1161	KYG400692	KPDES WLA								0.0045				0.0045											0.0045
1162	KYG400678	KPDES WLA								0.0045				0.0045											0.0045
1168	KYG400854	KPDES WLA									0.0045			0.0045											0.0045
1168	KYG401516	KPDES WLA									0.0045			0.0045											0.0045
1173	KYG400790	KPDES WLA		0.0045									0.0045	0.0045											0.0045
1180	KYG400520	KPDES WLA																						0.0045	0.0045
1182	KYG400614	KPDES WLA						0.0045						0.0045											0.0045
1196	KYG400590	KPDES WLA																						0.0045	0.0045
1199	KYG400603	KPDES WLA																	0.0045		0.0045				0.0045
1202	KYG400969	KPDES WLA						0.0045						0.0045											0.0045
1218	KYG400567	KPDES WLA									0.0045			0.0045											0.0045
1222	KYG400730	KPDES WLA																						0.0045	0.0045
1232	KYG400806	KPDES WLA																						0.0045	0.0045
1237	KYG400753	KPDES WLA		0.0045									0.0045	0.0045											0.0045
1243	KYG400915	KPDES WLA																0.0045			0.0045				0.0045
1248	KYG400593	KPDES WLA																				0.0045			0.0045
1255	KY0096342	KPDES WLA												0.1635											0.1635
1262	KY0026921	KPDES WLA																							1.0902
1263	KY0103136	KPDES WLA												0.0045											0.0045
1265	KYG400612	KPDES WLA																							0.0045
1266	KYG400970	KPDES WLA		0.0045									0.0045	0.0045											0.0045
1269	KYG400478	KPDES WLA						0.0045						0.0045											0.0045

Loads are in units of billion E. coli colonies/day	Percent Reduction is expressed as a percentage		Caleb Fork RM 0.0 to 1.2	Clear Creek RM 0.0 to 4.9	Jacks Creek RM 0.0 to 4.4	Otter Creek RM 0.0 to 0.5	Left Fork Beaver Creek RM 18.7 to 28.6	Frasure Creek RM 0.0 to 5.2	Simpson Branch RM 0.0 to 1.8	Spurlock Creek RM 0.0 to 0.6	Sizemore Branch RM 0.0 to 2.0	Spewing Camp Branch RM 0.0 to 3.1	Left Fork Beaver Creek RM 11.4 to 13.55	Left Fork Beaver Creek RM 0.0 to 11.4	Right Fork Beaver Creek RM 30.3 to 33.4	Caney Fork RM 0.0 to 7.5	Jones Fork RM 0.0 to 9.9	Right Fork Beaver Creek RM 17.4 to 23.3	Salt Lick Creek RM 0.0 to 6.8	Turkey Creek RM 0.0 to 5.9	Right Fork Beaver Creek RM 0.0 to 17.4	Arkansas Creek RM 0.0 to 3.6	Buck Branch RM 0.0 to 2.8	Beaver Creek 0.0 to 7.1
1270	KYG400666	KPDES WLA																			0.0045			0.0045
1274	KYG400714	KPDES WLA											0.0045	0.0045										0.0045
1276	KYG400975	KPDES WLA																		0.0045	0.0045			0.0045
1293	KYG400836	KPDES WLA																0.0045			0.0045			0.0045
1304	KYG400339	KPDES WLA																				0.0045		0.0045
1305	KY0103233	KPDES WLA											0.0899											0.0899
1314	KYG400844	KPDES WLA																	0.0045		0.0045			0.0045
1315	KYG400677	KPDES WLA								0.0045			0.0045											0.0045
1327	KYG400601	KPDES WLA						0.0045					0.0045											0.0045
1328	KYG400936	KPDES WLA																				0.0045		0.0045
1343	KYG400778	KPDES WLA																			0.0045			0.0045
1352	KY0072974	KPDES WLA																			0.2271			0.2271
1367	KYG400579	KPDES WLA											0.0045											0.0045
1369	KYG400724	KPDES WLA									0.0045		0.0045											0.0045
2514	KY0094510	KPDES WLA															0.0273				0.0273			0.0273
2517	KY0083089	KPDES WLA															0.0908				0.0908			0.0908
2527	KY0042854	KPDES WLA														0.9085		0.9085			0.9085			0.9085
4250	KYG400659	KPDES WLA											0.0045											0.0045
4327	KYG401073	KPDES WLA																			0.0045			0.0045
4331	KYG401143	KPDES WLA																				0.0045		0.0045
4332	KYG401142	KPDES WLA											0.0045											0.0045
4333	KYG401140	KPDES WLA											0.0045	0.0045										0.0045
4336	KYG401125	KPDES WLA																0.0045			0.0045			0.0045
4342	KYG401126	KPDES WLA																				0.0045		0.0045
4344	KYG401121	KPDES WLA																		0.0045	0.0045			0.0045
4349	KYG401133	KPDES WLA			0.0045		0.0045						0.0045	0.0045										0.0045
4350	KYG401113	KPDES WLA																	0.0045		0.0045			0.0045
4356	KYG401040	KPDES WLA						0.0045					0.0045											0.0045
4405	KYG401197	KPDES WLA										0.0045	0.0045	0.0045										0.0045
12253	KYG401218	KPDES WLA																			0.0045			0.0045
15635	KYG401271	KPDES WLA											0.0045											0.0045

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15655	KYG401296	KPDES WLA																			0.0045			0.0045
15807	KYG401352	KPDES WLA																			0.0045			0.0045
33378	KYG401353	KPDES WLA																			0.0045			0.0045
33945	KY0077542	KPDES WLA													0.0636			0.0636						0.0636
35251	KY0089435	KPDES WLA					0.0618						0.0618	0.0618										0.0618
35252	KY0079421	KPDES WLA						0.1363					0.1363											0.1363
35254	KY0079430	KPDES WLA																			0.0999			0.0999
35258	KY0093017	KPDES WLA																			0.0727			0.0727
35260	KY0093912	KPDES WLA					0.1363						0.1363	0.1363										0.1363
35260	KY0107051	KPDES WLA																			0.2271			0.2271
35359	KY0087076	KPDES WLA															0.0545				0.0545			0.0545
35761	KY0105228	KPDES WLA																0.9085			0.9085			0.9085
35887	KYG401533	KPDES WLA						0.0045					0.0045											0.0045
35892	KYG401529	KPDES WLA																						0.0045
36057	KYG401541	KPDES WLA																						0.0045
40534	KY0028789	KPDES WLA				2.0441	2.0441						2.0441	2.0441										2.0441
43120	KYG401540	KPDES WLA																			0.0045			0.0045
43224	KYG401548	KPDES WLA																			0.0045			0.0045
44695	KYG401580	KPDES WLA				0.0045	0.0045						0.0045	0.0045										0.0045
45070	KYG401590	KPDES WLA											0.0045											0.0045
45073	KYG401582	KPDES WLA											0.0045											0.0045
45396	KYG401587	KPDES WLA											0.0045											0.0045
46144	KYG401601	KPDES WLA								0.0045			0.0045											0.0045
46147	KYG401603	KPDES WLA															0.0045				0.0045			0.0045
47022	KYG401638	KPDES WLA																			0.0045			0.0045
48864	KYG401645	KPDES WLA											0.0045											0.0045
48897	KYG401646	KPDES WLA					0.0045						0.0045	0.0045										0.0045
49354	KYG401654	KPDES WLA										0.0045	0.0045	0.0045										0.0045
50021	KYG401692	KPDES WLA						0.0045					0.0045											0.0045
50138	KYG401699	KPDES WLA																						0.0045
50627	KYG401721	KPDES WLA																		0.0045	0.0045			0.0045

Loads are in units of billion E. coli colonies/day	Percent Reduction is expressed as a percentage		Caleb Fork RM 0.0 to 1.2	Clear Creek RM 0.0 to 4.9	Jacks Creek RM 0.0 to 4.4	Otter Creek RM 0.0 to 0.5	Left Fork Beaver Creek RM 18.7 to 28.6	Frasure Creek RM 0.0 to 5.2	Simpson Branch RM 0.0 to 1.8	Spurlock Creek RM 0.0 to 0.6	Sizemore Branch RM 0.0 to 2.0	Spewing Camp Branch RM 0.0 to 3.1	Left Fork Beaver Creek RM 11.4 to 13.55	Left Fork Beaver Creek RM 0.0 to 11.4	Right Fork Beaver Creek RM 30.3 to 33.4	Caney Fork RM 0.0 to 7.5	Jones Fork RM 0.0 to 9.9	Right Fork Beaver Creek RM 17.4 to 23.3	Salt Lick Creek RM 0.0 to 6.8	Turkey Creek RM 0.0 to 5.9	Right Fork Beaver Creek RM 0.0 to 17.4	Arkansas Creek RM 0.0 to 3.6	Buck Branch RM 0.0 to 2.8	Beaver Creek 0.0 to 7.1
50950	KYG401730	KPDES WLA																	0.0045		0.0045			0.0045
53921	KYG401764	KPDES WLA																				0.0045		0.0045
54879	KYG401772	KPDES WLA																			0.0045			0.0045
71436	KYG401809	KPDES WLA						0.0045					0.0045											0.0045
74022	KYG401406	KPDES WLA							0.0045				0.0045											0.0045
74025	KYG401409	KPDES WLA											0.0045											0.0045
74062	KYG401442	KPDES WLA											0.0045	0.0045										0.0045
74181	KYG401470	KPDES WLA					0.0045						0.0045	0.0045										0.0045
74185	KYG401475	KPDES WLA																	0.0045		0.0045			0.0045
74243	KYG401821	KPDES WLA						0.0045					0.0045											0.0045
75141	KYG401851	KPDES WLA											0.0045											0.0045
75556	KYG401857	KPDES WLA																			0.0045			0.0045
75746	KYG401868	KPDES WLA																					0.0045	0.0045
76078	KYG401876	KPDES WLA																			0.0045			0.0045
76185	KYG401883	KPDES WLA																				0.0045		0.0045
79525	KYG401931	KPDES WLA						0.0045					0.0045											0.0045
79842	KYG401936	KPDES WLA																						0.0045
81193	KYG401970	KPDES WLA						0.0045					0.0045											0.0045
81570	KYG401981	KPDES WLA																			0.0045			0.0045
82092	KY0106755	KPDES WLA																			0.0545			0.0545
82471	KYG402002	KPDES WLA											0.0045											0.0045
84292	KYG402025	KPDES WLA																			0.0045			0.0045
97291	KYG402063	KPDES WLA																			0.0045			0.0045
103052	KYG402117	KPDES WLA						0.0045					0.0045											0.0045
1297	KY0027413	KPDES WLA																						0.0000
		Total KPDES WLA	0.000	0.0135	0.0045	2.0486	2.2602	0.1903	0.0045	0.018	0.018	0.009	2.2962	3.0206	0.0636	0.9085	0.1771	1.8941	0.0225	0.0135	2.8104	0.0315	0.018	7.060855
		remainder	14.2684	37.5193	42.8048	24.1043	184.7351	82.4207	13.7395	26.9497	11.0959	17.9667	281.4776	513.5661	226.6502	171.1002	162.7481	545.5453	88.7791	36.9909	1080.2555	21.6637	19.5512	1667.1549
		Future Growth WLA ⁽¹⁾	0.0713	0.3752	0.4280	0.2410	1.8474	0.8242	0.0687	0.2695	0.1110	0.0898	2.8148	5.1357	2.2665	0.8555	0.8137	5.4555	0.8878	0.1850	10.8026	0.2166	0.1955	16.6715
		Total WLA	0.07134	0.3887	0.4325	2.2896	4.1076	1.0145	0.0732	0.2875	0.129	0.0988	5.111	8.1563	2.3301	1.764	0.9908	7.3496	0.9103	0.1985	13.613	0.2481	0.2135	23.7324
		LA	14.1971	37.1441	42.3768	23.8633	182.8877	81.5965	13.6708	26.6802	10.9849	17.8769	278.6628	508.4304	224.3837	170.2447	161.9343	540.0899	87.8913	36.8059	1069.4529	21.4471	19.3557	1650.4834

Note:

⁽¹⁾ Any expanding or future KPDES-permitted point source will receive its WLA from the Future Growth WLA and must meet permit limits based on the Water Quality Standards in 401 KAR 10:031.