United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL10001 | Project: Wolf Creek | Location: Cumberland River, Mile 460.4

State: Kentucky | Latitude: 36º 52" 19.9' | Quad: Wolf Creek Dam, KY
County: Russell | Longitude: 85º 8" 57.4' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 555.7 ft | Stream Flow = 15840 cfs

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	44
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	142
Solids, Tot Diss	mg/L	138
Solids, Tot Susp	mg/L	<0.500
Solids, Vol	mg/L	51.0
Solids, Vol Diss	mg/L	51.0
Solids, Vol Susp	mg/L	<4.00
Ammonia N, Tot	mg/L	0.0486
Kjeldahl N, Tot	mg/L	0.160
NO3+NO2, Tot	mg/L	0.409
Phosphorus, Tot	mg/L	<0.002
Phosphorus, Diss	mg/L	<0.0002
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	2.40
Hardness, Tot	mg/L	71.5
Sulfate, Tot	mg/L	34.3
Calcium, Tot	mg/L	18.2
Magnesium, Tot	mg/L	6.32
Sodium, Tot	mg/L	6.09
Potassium, Tot	mg/L	1.39
Chloride, Tot	mg/L	4.23
Arsenic, Tot	ug/L	0.2
Barium, Tot	ug/L	18.2
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.5
Cobalt, Tot	ug/L	0.5
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	67.9
Iron, Diss	ug/L	36.8
Lead, Tot	ug/L	0.5
Lead, Diss	ug/L	0.4
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	<0.2
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	<0.2
Nickel, Tot	ug/L	1.9
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.3
Zinc, Tot	ug/L	1.8
Zinc, Diss	ug/L	1.1
Antimony, Tot	ug/L	0.3
Aluminum, Tot	ug/L	63.5
Aluminum, Diss	ug/L	27.4
Selenium, Tot	ug/L	0.3
Mercury, Tot	ug/L	0.028

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	11.2	52.2	9.4	86.0	170.0	7.0	0.2

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL10024 | Project: Wolf Creek | Location: Cumberland River, Mile 427.0

State: Kentucky | Latitude: 36° 47" 11' | Quad: Burkesville, KY
County: Cumberland | Longitude: 85° 21" 54' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = | Stream Flow =

(No Laboratory Analyses)

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	11.8	53.2	9.7	90.0	172.0	7.5	

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL10026 | Project: Wolf Creek | Location: Pitman Creek, Mile 4.9

State: Kentucky | Latitude: 37° 2" 40' | Quad: Somerset, KY
County: Pulaski | Longitude: 84° 35" 51' | HUC: 05130103

Sample Date: 23 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	140
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	242
Solids, Tot Diss	mg/L	209
Solids, Tot Susp	mg/L	2.00
Solids, Vol	mg/L	83.0
Solids, Vol Diss	mg/L	83.0
Solids, Vol Susp	mg/L	<4.00
Ammonia N, Tot	mg/L	0.0557
Kjeldahl N, Tot	mg/L	0.380
NO3+NO2, Tot	mg/L	1.65
Phosphorus, Tot	mg/L	0.06
Phosphorus, Diss	mg/L	0.07
OrthoPhosphate, D	mg/L	0.0784
Organic Carbon, T	mg/L	2.30
Hardness, Tot	mg/L	158.9
Sulfate, Tot	mg/L	16.5
Calcium, Tot	mg/L	51.2
Magnesium, Tot	mg/L	7.53
Sodium, Tot	mg/L	4.46
Potassium, Tot	mg/L	1.66
Chloride, Tot	mg/L	8.79
Arsenic, Tot	ug/L	1.9
Barium, Tot	ug/L	28.6
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.93
Cobalt, Tot	ug/L	0.4
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	72.7
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.3
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	0.4
Nickel, Tot	ug/L	3.3
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.6
Zinc, Tot	ug/L	1.6
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	<0.2
Aluminum, Tot	ug/L	46.8
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.6
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	19.5	67.1	10.4	113.6	325.0	8.1	

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL10029 | Project: Wolf Creek | Location: Big South Fork Cumberland River, Mile 45.0

State: Kentucky | Latitude: 36° 40" 5' | Quad: Barthell, KY
County: McCreary | Longitude: 84° 32" 53' | HUC: 05130104

Sample Date: 23 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	22
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	90.0
Solids, Tot Diss	mg/L	73.0
Solids, Tot Susp	mg/L	30.0
Solids, Vol	mg/L	68.0
Solids, Vol Diss	mg/L	56.0
Solids, Vol Susp	mg/L	12.0
Ammonia N, Tot	mg/L	0.0244
Kjeldahl N, Tot	mg/L	0.250
NO3+NO2, Tot	mg/L	0.169
Phosphorus, Tot	mg/L	0.006
Phosphorus, Diss	mg/L	<0.0002
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	3.20
Hardness, Tot	mg/L	32.0
Sulfate, Tot	mg/L	17.6
Calcium, Tot	mg/L	7.92
Magnesium, Tot	mg/L	2.97
Sodium, Tot	mg/L	2.62
Potassium, Tot	mg/L	1.41
Chloride, Tot	mg/L	2.02
Arsenic, Tot	ug/L	0.3
Barium, Tot	ug/L	24.5
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.6
Cobalt, Tot	ug/L	0.5
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	384.0
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.5
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	<0.2
Nickel, Tot	ug/L	1.5
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.59
Zinc, Tot	ug/L	2.3
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	1.0
Aluminum, Tot	ug/L	293.0
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	<0.2
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	20.1	68.2	9.1	100.5	82.0	7.8	

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL10030 | Project: Wolf Creek | Location: Cumberland River, Mile 562.4

State: Kentucky | Latitude: 36° 50" 14' | Quad: Cumberland Falls, KY
County: McCreary | Longitude: 84° 20" 39' | HUC: 05130101

Sample Date: 23 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	82
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	278
Solids, Tot Diss	mg/L	242
Solids, Tot Susp	mg/L	32.0
Solids, Vol	mg/L	159
Solids, Vol Diss	mg/L	144
Solids, Vol Susp	mg/L	15.0
Ammonia N, Tot	mg/L	0.0239
Kjeldahl N, Tot	mg/L	0.260
NO3+NO2, Tot	mg/L	0.156
Phosphorus, Tot	mg/L	0.002
Phosphorus, Diss	mg/L	<0.0002
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	2.40
Hardness, Tot	mg/L	128.9
Sulfate, Tot	mg/L	97.4
Calcium, Tot	mg/L	26.7
Magnesium, Tot	mg/L	15.1
Sodium, Tot	mg/L	20.5
Potassium, Tot	mg/L	2.26
Chloride, Tot	mg/L	4.51
Arsenic, Tot	ug/L	0.3
Barium, Tot	ug/L	31.5
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.6
Cobalt, Tot	ug/L	1.3
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	355.0
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.5
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	<0.2
Nickel, Tot	ug/L	3.0
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.49
Zinc, Tot	ug/L	2.4
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	0.4
Aluminum, Tot	ug/L	185.0
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.5
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	22.2	72.0	9.8	112.7	344.0	8.3	

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL10035 | Project: Wolf Creek | Location: Little South Fork Cumberland River, Mile 5.2

State: Kentucky | Latitude: 36° 48" 0' | Quad: Nevelsville, KY
County: Wayne | Longitude: 84° 35" 47' | HUC: 05130104

Sample Date: 23 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	118
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	274
Solids, Tot Diss	mg/L	247
Solids, Tot Susp	mg/L	<0.500
Solids, Vol	mg/L	66.0
Solids, Vol Diss	mg/L	66.0
Solids, Vol Susp	mg/L	<4.00
Ammonia N, Tot	mg/L	0.0277
Kjeldahl N, Tot	mg/L	<0.100
NO3+NO2, Tot	mg/L	0.179
Phosphorus, Tot	mg/L	<0.0002
Phosphorus, Diss	mg/L	<0.0002
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	<1.00
Hardness, Tot	mg/L	163.6
Sulfate, Tot	mg/L	48.0
Calcium, Tot	mg/L	50.8
Magnesium, Tot	mg/L	8.93
Sodium, Tot	mg/L	9.87
Potassium, Tot	mg/L	1.01
Chloride, Tot	mg/L	16.9
Arsenic, Tot	ug/L	0.3
Barium, Tot	ug/L	21.1
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	1.1
Cobalt, Tot	ug/L	0.46
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	30.3
Iron, Diss	ug/L	
Lead, Tot	ug/L	<0.2
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	<0.2
Nickel, Tot	ug/L	4.3
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.4
Zinc, Tot	ug/L	1.8
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	<0.2
Aluminum, Tot	ug/L	81.4
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.86
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	20.9	69.6	9.9	111.1	358.0	8.0	

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Station: 3WOL10036 | Project: Wolf Creek | Location: Rockcastle River, Mile 24.4

State: Kentucky | Latitude: 37° 10" 17' | Quad: Billows, KY
County: Rockcastle | Longitude: 84° 17" 45' | HUC: 05130102

Sample Date: 23 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	54
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	138
Solids, Tot Diss	mg/L	127
Solids, Tot Susp	mg/L	6.00
Solids, Vol	mg/L	90.0
Solids, Vol Diss	mg/L	84.0
Solids, Vol Susp	mg/L	6.00
Ammonia N, Tot	mg/L	0.0266
Kjeldahl N, Tot	mg/L	<0.100
NO3+NO2, Tot	mg/L	0.226
Phosphorus, Tot	mg/L	<0.0002
Phosphorus, Diss	mg/L	<0.0002
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	<1.00
Hardness, Tot	mg/L	71.8
Sulfate, Tot	mg/L	28.8
Calcium, Tot	mg/L	19.4
Magnesium, Tot	mg/L	5.67
Sodium, Tot	mg/L	3.77
Potassium, Tot	mg/L	1.60
Chloride, Tot	mg/L	4.31
Arsenic, Tot	ug/L	0.2
Barium, Tot	ug/L	18.0
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.5
Cobalt, Tot	ug/L	0.4
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	182.0
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.3
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	<0.2
Nickel, Tot	ug/L	2.2
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.3
Zinc, Tot	ug/L	1.3
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	<0.2
Aluminum, Tot	ug/L	93.6
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.3
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	20.0	68.0	9.0	99.2	166.0	7.9	

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Station: 3WOL10037 | Project: Wolf Creek | Location: Buck Creek, Mile 12.4

State: Kentucky | Latitude: 37° 3" 38' | Quad: Dykes, KY
County: Pulaski | Longitude: 84° 25" 35' | HUC: 05130103

Sample Date: 23 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	100
Alkalinity, Phenol	mg/L	2
Solids, Tot	mg/L	156
Solids, Tot Diss	mg/L	147
Solids, Tot Susp	mg/L	<0.500
Solids, Vol	mg/L	62.0
Solids, Vol Diss	mg/L	62.0
Solids, Vol Susp	mg/L	<4.00
Ammonia N, Tot	mg/L	0.0292
Kjeldahl N, Tot	mg/L	0.430
NO3+NO2, Tot	mg/L	0.785
Phosphorus, Tot	mg/L	0.003
Phosphorus, Diss	mg/L	<0.0002
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	2.70
Hardness, Tot	mg/L	107.8
Sulfate, Tot	mg/L	9.47
Calcium, Tot	mg/L	32.8
Magnesium, Tot	mg/L	6.30
Sodium, Tot	mg/L	2.75
Potassium, Tot	mg/L	1.92
Chloride, Tot	mg/L	5.80
Arsenic, Tot	ug/L	0.4
Barium, Tot	ug/L	23.6
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.7
Cobalt, Tot	ug/L	0.6
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	103.0
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.52
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	0.3
Nickel, Tot	ug/L	2.4
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.5
Zinc, Tot	ug/L	2.2
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	<0.2
Aluminum, Tot	ug/L	49.5
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.4
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	21.2	70.2	10.2	115.1	218.0	8.4	

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Station: 3WOL10040 | Project: Wolf Creek | Location: Beaver Creek, Mile 21.3

State: Kentucky | Latitude: 36° 49" 5' | Quad: Parnell, KY
County: Wayne | Longitude: 84° 52" 47' | HUC: 05130103

Sample Date: 24 May 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses

Sample Depth ft		0.0
Alkalinity, Tot	mg/L	150
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	260
Solids, Tot Diss	mg/L	232
Solids, Tot Susp	mg/L	4.00
Solids, Vol	mg/L	131
Solids, Vol Diss	mg/L	131
Solids, Vol Susp	mg/L	<4.00
Ammonia N, Tot	mg/L	0.0327
Kjeldahl N, Tot	mg/L	<0.100
NO3+NO2, Tot	mg/L	0.830
Phosphorus, Tot	mg/L	0.03
Phosphorus, Diss	mg/L	0.02
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	<1.00
Hardness, Tot	mg/L	172.7
Sulfate, Tot	mg/L	20.9
Calcium, Tot	mg/L	58.4
Magnesium, Tot	mg/L	6.52
Sodium, Tot	mg/L	6.29
Potassium, Tot	mg/L	1.10
Chloride, Tot	mg/L	12.6
Arsenic, Tot	ug/L	0.2
Barium, Tot	ug/L	25.8
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	1.2
Cobalt, Tot	ug/L	0.3
Copper, Tot	ug/L	<0.2
Iron, Tot	ug/L	44.6
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.4
Lead, Diss	ug/L	
Manganese, Tot	ug/L	<0.2
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	0.2
Nickel, Tot	ug/L	3.6
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.5
Zinc, Tot	ug/L	1.4
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	<0.2
Aluminum, Tot	ug/L	38.9
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.8
Mercury, Tot	ug/L	

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	15.5	59.9	10.0	100.6	349.0	8.2	

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20002 | Project: Wolf Creek | Location: Cumberland River, Mile 461.4

State: Kentucky | Latitude: 36° 51" 29.1' | Quad: Wolf Creek Dam, KY
County: Russell | Longitude: 85° 8" 24.7' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 1.8 m

Results of Laboratory Analyses

Sample Depth ft		0.0	80.0	160.0
Alkalinity, Tot	mg/L	50	46	54
Alkalinity, Phenol	mg/L	8	0	0
Solids, Tot	mg/L	134	146	158
Solids, Tot Diss	mg/L	118	131	144
Solids, Tot Susp	mg/L	8.00	<0.500	2.00
Solids, Vol	mg/L	10.0	22.0	7.00
Solids, Vol Diss	mg/L	10.0	22.0	7.00
Solids, Vol Susp	mg/L	<4.00	<4.00	<4.00
Ammonia N, Tot	mg/L	0.220	0.0503	0.0805
Kjeldahl N, Tot	mg/L	0.600	<0.160	<0.160
NO3+NO2, Tot	mg/L	0.0634	0.425	0.542
Phosphorus, Tot	mg/L	0.0022	<0.002	<0.002
Phosphorus, Diss	mg/L	<0.002	<0.002	0.0042
OrthoPhosphate, D	mg/L	<0.05	<0.05	<0.05
Organic Carbon, T	mg/L	3.60	2.50	2.60
Hardness, Tot	mg/L	71.8	74.2	79.0
Sulfate, Tot	mg/L	36.9	34.5	33.9
Calcium, Tot	mg/L	18.2	18.9	21.2
Magnesium, Tot	mg/L	6.40	6.55	6.33
Sodium, Tot	mg/L	6.02	6.40	6.39
Potassium, Tot	mg/L	1.41	1.52	1.50
Chloride, Tot	mg/L	3.69	4.52	4.76
Arsenic, Tot	ug/L	0.2	0.2	0.2
Barium, Tot	ug/L	17.9	18.4	19.1
Beryllium, Tot	ug/L	<0.2	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2	<0.2
Chromium, Tot	ug/L	0.5	0.5	0.7
Cobalt, Tot	ug/L	0.8	0.6	0.7
Copper, Tot	ug/L	<0.2	<0.2	<0.2
Iron, Tot	ug/L	50.4	46.6	83.7
Iron, Diss	ug/L	6.9	22.6	38.7
Lead, Tot	ug/L	0.3	0.4	0.9
Lead, Diss	ug/L	0.5	0.5	0.5
Manganese, Tot	ug/L	<0.2	<0.2	<0.2
Manganese, Diss	ug/L	<0.2	<0.2	<0.2
Thallium, Tot	ug/L	<0.2	<0.2	<0.2
Molybdenum, Tot	ug/L	<0.2	<0.2	<0.2
Nickel, Tot	ug/L	1.9	2.0	2.2
Silver, Tot	ug/L	<0.2	<0.2	<0.2
Vanadium, Tot	ug/L	0.3	0.2	0.3
Zinc, Tot	ug/L	1.2	1.5	1.6
Zinc, Diss	ug/L	0.8	1.2	1.9
Antimony, Tot	ug/L	1.1	0.9	0.6
Aluminum, Tot	ug/L	61.9	42.3	85.9
Aluminum, Diss	ug/L	8.2	16.4	31.6
Selenium, Tot	ug/L	0.6	0.2	<0.2
Mercury, Tot	ug/L	0.044	0.034	0.059

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	21.6	70.9	11.8	134.1	172.0	8.6	5.9
5.0	21.0	69.8	12.5	140.5	172.0	8.9	11.5
10.0	18.8	65.8	13.1	141.1	169.0	8.8	11.8
15.0	17.5	63.5		11.3	169.0	8.3	16.1
20.0	16.8	62.2	10.1	104.5	167.0	7.8	11.0
25.0	16.0	60.8	9.4	95.6	164.0	7.6	6.5
30.0	14.8	58.6	8.8	87.3	164.0	7.4	2.5
35.0	14.4	57.9	8.7	85.5	164.0	7.3	2.3
40.0	14.1	57.4	8.8	85.9	161.0	7.3	1.6
45.0	13.7	56.7	8.9	86.2	160.0	7.2	1.3
50.0	13.6	56.5	9.0	86.9	161.0	7.1	1.0
55.0	13.3	55.9	9.1	87.3	161.0	7.1	0.6
60.0	13.1	55.6	9.1	86.9	162.0	7.1	0.5
65.0	13.0	55.4	9.2	87.7	162.0	7.1	0.4
70.0	12.7	54.9	9.3	88.0	167.0	7.1	0.4
75.0	12.2	54.0	9.4	88.0	170.0	7.1	0.3
80.0	11.6	52.9	9.4	86.8	178.0	7.1	0.3
85.0	10.3	50.5	9.6	86.0	175.0	7.1	0.2
90.0	9.7	49.5	9.6	84.7	174.0	7.1	0.2
95.0	9.0	48.2	9.6	83.3	175.0	7.1	0.2
100.0	8.6	47.5	9.5	81.6	176.0	7.0	0.2
105.0	8.2	46.8	9.2	78.2	176.0	7.0	0.1
110.0	8.1	46.6	9.1	77.2	176.0	7.0	0.1
115.0	8.0	46.4	9.0	76.2	181.0	7.0	0.1
120.0	8.0	46.4	8.9	75.3	183.0	7.0	0.1
125.0	8.0	46.4	8.9	75.3	186.0	7.0	0.1
130.0	7.9	46.2	8.9	75.1	188.0	7.0	0.0
135.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0
140.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0
145.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0
150.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0
155.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0
160.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0
165.0	7.9	46.2	8.8	74.3	188.0	7.0	0.0

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20003 | Project: Wolf Creek | Location: Cumberland River, Mile 469.7

State: Kentucky | Latitude: 36° 53" 56.5' | Quad: Jamestown, KY
County: Russell | Longitude: 85° 1" 13' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 1.6 m

(No Laboratory Analyses)

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	22.7	72.9	12.2	141.6	174.0	9.0	3.3
5.0	22.7	72.9	12.2	141.6	173.0	9.0	5.3
10.0	22.3	72.1	12.5	144.0	174.0	9.0	13.5
15.0	19.0	66.2	11.7	126.5	168.0	8.6	8.7
20.0	17.8	64.0	10.6	111.9	165.0	8.0	5.3
25.0	16.1	61.0	9.3	94.8	158.0	7.7	3.4
30.0	15.0	59.0	8.6	85.6	156.0	7.6	1.5
35.0	14.6	58.3	8.7	85.9	153.0	7.5	1.8
40.0	14.1	57.4	8.8	85.9	151.0	7.4	1.5
45.0	13.8	56.8	8.9	86.3	152.0	7.3	1.3
50.0	13.5	56.3	9.1	87.7	151.0	7.2	0.9
55.0	13.3	55.9	9.1	87.3	152.0	7.2	0.8
60.0	12.9	55.2	9.1	86.5	159.0	7.2	0.3
65.0	12.7	54.9	9.2	87.1	156.0	7.2	0.6
70.0	12.4	54.3	9.2	86.5	162.0	7.2	0.4
75.0	12.0	53.6	9.3	86.6	165.0	7.2	0.3
80.0	11.4	52.5	9.5	87.3	170.0	7.1	0.2
85.0	10.6	51.1	9.5	85.7	168.0	7.1	0.2
90.0	9.5	49.1	9.5	83.4	169.0	7.1	0.2
95.0	8.9	48.0	9.4	81.4	168.0	7.1	0.1
100.0	8.4	47.1	9.3	79.5	168.0	7.0	0.1
105.0	8.3	46.9	9.2	78.4	170.0	7.0	0.2
110.0	8.1	46.6	9.1	77.2	172.0	7.0	0.1
115.0	8.0	46.4	9.1	77.0	174.0	7.0	0.1
120.0	7.9	46.2	9.0	76.0	172.0	7.0	0.1
125.0	7.9	46.2	9.0	76.0	174.0	7.0	0.1
130.0	7.9	46.2	9.0	76.0	175.0	7.0	0.3
135.0	7.8	46.0	9.0	75.8	172.0	7.0	0.1
140.0	7.8	46.0	9.0	75.8	174.0	7.0	0.1
145.0	7.8	46.0	9.0	75.8	176.0	7.0	0.1
150.0	7.8	46.0	9.0	75.8	177.0	7.0	0.1
155.0	7.8	46.0	8.8	74.1	179.0	7.0	0.1
160.0	7.8	46.0	8.1	68.2	178.0	7.0	0.1

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20004 | Project: Wolf Creek | Location: Cumberland River, Mile 487.0

State: Kentucky | Latitude: 36° 56" 14' | Quad: Jabez, KY
County: Wayne | Longitude: 84° 54" 10' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 2.3 m

Results of Laboratory Analyses

Sample Depth ft		0.0	70.0	130.0
Alkalinity, Tot	mg/L	46	40	48
Alkalinity, Phenol	mg/L	4	0	0
Solids, Tot	mg/L	140	136	136
Solids, Tot Diss	mg/L	123	123	140
Solids, Tot Susp	mg/L	2.00	2.00	6.00
Solids, Vol	mg/L	73.0	35.0	41.0
Solids, Vol Diss	mg/L	73.0	35.0	41.0
Solids, Vol Susp	mg/L	<4.00	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0492	0.0474	0.0587
Kjeldahl N, Tot	mg/L	0.230	0.250	<0.160
NO3+NO2, Tot	mg/L	0.112	0.344	0.464
Phosphorus, Tot	mg/L	0.0024	0.0007	<0.002
Phosphorus, Diss	mg/L	<0.0002	<0.0002	<0.0002
OrthoPhosphate, D	mg/L	<0.05	<0.05	<0.05
Organic Carbon, T	mg/L	2.70	2.50	2.50
Hardness, Tot	mg/L	68.4	64.1	70.3
Sulfate, Tot	mg/L	33.6	32.6	34.8
Calcium, Tot	mg/L	17.2	15.8	17.6
Magnesium, Tot	mg/L	6.17	5.98	6.39
Sodium, Tot	mg/L	5.52	5.13	6.12
Potassium, Tot	mg/L	1.38	1.36	1.40
Chloride, Tot	mg/L	3.34	3.11	4.17
Arsenic, Tot	ug/L	0.2	<0.2	0.2
Barium, Tot	ug/L	17.7	18.6	19.0
Beryllium, Tot	ug/L	<0.2	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2	<0.2
Chromium, Tot	ug/L	0.5	0.5	0.6
Cobalt, Tot	ug/L	0.8	0.6	0.6
Copper, Tot	ug/L	<0.2	<0.2	<0.2
Iron, Tot	ug/L	62.5	127.0	96.1
Iron, Diss	ug/L			
Lead, Tot	ug/L	0.4	0.5	0.5
Lead, Diss	ug/L			
Manganese, Tot	ug/L	<0.2	<0.2	<0.2
Manganese, Diss	ug/L			
Thallium, Tot	ug/L	<0.2	<0.2	<0.2
Molybdenum, Tot	ug/L	<0.2	<0.2	<0.2
Nickel, Tot	ug/L	1.9	2.0	2.0
Silver, Tot	ug/L	<0.2	<0.2	<0.2
Vanadium, Tot	ug/L	0.29	0.3	0.3
Zinc, Tot	ug/L	0.9	1.3	1.5
Zinc, Diss	ug/L			
Antimony, Tot	ug/L	1.1	0.4	0.3
Aluminum, Tot	ug/L	76.3	120.0	87.9
Aluminum, Diss	ug/L			
Selenium, Tot	ug/L	0.5	0.2	0.3
Mercury, Tot	ug/L			

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	23.2	73.8	10.9	127.6	165.0	8.7	1.6
5.0	23.0	73.4	10.8	126.0	165.0	8.6	3.8
10.0	21.5	70.7		12.1	164.0	8.7	7.4
15.0	18.6	65.5	11.1	119.1	161.0	8.3	5.7
20.0	17.3	63.1	9.6	100.3	155.0	7.8	2.3
25.0	16.3	61.3	9.3	95.2	154.0	7.5	1.6
30.0	15.4	59.7	9.2	92.4	150.0	7.4	1.5
35.0	14.7	58.5	9.2	91.0	148.0	7.3	1.2
40.0	14.1	57.4	9.3	90.8	145.0	7.2	1.1
45.0	13.8	56.8	9.3	90.2	146.0	7.2	0.8
50.0	13.4	56.1	9.4	90.4	144.0	7.2	0.6
55.0	13.3	55.9	9.4	90.2	144.0	7.1	0.6
60.0	13.0	55.4	9.4	89.6	145.0	7.1	0.5
65.0	12.6	54.7	9.2	86.9	150.0	7.1	0.4
70.0	12.2	54.0	9.1	85.2	151.0	7.1	0.4
75.0	11.6	52.9	9.3	85.9	156.0	7.1	0.3
80.0	11.0	51.8	9.4	85.6	160.0	7.0	0.3
85.0	10.3	50.5	9.4	84.2	164.0	7.0	0.3
90.0	9.3	48.7	9.3	81.3	162.0	7.0	0.3
95.0	9.0	48.2	9.2	79.8	165.0	7.0	0.3
100.0	8.7	47.7	9.1	78.4	165.0	7.0	0.3
105.0	8.6	47.5	9.2	79.0	165.0	7.0	0.3
110.0	8.4	47.1	9.2	78.6	167.0	7.0	0.1
115.0	8.2	46.8	9.2	78.2	167.0	7.0	0.1
120.0	8.1	46.6	9.2	78.0	167.0	7.0	0.1
125.0	8.0	46.4	9.2	77.9	167.0	7.0	0.1
130.0	8.0	46.4	9.0	76.2	167.0	6.9	0.1
134.0	8.0	46.4	8.9	75.3	167.0	6.9	0.1

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20005 | Project: Wolf Creek | Location: Cumberland River, Mile 509.3

State: Kentucky | Latitude: 36° 58" 54' | Quad: Frazer, KY
County: Pulaski | Longitude: 84° 41" 5' | HUC: 05130103

Sample Date: 23 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 2.2 m

Results of Laboratory Analyses

Sample Depth ft		0.0	60.0	120.0
Alkalinity, Tot	mg/L	46	40	46
Alkalinity, Phenol	mg/L	4	0	0
Solids, Tot	mg/L	138	116	142
Solids, Tot Diss	mg/L	113	106	132
Solids, Tot Susp	mg/L	4.00	2.00	4.00
Solids, Vol	mg/L	59.0	33.0	34.0
Solids, Vol Diss	mg/L	59.0	33.0	34.0
Solids, Vol Susp	mg/L	<4.00	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0508	0.0521	0.0510
Kjeldahl N, Tot	mg/L	0.240	<0.160	<0.160
NO3+NO2, Tot	mg/L	0.152	0.345	0.460
Phosphorus, Tot	mg/L	0.0003	0.001	<0.0002
Phosphorus, Diss	mg/L	<0.0002	<0.0002	<0.0002
OrthoPhosphate, D	mg/L	<0.05	<0.05	<0.05
Organic Carbon, T	mg/L	2.70	2.80	2.30
Hardness, Tot	mg/L	64.5	58.4	68.9
Sulfate, Tot	mg/L	31.5	27.6	35.4
Calcium, Tot	mg/L	16.3	14.7	16.9
Magnesium, Tot	mg/L	5.78	5.28	6.49
Sodium, Tot	mg/L	4.89	4.28	5.74
Potassium, Tot	mg/L	1.30	1.37	1.35
Chloride, Tot	mg/L	2.99	2.84	3.71
Arsenic, Tot	ug/L	0.2	0.2	0.2
Barium, Tot	ug/L	17.7	18.0	19.2
Beryllium, Tot	ug/L	<0.2	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2	<0.2
Chromium, Tot	ug/L	0.4	0.5	0.5
Cobalt, Tot	ug/L	0.47	0.7	0.5
Copper, Tot	ug/L	<0.2	<0.2	<0.2
Iron, Tot	ug/L	60.6	150.0	87.5
Iron, Diss	ug/L			
Lead, Tot	ug/L	0.5	0.6	0.5
Lead, Diss	ug/L			
Manganese, Tot	ug/L	<0.2	<0.2	<0.2
Manganese, Diss	ug/L			
Thallium, Tot	ug/L	<0.2	<0.2	<0.2
Molybdenum, Tot	ug/L	<0.2	0.4	<0.2
Nickel, Tot	ug/L	1.9	2.0	2.0
Silver, Tot	ug/L	<0.2	<0.2	<0.2
Vanadium, Tot	ug/L	0.2	0.4	0.3
Zinc, Tot	ug/L	1.0	1.8	1.3
Zinc, Diss	ug/L			
Antimony, Tot	ug/L	0.2	0.2	1.1
Aluminum, Tot	ug/L	56.5	130.0	69.7
Aluminum, Diss	ug/L			
Selenium, Tot	ug/L	0.3	0.3	0.6
Mercury, Tot	ug/L			

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	22.0	71.6	10.7	122.6	157.0	8.4	2.3
5.0	22.0	71.6	10.8	123.7	157.0	8.4	3.3
10.0	21.9	71.4	10.8	123.5	157.0	8.4	4.4
15.0	21.2	70.2		10.8	157.0	8.3	5.0
20.0	18.3	64.9	9.6	102.4	164.0	7.7	2.1
25.0	17.2	63.0	9.3	97.0	174.0	7.4	2.4
30.0	15.7	60.3	9.1	92.0	166.0	7.3	3.2
35.0	15.2	59.4	9.1	91.0	143.0	7.3	1.7
40.0	14.6	58.3	9.3	91.8	126.0	7.2	1.4
45.0	14.0	57.2	9.5	92.6	109.0	7.1	1.2
50.0	13.7	56.7	9.5	92.0	105.0	7.1	0.7
55.0	13.6	56.5	9.4	90.8	127.0	7.1	0.7
60.0	13.3	55.9	8.4	80.6	145.0	7.0	0.5
65.0	13.1	55.6	7.6	72.6	152.0	7.0	0.5
70.0	12.9	55.2	7.2	68.5	154.0	6.9	0.4
75.0	11.9	53.4	7.2	66.9	157.0	6.9	0.4
80.0	9.9	49.8	7.9	70.1	163.0	6.9	0.4
85.0	9.3	48.7	8.5	74.3	163.0	6.9	0.3
90.0	9.1	48.4	8.7	75.7	165.0	6.9	0.2
95.0	8.8	47.8	8.8	76.0	165.0	6.9	0.1
100.0	8.7	47.7	8.8	75.8	165.0	6.9	0.1
105.0	8.6	47.5	8.8	75.6	165.0	6.9	0.1
110.0	8.6	47.5	8.7	74.7	166.0	6.9	0.1
115.0	8.6	47.5	8.7	74.7	163.0	6.9	0.1
120.0	8.5	47.3	8.5	72.8	166.0	6.9	0.1
125.0	8.5	47.3	8.3	71.1	166.0	6.9	0.1
129.0	8.5	47.3	8.1	69.4	166.0	6.9	0.1

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20006 | Project: Wolf Creek | Location: Cumberland River, Mile 519.0

State: Kentucky | Latitude: 37° 0" 7.7' | Quad: Somerset, KY
County: Pulaski | Longitude: 84° 34" 27.8' | HUC: 05130103

Sample Date: 23 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 2.9 m

Results of Laboratory Analyses

Sample Depth ft		0.0	90.0
Alkalinity, Tot	mg/L	42	46
Alkalinity, Phenol	mg/L	0	0
Solids, Tot	mg/L	138	152
Solids, Tot Diss	mg/L	117	136
Solids, Tot Susp	mg/L	2.00	4.00
Solids, Vol	mg/L	31.0	49.0
Solids, Vol Diss	mg/L	31.0	49.0
Solids, Vol Susp	mg/L	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0655	0.103
Kjeldahl N, Tot	mg/L	0.190	0.390
NO3+NO2, Tot	mg/L	0.177	0.565
Phosphorus, Tot	mg/L	0.002	0.003
Phosphorus, Diss	mg/L	<0.0002	<0.0002
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.70	2.60
Hardness, Tot	mg/L	66.7	71.5
Sulfate, Tot	mg/L	32.8	35.0
Calcium, Tot	mg/L	16.7	17.5
Magnesium, Tot	mg/L	6.08	6.76
Sodium, Tot	mg/L	5.27	5.69
Potassium, Tot	mg/L	1.37	1.39
Chloride, Tot	mg/L	3.08	3.74
Arsenic, Tot	ug/L	0.2	<0.2
Barium, Tot	ug/L	17.8	19.5
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.6	0.5
Cobalt, Tot	ug/L	0.9	0.6
Copper, Tot	ug/L	<0.2	<0.2
Iron, Tot	ug/L	45.9	98.8
Iron, Diss	ug/L		
Lead, Tot	ug/L	0.5	0.6
Lead, Diss	ug/L		
Manganese, Tot	ug/L	<0.2	<0.2
Manganese, Diss	ug/L		
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	0.3	<0.2
Nickel, Tot	ug/L	1.9	2.1
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.21	0.27
Zinc, Tot	ug/L	1.4	1.7
Zinc, Diss	ug/L		
Antimony, Tot	ug/L	0.2	1.1
Aluminum, Tot	ug/L	36.5	79.8
Aluminum, Diss	ug/L		
Selenium, Tot	ug/L	0.6	0.49
Mercury, Tot	ug/L		

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	22.7	72.9	10.1	117.2	163.0	8.0	1.6
5.0	22.6	72.7	10.1	117.0	163.0	8.0	2.8
10.0	22.3	72.1	10.3	118.6	163.0	8.0	3.6
15.0	19.2	66.6		11.1	187.0	7.9	3.7
20.0	18.0	64.4	9.6	101.7	238.0	7.5	2.4
25.0	17.4	63.3	9.0	94.2	237.0	7.4	1.4
30.0	16.6	61.9	8.7	89.6	223.0	7.3	0.7
35.0	16.2	61.2	8.7	88.9	215.0	7.3	0.5
40.0	15.6	60.1	8.6	86.7	207.0	7.2	0.3
45.0	15.1	59.2	8.6	85.8	187.0	7.2	0.3
50.0	14.2	57.6	9.8	95.9	162.0	7.2	0.1
55.0	13.6	56.5	9.7	93.7	140.0	7.2	0.2
60.0	13.2	55.8	9.5	90.9	114.0	7.1	0.2
65.0	12.7	54.9	9.2	87.1	114.0	7.1	0.2
70.0	12.1	53.8	8.9	83.1	135.0	7.0	0.2
75.0	10.8	51.4	8.2	74.3	154.0	6.9	0.1
80.0	9.6	49.3	7.6	66.9	166.0	6.9	0.1
85.0	9.2	48.6	7.3	63.6	166.0	6.9	0.0
90.0	9.1	48.4	7.3	63.5	168.0	6.8	0.0
95.0	9.1	48.4	7.3	63.5	169.0	6.8	0.0

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20007 | Project: Wolf Creek | Location: Big South Fork Cumberland River, Mile 2.3

State: Kentucky | Latitude: 36° 57" 20.5' | Quad: Burnside, KY
County: Wayne | Longitude: 84° 36" 21.6' | HUC: 05130104

Sample Date: 23 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 3.1 m

Results of Laboratory Analyses

Sample Depth ft		0.0	90.0
Alkalinity, Tot	mg/L	36	44
Alkalinity, Phenol	mg/L	0	0
Solids, Tot	mg/L	96.0	146
Solids, Tot Diss	mg/L	91.0	138
Solids, Tot Susp	mg/L	<0.500	2.00
Solids, Vol	mg/L	39.0	64.0
Solids, Vol Diss	mg/L	39.0	64.0
Solids, Vol Susp	mg/L	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0622	0.0548
Kjeldahl N, Tot	mg/L	<0.100	0.100
NO3+NO2, Tot	mg/L	0.0912	0.509
Phosphorus, Tot	mg/L	<0.0002	0.002
Phosphorus, Diss	mg/L	<0.0002	<0.0002
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.70	2.30
Hardness, Tot	mg/L	50.7	69.3
Sulfate, Tot	mg/L	24.0	34.9
Calcium, Tot	mg/L	13.2	17.0
Magnesium, Tot	mg/L	4.30	6.52
Sodium, Tot	mg/L	3.27	5.53
Potassium, Tot	mg/L	1.11	1.35
Chloride, Tot	mg/L	2.15	3.65
Arsenic, Tot	ug/L	<0.2	0.2
Barium, Tot	ug/L	16.7	19.2
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.4	0.5
Cobalt, Tot	ug/L	0.5	0.6
Copper, Tot	ug/L	<0.2	<0.2
Iron, Tot	ug/L	58.7	80.9
Iron, Diss	ug/L		
Lead, Tot	ug/L	0.5	0.5
Lead, Diss	ug/L		
Manganese, Tot	ug/L	<0.2	<0.2
Manganese, Diss	ug/L		
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	<0.2	<0.2
Nickel, Tot	ug/L	1.6	2.0
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.2	0.2
Zinc, Tot	ug/L	0.9	1.4
Zinc, Diss	ug/L		
Antimony, Tot	ug/L	0.4	0.3
Aluminum, Tot	ug/L	54.5	58.6
Aluminum, Diss	ug/L		
Selenium, Tot	ug/L	0.3	0.4
Mercury, Tot	ug/L		

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	22.9	73.2	9.9	115.3	127.0	8.0	0.5
5.0	22.5	72.5	10.0	115.6	135.0	8.0	1.3
10.0	22.1	71.8	10.1	115.9	139.0	7.9	2.6
15.0	20.0	68.0	10.4	114.7	175.0	7.7	4.9
20.0	18.6	65.5		10.4	168.0	7.6	5.9
25.0	17.9	64.2	9.9	104.7	155.0	7.5	3.9
30.0	16.8	62.2	9.1	94.1	140.0	7.4	1.0
35.0	15.9	60.6	9.1	92.4	93.0	7.3	1.6
40.0	15.4	59.7	9.0	90.4	82.0	7.2	0.8
45.0	15.0	59.0	9.1	90.6	81.0	7.1	0.2
50.0	14.3	57.7	9.2	90.2	81.0	7.1	0.1
55.0	13.3	55.9	9.2	88.3	78.0	7.0	0.2
60.0	13.1	55.6	9.3	88.8	75.0	7.0	0.3
65.0	12.8	55.0	9.2	87.3	89.0	6.9	0.3
70.0	11.7	53.1	7.7	71.2	152.0	6.8	0.2
75.0	10.3	50.5	8.2	73.4	159.0	6.9	0.1
80.0	9.3	48.7	8.2	71.7	168.0	6.9	0.0
85.0	9.0	48.2	8.2	71.1	165.0	6.8	0.0
90.0	8.9	48.0	7.8	67.5	167.0	6.8	0.0
95.0	8.9	48.0	7.8	67.5	167.0	6.8	0.1
97.0	8.9	48.0	7.7	66.6	167.0	6.8	0.1

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20010 | Project: Wolf Creek | Location: Pitman Creek, Mile 2.1

State: Kentucky | Latitude: 37° 0" 55.3' | Quad: Somerset, KY
County: Pulaski | Longitude: 84° 36" 26.9' | HUC: 05130103

Sample Date: 23 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 2.2 m

Results of Laboratory Analyses

Sample Depth ft		0.0	70.0
Alkalinity, Tot	mg/L	46	94
Alkalinity, Phenol	mg/L	2	0
Solids, Tot	mg/L	134	180
Solids, Tot Diss	mg/L	116	164
Solids, Tot Susp	mg/L	2.00	10.0
Solids, Vol	mg/L	45.0	36.0
Solids, Vol Diss	mg/L	45.0	36.0
Solids, Vol Susp	mg/L	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0461	0.219
Kjeldahl N, Tot	mg/L	0.300	0.230
NO3+NO2, Tot	mg/L	0.161	1.22
Phosphorus, Tot	mg/L	0.002	0.04
Phosphorus, Diss	mg/L	<0.0002	0.03
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.80	2.90
Hardness, Tot	mg/L	66.3	108.4
Sulfate, Tot	mg/L	31.6	19.2
Calcium, Tot	mg/L	16.9	34.0
Magnesium, Tot	mg/L	5.85	5.71
Sodium, Tot	mg/L	4.98	3.79
Potassium, Tot	mg/L	1.32	1.52
Chloride, Tot	mg/L	3.00	5.11
Arsenic, Tot	ug/L	0.2	1.1
Barium, Tot	ug/L	17.9	24.2
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.5	0.77
Cobalt, Tot	ug/L	0.6	0.6
Copper, Tot	ug/L	<0.2	<0.2
Iron, Tot	ug/L	57.8	147.0
Iron, Diss	ug/L		
Lead, Tot	ug/L	0.5	0.7
Lead, Diss	ug/L		
Manganese, Tot	ug/L	<0.2	<0.2
Manganese, Diss	ug/L		
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	<0.2	0.3
Nickel, Tot	ug/L	1.9	2.7
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.2	0.68
Zinc, Tot	ug/L	1.0	1.6
Zinc, Diss	ug/L		
Antimony, Tot	ug/L	0.5	0.32
Aluminum, Tot	ug/L	54.4	118.0
Aluminum, Diss	ug/L		
Selenium, Tot	ug/L	0.4	0.7
Mercury, Tot	ug/L		

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	23.0	73.4	10.5	122.5	160.0	8.4	2.9
5.0	23.0	73.4	10.5	122.5	160.0	8.4	5.8
10.0	22.6	72.7		10.5	167.0	8.4	9.3
15.0	20.9	69.6	10.0	112.2	209.0	8.2	8.1
20.0	19.2	66.6	7.6	82.5	280.0	7.7	4.0
25.0	18.1	64.6	6.3	66.9	298.0	7.5	1.2
30.0	16.9	62.4	7.0	72.5	271.0	7.5	0.3
35.0	16.1	61.0	7.9	80.5	257.0	7.5	0.3
40.0	15.7	60.3	7.9	79.8	263.0	7.5	0.3
45.0	15.2	59.4	7.2	72.0	292.0	7.5	0.3
50.0	14.6	58.3	6.9	68.1	272.0	7.4	0.3
55.0	14.1	57.4	7.2	70.3	232.0	7.3	0.3
60.0	13.6	56.5	7.7	74.4	190.0	7.3	0.3
65.0	13.4	56.1	6.6	63.5	206.0	7.2	0.3
70.0	12.7	54.9	4.4	41.7	222.0	7.1	0.3
75.0	10.3	50.5	5.1	45.7	184.0	7.1	0.2

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20052 | Project: Wolf Creek | Location: Beaver Creek, Mile 5.3

State: Kentucky | Latitude: 36° 52" .4' | Quad: Cumberland City, KY
County: Wayne | Longitude: 85° 1" 27.3' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 1.5 m

Results of Laboratory Analyses

Sample Depth ft		0.0	110.0
Alkalinity, Tot	mg/L	64	76
Alkalinity, Phenol	mg/L	10	0
Solids, Tot	mg/L	154	174
Solids, Tot Diss	mg/L	129	161
Solids, Tot Susp	mg/L	8.00	2.00
Solids, Vol	mg/L	8.00	31.0
Solids, Vol Diss	mg/L	8.00	31.0
Solids, Vol Susp	mg/L	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0543	0.0571
Kjeldahl N, Tot	mg/L	0.220	0.200
NO3+NO2, Tot	mg/L	0.0834	0.749
Phosphorus, Tot	mg/L	0.001	0.01
Phosphorus, Diss	mg/L	<0.0002	0.002
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.90	2.50
Hardness, Tot	mg/L	76.0	96.1
Sulfate, Tot	mg/L	33.9	30.1
Calcium, Tot	mg/L	20.0	28.2
Magnesium, Tot	mg/L	6.32	6.23
Sodium, Tot	mg/L	5.77	5.86
Potassium, Tot	mg/L	1.41	1.50
Chloride, Tot	mg/L	3.84	4.97
Arsenic, Tot	ug/L	0.2	0.27
Barium, Tot	ug/L	18.4	20.1
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.6	0.7
Cobalt, Tot	ug/L	0.7	0.6
Copper, Tot	ug/L	<0.2	<0.2
Iron, Tot	ug/L	66.5	59.5
Iron, Diss	ug/L		
Lead, Tot	ug/L	0.4	0.4
Lead, Diss	ug/L		
Manganese, Tot	ug/L	<0.2	<0.2
Manganese, Diss	ug/L		
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	<0.2	0.3
Nickel, Tot	ug/L	2.1	2.5
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.3	0.3
Zinc, Tot	ug/L	1.4	1.4
Zinc, Diss	ug/L		
Antimony, Tot	ug/L	0.3	0.3
Aluminum, Tot	ug/L	96.5	65.8
Aluminum, Diss	ug/L		
Selenium, Tot	ug/L	0.5	0.5
Mercury, Tot	ug/L		

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	23.6	74.5	12.1	142.7	180.0	9.1	3.3
5.0	23.3	73.9	12.4	145.5	178.0	9.1	8.8
10.0	21.5	70.7		13.2	175.0	9.1	15.3
15.0	18.3	64.9	11.9	126.9	178.0	8.6	8.1
20.0	16.8	62.2	9.6	99.3	172.0	7.9	4.0
25.0	15.9	60.6	9.0	91.4	173.0	7.7	2.5
30.0	14.8	58.6	8.7	86.3	173.0	7.5	1.9
35.0	14.5	58.1	8.7	85.7	173.0	7.4	1.8
40.0	14.0	57.2	8.7	84.8	165.0	7.4	1.4
45.0	13.7	56.7	8.5	82.3	182.0	7.3	1.4
50.0	13.6	56.5	8.4	81.1	188.0	7.3	1.4
55.0	13.2	55.8	8.7	83.3	176.0	7.3	1.0
60.0	13.0	55.4	8.8	83.9	176.0	7.3	0.8
65.0	12.7	54.9	8.8	83.3	182.0	7.3	0.6
70.0	12.4	54.3	8.9	83.7	180.0	7.3	0.5
75.0	12.0	53.6	9.0	83.9	183.0	7.3	0.5
80.0	11.3	52.3	8.9	81.6	192.0	7.3	0.4
85.0	10.8	51.4	8.3	75.2	200.0	7.2	0.2
90.0	10.2	50.4	7.7	68.8	208.0	7.2	0.2
95.0	8.9	48.0	6.6	57.1	216.0	7.2	0.2
100.0	8.7	47.7	6.5	56.0	216.0	7.1	0.2
105.0	8.4	47.1	6.5	55.6	211.0	7.1	0.2
110.0	8.4	47.1	6.6	56.4	211.0	7.1	0.1
115.0	8.3	46.9	6.6	56.3	211.0	7.1	0.1
120.0	8.3	46.9	6.6	56.3	211.0	7.1	0.1
122.0	8.3	46.9	6.6	56.3	211.0	7.1	0.1

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20053 | Project: Wolf Creek | Location: Wolf Creek, Mile 1.7

State: Kentucky | Latitude: 36° 57" 3' | Quad: Jabez, KY
County: Russell | Longitude: 84° 59" 23.5' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 2.6 m

(No Laboratory Analyses)

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	24.0	75.2	10.5	124.7	170.0	8.7	2.6
5.0	23.8	74.8	10.7	126.7	171.0	8.7	3.7
10.0	22.2	72.0	11.7	134.5	170.0	8.8	5.9
15.0	19.5	67.1	11.5	125.6	169.0	8.6	6.4
20.0	17.5	63.5	10.2	107.0	165.0	8.0	4.0
25.0	16.6	61.9	9.3	95.8	163.0	7.7	3.7
30.0	15.5	59.9	8.3	83.5	165.0	7.5	1.8
35.0	14.5	58.1	8.0	78.8	165.0	7.3	1.0
40.0	14.1	57.4	8.5	83.0	166.0	7.3	1.0
45.0	13.8	56.8	8.6	83.4	162.0	7.2	1.2
50.0	13.6	56.5	8.8	85.0	163.0	7.2	0.7
55.0	13.4	56.1	8.8	84.6	162.0	7.2	0.7
60.0	13.2	55.8	9.0	86.2	161.0	7.2	0.4
65.0	12.9	55.2	9.0	85.6	164.0	7.2	0.3
70.0	12.5	54.5	9.1	85.8	164.0	7.2	0.4
75.0	11.9	53.4	8.7	80.9	169.0	7.1	0.3
80.0	11.0	51.8	8.0	72.8	172.0	7.1	0.3
85.0	9.6	49.3	6.5	57.2	175.0	7.0	0.3
90.0	8.8	47.8	8.1	69.9	173.0	7.0	0.3
95.0	8.5	47.3	8.5	72.8	173.0	7.0	0.2
100.0	8.3	46.9	8.3	70.8	172.0	7.0	0.2
105.0	8.2	46.8	7.9	67.2	173.0	7.0	0.2
110.0	8.1	46.6	7.0	59.4	173.0	7.0	0.2
115.0	8.0	46.4	6.5	55.0	175.0	6.9	0.2
120.0	8.0	46.4	6.4	54.2	177.0	6.9	0.2

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20055 | Project: Wolf Creek | Location: Fishing Creek, Mile 2.3

State: Kentucky | Latitude: 37° 0" 21.5' | Quad: Delmer, KY
County: Pulaski | Longitude: 84° 42" 21.5' | HUC: 05130103

Sample Date: 23 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 2.2 m

(No Laboratory Analyses)

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	23.3	73.9	11.0	129.0	162.0	8.7	2.6
5.0	22.4	72.3	11.3	130.4	158.0	8.6	4.5
10.0	21.8	71.2	11.7	133.5	159.0	8.6	5.9
15.0	19.1	66.4	11.8	127.8	157.0	8.5	16.7
20.0	17.8	64.0	9.8	103.4	155.0	7.7	8.7
25.0	16.8	62.2	9.2	95.2	155.0	7.5	3.8
30.0	16.2	61.2	9.1	92.9	154.0	7.4	3.8
35.0	15.6	60.1	9.2	92.8	157.0	7.3	2.5
40.0	15.2	59.4	8.7	87.0	157.0	7.3	2.1
45.0	14.8	58.6	6.8	67.4	158.0	7.1	1.1
50.0	14.2	57.6	5.5	53.8	164.0	7.1	1.0
55.0	13.9	57.0	4.2	40.8	167.0	7.0	1.1
60.0	13.6	56.5	3.7	35.7	166.0	6.9	1.2
65.0	13.0	55.4	4.8	45.7	161.0	6.9	0.9
70.0	12.4	54.3	4.4	41.4	163.0	6.9	0.6
75.0	10.5	50.9	5.5	49.5	166.0	6.9	0.5
80.0	9.6	49.3	6.9	60.7	168.0	6.9	0.4
85.0	9.3	48.7	7.4	64.7	166.0	6.9	0.4
90.0	8.9	48.0	8.1	70.1	166.0	6.9	0.2
95.0	8.8	47.8	8.1	69.9	166.0	6.9	0.2
100.0	8.7	47.7	8.1	69.8	166.0	6.9	0.2
103.0	8.7	47.7	8.0	68.9	167.0	6.9	0.2

United States Army Corps of Engineers | Nashville District | CELRN-EC-H / Water Management Section

Station: 3WOL20056 | Project: Wolf Creek | Location: Indian Creek, Mile 1.5

State: Kentucky | Latitude: 36° 50" 34.1' | Quad: Wolf Creek Dam, KY
County: Russell | Longitude: 85° 7" 44.8' | HUC: 05130103

Sample Date: 22 May 2013 | Water Surface Elevation = 705.9 ft | Secchi Disk = 1.5 m

(No Laboratory Analyses)

Profile Measurements

Depth ft	Water Temp deg C	Water Temp deg F	Dis Oxygen mg/l	Dis Oxygen % sat	Spec Cond umho/cm	pH units	Chloro a F ug/l
0.0	22.5	72.5	13.5	156.1	175.0	9.3	3.8
5.0	21.9	71.4	14.1	161.2	175.0	9.3	10.2
10.0	17.8	64.0	12.2	128.8	170.0	8.6	12.4
15.0	17.0	62.6	10.5	109.0	169.0	8.2	8.1
20.0	16.1	61.0	9.3	94.8	166.0	7.8	5.4
25.0	15.4	59.7	9.1	91.4	167.0	7.7	3.7
30.0	14.9	58.8	8.9	88.4	168.0	7.5	3.6
35.0	14.4	57.9	8.8	86.5	174.0	7.4	1.8
40.0	14.2	57.6	8.8	86.1	171.0	7.4	1.5
45.0	13.8	56.8	8.8	85.4	169.0	7.3	0.9
50.0	13.6	56.5	8.8	85.0	168.0	7.3	0.7
55.0	13.4	56.1	9.0	86.5	168.0	7.3	0.6
60.0	13.1	55.6	9.1	86.9	171.0	7.3	0.4
65.0	12.8	55.0	9.2	87.3	173.0	7.3	0.3
70.0	12.4	54.3	9.0	84.6	179.0	7.2	0.3
75.0	12.1	53.8	9.3	86.8	179.0	7.2	0.2
80.0	11.3	52.3	9.4	86.2	177.0	7.2	0.3
85.0	10.1	50.2	9.6	85.5	173.0	7.2	0.1
90.0	9.4	48.9	9.7	85.0	175.0	7.2	0.2
95.0	8.9	48.0	9.5	82.2	183.0	7.2	0.1
100.0	8.4	47.1	9.1	77.8	189.0	7.1	0.0
105.0	8.3	46.9	9.0	76.7	188.0	7.1	0.1
110.0	8.2	46.8	9.0	76.5	189.0	7.1	0.0
115.0	8.0	46.4	8.9	75.3	187.0	7.1	0.1
120.0	8.0	46.4	8.7	73.6	191.0	7.1	0.1
125.0	8.0	46.4	8.6	72.8	191.0	7.1	0.1
130.0	7.9	46.2	8.4	70.9	190.0	7.1	0.0
135.0	7.9	46.2	8.4	70.9	192.0	7.1	0.1
140.0	7.9	46.2	8.4	70.9	192.0	7.1	0.1