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

Station: 3COR10001 | Project: Cordell Hull | Location: Cumberland River, Mile 313.2

State: Tennessee | Latitude: 36º 17" 13' | Quad: Carthage, TN
County: Smith | Longitude: 85º 56" 27' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 452.2 ft | Stream Flow = 24900 cfs

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		0.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	66	0.0	21.6	70.9	8.3	94.4	187.0	7.6	
Alkalinity, Phenol	mg/L	0								
Solids, Tot	mg/L	146								
Solids, Tot Diss	mg/L	161								
Solids, Tot Susp	mg/L	5.00								
Solids, Vol	mg/L	72.0								
Solids, Vol Diss	mg/L	68.0								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.0398								
Kjeldahl N, Tot	mg/L	0.220								
NO3+NO2, Tot	mg/L	0.197								
Phosphorus, Tot	mg/L	0.010								
Phosphorus, Diss	mg/L	0.0177								
OrthoPhosphate, D	mg/L	<0.05								
Organic Carbon, T	mg/L	2.10								
Hardness, Tot	mg/L	81.9								
Sulfate, Tot	mg/L	26.6								
Calcium, Tot	mg/L	22.6								
Magnesium, Tot	mg/L	6.17								
Sodium, Tot	mg/L	5.23								
Potassium, Tot	mg/L	1.50								
Chloride, Tot	mg/L	3.60								
Arsenic, Tot	ug/L	0.4								
Barium, Tot	ug/L	21.9								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.2								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	1.1								
Iron, Tot	ug/L	74.6								
Iron, Diss	ug/L	9.5								
Lead, Tot	ug/L	0.7								
Lead, Diss	ug/L	0.6								
Manganese, Tot	ug/L	56.4								
Manganese, Diss	ug/L	4.3								
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.2								
Nickel, Tot	ug/L	0.8								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.4								
Zinc, Tot	ug/L	3.7								
Zinc, Diss	ug/L	4.5								
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	25.8								
Aluminum, Diss	ug/L	<2.0								
Selenium, Tot	ug/L	0.2								
Mercury, Tot	ug/L	<0.005								

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

Station: 3COR10020 | Project: Cordell Hull | Location: Defeated Creek, Mile 5.2

State: Tennessee | Latitude: 36º 21" 8.5' | Quad: Carthage, TN
County: Smith | Longitude: 85º 53" 37.2' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		0.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	190	0.0	22.1	71.8	11.4	130.8	367.0	7.8	
Alkalinity, Phenol	mg/L	0								
Solids, Tot	mg/L	236								
Solids, Tot Diss	mg/L	243								
Solids, Tot Susp	mg/L	2.00								
Solids, Vol	mg/L	128								
Solids, Vol Diss	mg/L	128								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.0382								
Kjeldahl N, Tot	mg/L	0.100								
NO3+NO2, Tot	mg/L	0.0432								
Phosphorus, Tot	mg/L	0.176								
Phosphorus, Diss	mg/L	0.164								
OrthoPhosphate, D	mg/L	0.148								
Organic Carbon, T	mg/L	<0.200								
Hardness, Tot	mg/L	198								
Sulfate, Tot	mg/L	10.5								
Calcium, Tot	mg/L	66.8								
Magnesium, Tot	mg/L	7.51								
Sodium, Tot	mg/L	2.19								
Potassium, Tot	mg/L	1.41								
Chloride, Tot	mg/L	2.80								
Arsenic, Tot	ug/L	0.4								
Barium, Tot	ug/L	17.2								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.33								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.9								
Iron, Tot	ug/L	31.4								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.6								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	17.3								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.7								
Nickel, Tot	ug/L	0.4								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.7								
Zinc, Tot	ug/L	3.6								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	18.0								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	0.2								
Mercury, Tot	ug/L									

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

Station: 3COR10022 | Project: Cordell Hull | Location: Martin Creek, Mile 4.0

State: Tennessee | Latitude: 36º 14" 22' | Quad: Buffalo Valley, TN
County: Jackson | Longitude: 85º 45" 50' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		0.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	162	0.0	22.9	73.2	9.9	115.3	317.0	7.8	
Alkalinity, Phenol	mg/L	0								
Solids, Tot	mg/L	206								
Solids, Tot Diss	mg/L	214								
Solids, Tot Susp	mg/L	1.00								
Solids, Vol	mg/L	168								
Solids, Vol Diss	mg/L	168								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.0266								
Kjeldahl N, Tot	mg/L	<0.0700								
NO3+NO2, Tot	mg/L	0.281								
Phosphorus, Tot	mg/L	0.0874								
Phosphorus, Diss	mg/L	0.086								
OrthoPhosphate, D	mg/L	0.0763								
Organic Carbon, T	mg/L	<0.200								
Hardness, Tot	mg/L	168								
Sulfate, Tot	mg/L	9.90								
Calcium, Tot	mg/L	53.2								
Magnesium, Tot	mg/L	8.58								
Sodium, Tot	mg/L	2.19								
Potassium, Tot	mg/L	1.05								
Chloride, Tot	mg/L	5.36								
Arsenic, Tot	ug/L	0.3								
Barium, Tot	ug/L	16.8								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.3								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.8								
Iron, Tot	ug/L	22.7								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.6								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	10.4								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.8								
Nickel, Tot	ug/L	0.4								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.5								
Zinc, Tot	ug/L	3.2								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	5.7								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	<0.2								
Mercury, Tot	ug/L									

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

Station: 3COR10023 | Project: Cordell Hull | Location: Roaring River, Mile 6.2

State: Tennessee | Latitude: 36º 21" 36.5' | Quad: Dodson Branch, TN
County: Jackson | Longitude: 85º 35" 1.8' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		0.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	114	0.0	24.5	76.1	9.0	107.9	242.0	7.9	
Alkalinity, Phenol	mg/L	0								
Solids, Tot	mg/L	160								
Solids, Tot Diss	mg/L	170								
Solids, Tot Susp	mg/L	3.00								
Solids, Vol	mg/L	112								
Solids, Vol Diss	mg/L	112								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.0291								
Kjeldahl N, Tot	mg/L	<0.0700								
NO3+NO2, Tot	mg/L	0.526								
Phosphorus, Tot	mg/L	0.0184								
Phosphorus, Diss	mg/L	0.019								
OrthoPhosphate, D	mg/L	<0.05								
Organic Carbon, T	mg/L	<0.200								
Hardness, Tot	mg/L	122								
Sulfate, Tot	mg/L	6.53								
Calcium, Tot	mg/L	39.2								
Magnesium, Tot	mg/L	5.76								
Sodium, Tot	mg/L	2.49								
Potassium, Tot	mg/L	1.55								
Chloride, Tot	mg/L	4.20								
Arsenic, Tot	ug/L	0.3								
Barium, Tot	ug/L	23.0								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.3								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.8								
Iron, Tot	ug/L	21.9								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.67								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	9.2								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.6								
Nickel, Tot	ug/L	0.41								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.6								
Zinc, Tot	ug/L	3.6								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	16.5								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	<0.2								
Mercury, Tot	ug/L									

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

Station: 3COR10024 | Project: Cordell Hull | Location: Mill Creek, Mile 1.7

State: Tennessee | Latitude: 36º 29" 36' | Quad: Burristown, TN
County: Clay | Longitude: 85º 33" 3' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = | Stream Flow =

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		0.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	162	0.0	20.3	68.5	10.3	114.2	368.0	7.9	
Alkalinity, Phenol	mg/L	0								
Solids, Tot	mg/L	270								
Solids, Tot Diss	mg/L	274								
Solids, Tot Susp	mg/L	2.00								
Solids, Vol	mg/L	206								
Solids, Vol Diss	mg/L	206								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.0332								
Kjeldahl N, Tot	mg/L	<0.0700								
NO3+NO2, Tot	mg/L	0.237								
Phosphorus, Tot	mg/L	0.0261								
Phosphorus, Diss	mg/L	0.023								
OrthoPhosphate, D	mg/L	<0.05								
Organic Carbon, T	mg/L	<0.200								
Hardness, Tot	mg/L	192								
Sulfate, Tot	mg/L	27.6								
Calcium, Tot	mg/L	61.2								
Magnesium, Tot	mg/L	9.65								
Sodium, Tot	mg/L	3.94								
Potassium, Tot	mg/L	1.28								
Chloride, Tot	mg/L	4.61								
Arsenic, Tot	ug/L	0.3								
Barium, Tot	ug/L	18.5								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.4								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.8								
Iron, Tot	ug/L	23.1								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.6								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	9.7								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.62								
Nickel, Tot	ug/L	0.4								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.4								
Zinc, Tot	ug/L	3.4								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	<2.0								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	0.3								
Mercury, Tot	ug/L									

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

Station: 3COR20002 | Project: Cordell Hull | Location: Cumberland River, Mile 314.0

State: Tennessee | Latitude: 36° 17" 47' | Quad: Carthage, TN
County: Smith | Longitude: 85° 56" 58' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.4 m

Results of Laboratory Analyses

Sample Depth ft		0.0	75.0
Alkalinity, Tot	mg/L	68	70
Alkalinity, Phenol	mg/L	0	0
Solids, Tot	mg/L	132	140
Solids, Tot Diss	mg/L	161	161
Solids, Tot Susp	mg/L	3.00	13.0
Solids, Vol	mg/L	39.0	88.0
Solids, Vol Diss	mg/L	39.0	83.0
Solids, Vol Susp	mg/L	<4.00	5.00
Ammonia N, Tot	mg/L	0.0616	0.0838
Kjeldahl N, Tot	mg/L	0.310	0.270
NO3+NO2, Tot	mg/L	0.0957	0.270
Phosphorus, Tot	mg/L	0.0097	0.0126
Phosphorus, Diss	mg/L	0.0060	0.0052
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.50	<0.200
Hardness, Tot	mg/L	83.1	81.3
Sulfate, Tot	mg/L	26.2	26.9
Calcium, Tot	mg/L	23.0	22.3
Magnesium, Tot	mg/L	6.22	6.20
Sodium, Tot	mg/L	5.19	5.24
Potassium, Tot	mg/L	1.52	1.50
Chloride, Tot	mg/L	3.59	3.59
Arsenic, Tot	ug/L	0.4	0.4
Barium, Tot	ug/L	19.2	23.2
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.36	0.4
Cobalt, Tot	ug/L	<0.2	0.2
Copper, Tot	ug/L	0.5	0.6
Iron, Tot	ug/L	23.6	139.0
Iron, Diss	ug/L	3.4	6.8
Lead, Tot	ug/L	0.3	0.43
Lead, Diss	ug/L	0.2	0.2
Manganese, Tot	ug/L	19.8	135.0
Manganese, Diss	ug/L	1.6	54.9
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	0.3	0.2
Nickel, Tot	ug/L	0.7	0.9
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.3	0.5
Zinc, Tot	ug/L	1.8	2.4
Zinc, Diss	ug/L	1.7	2.1
Antimony, Tot	ug/L	<0.2	<0.2
Aluminum, Tot	ug/L	4.8	45.7
Aluminum, Diss	ug/L	<2.0	<2.0
Selenium, Tot	ug/L	0.3	0.3
Mercury, Tot	ug/L	0.177	0.151

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	25.2	77.4	12.3	149.3	189.0	8.6	3.9
5.0	23.6	74.5	11.9	140.4	188.0	8.5	7.2
10.0	23.2	73.8		11.8	187.0	8.5	8.3
15.0	21.9	71.4	9.6	109.7	188.0	7.8	7.6
20.0	21.5	70.7	8.9	101.0	187.0	7.5	6.1
25.0	20.8	69.4	7.7	86.2	188.0	7.3	4.6
30.0	20.4	68.7	6.9	76.7	186.0	7.2	2.9
35.0	20.0	68.0	6.3	69.5	186.0	7.2	2.0
40.0	19.8	67.6	6.1	67.0	186.0	7.1	1.9
45.0	19.6	67.3	5.9	64.6	185.0	7.1	1.5
50.0	19.5	67.1	5.8	63.3	186.0	7.1	1.3
55.0	19.5	67.1	5.8	63.3	186.0	7.1	1.3
60.0	19.5	67.1	5.7	62.2	186.0	7.1	1.2
65.0	19.4	66.9	5.7	62.1	186.0	7.1	1.2
70.0	19.4	66.9	5.6	61.0	187.0	7.1	1.2
75.0	19.4	66.9	5.6	61.0	187.0	7.1	1.2
80.0	19.4	66.9	5.6	61.0	187.0	7.1	1.2

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

Station: 3COR20003 | Project: Cordell Hull | Location: Cumberland River, Mile 323.0

State: Tennessee | Latitude: 36° 16" 47' | Quad: Carthage, TN
County: Smith | Longitude: 85° 53" 10' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 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	26.8	80.2	11.6	144.8	189.0	8.7	3.3
5.0	24.4	75.9	12.5	149.6	187.0	8.6	7.5
10.0	22.4	72.3	10.3	118.9	188.0	8.0	8.4
15.0	21.1	70.0	8.6	96.8	188.0	7.4	5.3
20.0	20.4	68.7	7.1	78.9	187.0	7.2	2.9
25.0	20.2	68.4	6.8	75.3	187.0	7.2	2.5
30.0	19.9	67.8	6.5	71.5	187.0	7.1	1.9
35.0	19.9	67.8	6.3	69.3	187.0	7.1	1.7
40.0	19.9	67.8	6.3	69.3	187.0	7.1	1.7
45.0	19.8	67.6	6.1	67.0	187.0	7.1	1.6
50.0	19.8	67.6	6.1	67.0	187.0	7.1	1.5
55.0	19.8	67.6	6.1	67.0	187.0	7.1	1.5
60.0	19.8	67.6	6.0	65.9	187.0	7.1	1.5
65.0	19.7	67.5	6.0	65.8	188.0	7.1	1.5
69.0	19.7	67.5	6.0	65.8	187.0	7.1	1.6

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

Station: 3COR20004 | Project: Cordell Hull | Location: Cumberland River, Mile 327.9

State: Tennessee | Latitude: 36° 16" 51' | Quad: Granville, TN
County: Smith | Longitude: 85° 50" 11' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 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	26.8	80.2	11.7	146.0	190.0	8.6	3.3
5.0	21.8	71.2	10.0	114.1	189.0	7.7	8.0
10.0	21.0	69.8	8.8	98.9	189.0	7.4	5.8
15.0	20.5	68.9	8.1	90.2	189.0	7.3	4.1
20.0	20.0	68.0	7.3	80.5	189.0	7.2	2.8
25.0	19.9	67.8	7.1	78.1	189.0	7.2	2.3
30.0	19.9	67.8	7.0	77.0	189.0	7.2	2.5
35.0	19.8	67.6	6.9	75.8	189.0	7.2	2.3
40.0	19.8	67.6	6.8	74.7	189.0	7.2	2.2
45.0	19.7	67.5	6.5	71.3	189.0	7.1	1.9
50.0	19.7	67.5	6.4	70.2	190.0	7.1	2.0
55.0	19.7	67.5	6.4	70.2	189.0	7.1	2.0
60.0	19.8	67.6	6.5	71.4	189.0	7.1	2.1

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

Station: 3COR20005 | Project: Cordell Hull | Location: Cumberland River, Mile 340.8

State: Tennessee | Latitude: 36° 19" 11' | Quad: Gainesboro, TN
County: Jackson | Longitude: 85° 44" 47' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.0 m

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		25.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	64	0.0	22.3	72.1	9.2	106.0	189.0	7.6	2.0
Alkalinity, Phenol	mg/L	0	5.0	20.7	69.3		9.0	189.0	7.4	5.4
Solids, Tot	mg/L	144	10.0	20.4	68.7	8.5	94.4	189.0	7.3	4.0
Solids, Tot Diss	mg/L	156	15.0	20.3	68.5	8.3	92.0	188.0	7.3	3.3
Solids, Tot Susp	mg/L	5.00	20.0	20.2	68.4	8.1	89.7	188.0	7.3	3.0
Solids, Vol	mg/L	137	25.0	20.2	68.4	8.1	89.7	188.0	7.3	2.9
Solids, Vol Diss	mg/L	137	30.0	20.2	68.4	7.9	87.4	188.0	7.3	2.3
Solids, Vol Susp	mg/L	<4.00	35.0	20.0	68.0	7.8	86.0	188.0	7.2	2.2
Ammonia N, Tot	mg/L	0.0481	40.0	19.9	67.8	7.6	83.6	188.0	7.2	2.2
Kjeldahl N, Tot	mg/L	0.260	45.0	19.9	67.8	7.7	84.7	188.0	7.2	2.1
NO3+NO2, Tot	mg/L	0.289	50.0	19.9	67.8	7.6	83.6	188.0	7.2	2.1
Phosphorus, Tot	mg/L	0.0075	55.0	19.9	67.8	7.6	83.6	188.0	7.2	2.2
Phosphorus, Diss	mg/L	0.004	58.0	19.9	67.8	7.6	83.6	188.0	7.2	2.2
OrthoPhosphate, D	mg/L	<0.05								
Organic Carbon, T	mg/L	<0.200								
Hardness, Tot	mg/L	82.7								
Sulfate, Tot	mg/L	26.6								
Calcium, Tot	mg/L	22.8								
Magnesium, Tot	mg/L	6.22								
Sodium, Tot	mg/L	5.23								
Potassium, Tot	mg/L	1.48								
Chloride, Tot	mg/L	3.72								
Arsenic, Tot	ug/L	0.29								
Barium, Tot	ug/L	21.3								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.37								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.5								
Iron, Tot	ug/L	63.7								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.3								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	43.4								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.2								
Nickel, Tot	ug/L	0.8								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.3								
Zinc, Tot	ug/L	2.0								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	18.0								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	<0.2								
Mercury, Tot	ug/L									

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

Station: 3COR20006 | Project: Cordell Hull | Location: Cumberland River, Mile 358.6

State: Tennessee | Latitude: 36° 23" 5' | Quad: Whitleyville, TN
County: Jackson | Longitude: 85° 38" 31' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.8 m

Results of Laboratory Analyses

Sample Depth ft		15.0
Alkalinity, Tot	mg/L	60
Alkalinity, Phenol	mg/L	0
Solids, Tot	mg/L	130
Solids, Tot Diss	mg/L	148
Solids, Tot Susp	mg/L	7.00
Solids, Vol	mg/L	46.0
Solids, Vol Diss	mg/L	46.0
Solids, Vol Susp	mg/L	<4.00
Ammonia N, Tot	mg/L	0.0883
Kjeldahl N, Tot	mg/L	0.110
NO3+NO2, Tot	mg/L	0.301
Phosphorus, Tot	mg/L	0.0062
Phosphorus, Diss	mg/L	0.003
OrthoPhosphate, D	mg/L	<0.05
Organic Carbon, T	mg/L	2.10
Hardness, Tot	mg/L	78.5
Sulfate, Tot	mg/L	27.7
Calcium, Tot	mg/L	20.9
Magnesium, Tot	mg/L	6.37
Sodium, Tot	mg/L	5.42
Potassium, Tot	mg/L	1.53
Chloride, Tot	mg/L	3.77
Arsenic, Tot	ug/L	0.3
Barium, Tot	ug/L	20.7
Beryllium, Tot	ug/L	<0.2
Cadmium, Tot	ug/L	<0.2
Chromium, Tot	ug/L	0.4
Cobalt, Tot	ug/L	<0.2
Copper, Tot	ug/L	0.5
Iron, Tot	ug/L	103.0
Iron, Diss	ug/L	
Lead, Tot	ug/L	0.3
Lead, Diss	ug/L	
Manganese, Tot	ug/L	33.9
Manganese, Diss	ug/L	
Thallium, Tot	ug/L	<0.2
Molybdenum, Tot	ug/L	0.2
Nickel, Tot	ug/L	0.8
Silver, Tot	ug/L	<0.2
Vanadium, Tot	ug/L	0.3
Zinc, Tot	ug/L	2.0
Zinc, Diss	ug/L	
Antimony, Tot	ug/L	0.2
Aluminum, Tot	ug/L	22.3
Aluminum, Diss	ug/L	
Selenium, Tot	ug/L	0.21
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	20.4	68.7	7.8	86.7	181.0	7.3	0.5
5.0	19.4	66.9		7.8	181.0	7.2	0.7
10.0	18.9	66.0	7.7	83.1	181.0	7.2	0.7
15.0	18.7	65.7	7.6	81.7	182.0	7.2	0.7
20.0	18.6	65.5	7.6	81.5	182.0	7.2	0.6
25.0	18.4	65.1	7.5	80.1	182.0	7.2	0.6
30.0	18.3	64.9	7.5	80.0	183.0	7.2	0.5
35.0	18.2	64.8	7.4	78.7	183.0	7.2	0.6

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

Station: 3COR20007 | Project: Cordell Hull | Location: Cumberland River, Mile 374.0

State: Tennessee | Latitude: 36º 29" 44' | Quad: Burristown, TN
County: Clay | Longitude: 85º 34" 19' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 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	19.1	66.4	7.8	84.5	178.0	7.3	0.4
5.0	19.1	66.4	7.8	84.5	177.0	7.2	0.5
10.0	19.0	66.2	7.8	84.3	177.0	7.2	0.5
15.0	19.0	66.2	7.8	84.3	177.0	7.2	0.5
20.0	19.0	66.2	7.8	84.3	177.0	7.2	0.5
25.0	19.0	66.2	7.8	84.3	177.0	7.2	0.5
27.0	19.0	66.2	7.8	84.3	177.0	7.2	0.5

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

Station: 3COR20008 | Project: Cordell Hull | Location: Defeated Creek, Mile 1.0

State: Tennessee | Latitude: 36º 18" 11' | Quad: Carthage, TN
County: Smith | Longitude: 85º 54" 9' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.5 m

Results of Laboratory Analyses

Sample Depth ft		0.0	30.0
Alkalinity, Tot	mg/L	80	70
Alkalinity, Phenol	mg/L	0	0
Solids, Tot	mg/L	144	158
Solids, Tot Diss	mg/L	166	147
Solids, Tot Susp	mg/L	2.00	5.00
Solids, Vol	mg/L	117	128
Solids, Vol Diss	mg/L	117	124
Solids, Vol Susp	mg/L	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0475	0.121
Kjeldahl N, Tot	mg/L	0.310	0.360
NO3+NO2, Tot	mg/L	<0.0200	0.222
Phosphorus, Tot	mg/L	0.0142	0.0140
Phosphorus, Diss	mg/L	0.005	0.005
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.80	2.30
Hardness, Tot	mg/L	90.5	87.7
Sulfate, Tot	mg/L	23.8	24.8
Calcium, Tot	mg/L	26.2	24.9
Magnesium, Tot	mg/L	6.08	6.19
Sodium, Tot	mg/L	4.70	4.84
Potassium, Tot	mg/L	1.58	1.54
Chloride, Tot	mg/L	3.52	3.48
Arsenic, Tot	ug/L	0.4	0.5
Barium, Tot	ug/L	19.4	24.4
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.3	0.4
Cobalt, Tot	ug/L	<0.2	<0.2
Copper, Tot	ug/L	0.5	0.7
Iron, Tot	ug/L	15.2	88.2
Iron, Diss	ug/L		
Lead, Tot	ug/L	0.2	0.31
Lead, Diss	ug/L		
Manganese, Tot	ug/L	27.7	220.0
Manganese, Diss	ug/L		
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	0.3	0.3
Nickel, Tot	ug/L	0.6	0.8
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.5	0.5
Zinc, Tot	ug/L	1.8	2.4
Zinc, Diss	ug/L		
Antimony, Tot	ug/L	<0.2	0.2
Aluminum, Tot	ug/L	21.0	24.1
Aluminum, Diss	ug/L		
Selenium, Tot	ug/L	0.22	0.22
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	29.8	85.6	13.0	170.6	198.0	9.1	3.9
5.0	25.1	77.2	14.9	180.5	189.0	9.0	9.1
10.0	22.5	72.5		11.6	189.0	8.3	12.9
15.0	21.0	69.8	7.8	87.7	188.0	7.4	5.3
20.0	20.5	68.9	5.0	55.7	191.0	7.1	4.9
25.0	19.9	67.8	2.8	30.8	194.0	7.0	2.9
30.0	19.6	67.3	1.9	20.8	197.0	6.9	3.0
35.0	19.4	66.9	0.7	7.6	200.0	6.9	2.6

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

Station: 3COR20010 | Project: Cordell Hull | Location: Cumberland River, Mile 381.0

State: Tennessee | Latitude: 36º 33" 23' | Quad: Celina, TN-KY
County: Clay | Longitude: 85º 30" 44' | HUC: 05130103

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.6 m

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		5.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	56	0.0	19.3	66.7	8.1	88.1	175.0	7.4	
Alkalinity, Phenol	mg/L	0	5.0	19.3	66.7		8.1	176.0	7.2	
Solids, Tot	mg/L	130	10.0	19.3	66.7	8.1	88.1	176.0	7.2	
Solids, Tot Diss	mg/L	136	15.0	19.3	66.7	8.1	88.1	176.0	7.2	
Solids, Tot Susp	mg/L	8.00	20.0	19.3	66.7	8.1	88.1	176.0	7.2	
Solids, Vol	mg/L	39.0								
Solids, Vol Diss	mg/L	39.0								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.108								
Kjeldahl N, Tot	mg/L	0.310								
NO3+NO2, Tot	mg/L	0.282								
Phosphorus, Tot	mg/L	0.0079								
Phosphorus, Diss	mg/L	0.004								
OrthoPhosphate, D	mg/L	<0.05								
Organic Carbon, T	mg/L	2.30								
Hardness, Tot	mg/L	73.2								
Sulfate, Tot	mg/L	30.1								
Calcium, Tot	mg/L	18.9								
Magnesium, Tot	mg/L	6.32								
Sodium, Tot	mg/L	5.95								
Potassium, Tot	mg/L	1.60								
Chloride, Tot	mg/L	3.64								
Arsenic, Tot	ug/L	0.3								
Barium, Tot	ug/L	20.2								
Beryllium, Tot	ug/L	<0.2								
Cadmium, Tot	ug/L	<0.2								
Chromium, Tot	ug/L	0.4								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.71								
Iron, Tot	ug/L	81.1								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.42								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	29.5								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	<0.2								
Nickel, Tot	ug/L	1.0								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.3								
Zinc, Tot	ug/L	2.9								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	0.2								
Aluminum, Tot	ug/L	31.6								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	0.3								
Mercury, Tot	ug/L									

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

Station: 3COR20013 | Project: Cordell Hull | Location: Cumberland River, Mile 349.5

State: Tennessee | Latitude: 36º 21" 38' | Quad: Gainesboro, TN
County: Jackson | Longitude: 85º 40" 51' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 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	21.4	70.5	8.5	96.3	185.0	7.5	1.6
5.0	20.1	68.2	8.1	89.5	185.0	7.3	2.1
10.0	19.7	67.5	7.9	86.6	184.0	7.2	1.8
15.0	19.7	67.5	7.8	85.5	185.0	7.2	1.8
20.0	19.6	67.3	7.8	85.3	185.0	7.2	1.5
25.0	19.5	67.1	7.8	85.2	185.0	7.2	1.5
30.0	19.5	67.1	7.7	84.1	185.0	7.2	1.3
35.0	19.4	66.9	7.7	83.9	185.0	7.2	1.3
40.0	19.4	66.9	7.7	83.9	186.0	7.2	1.2

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

Station: 3COR20015 | Project: Cordell Hull | Location: Martin Creek, Mile 1.0

State: Tennessee | Latitude: 36° 16" 20' | Quad: Granville, TN
County: Jackson | Longitude: 85° 47" 27.6' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.4 m

Results of Laboratory Analyses

Sample Depth ft		0.0	25.0
Alkalinity, Tot	mg/L	80	72
Alkalinity, Phenol	mg/L	10	0
Solids, Tot	mg/L	154	154
Solids, Tot Diss	mg/L	166	157
Solids, Tot Susp	mg/L	4.00	10.0
Solids, Vol	mg/L	62.0	75.0
Solids, Vol Diss	mg/L	62.0	75.0
Solids, Vol Susp	mg/L	<4.00	<4.00
Ammonia N, Tot	mg/L	0.0531	0.0917
Kjeldahl N, Tot	mg/L	0.310	0.290
NO3+NO2, Tot	mg/L	<0.0200	0.167
Phosphorus, Tot	mg/L	0.0151	0.0176
Phosphorus, Diss	mg/L	0.005	0.003
OrthoPhosphate, D	mg/L	<0.05	<0.05
Organic Carbon, T	mg/L	2.60	2.20
Hardness, Tot	mg/L	93.8	85.3
Sulfate, Tot	mg/L	23.8	26.1
Calcium, Tot	mg/L	27.0	23.9
Magnesium, Tot	mg/L	6.40	6.24
Sodium, Tot	mg/L	4.74	5.17
Potassium, Tot	mg/L	1.50	1.55
Chloride, Tot	mg/L	3.40	3.58
Arsenic, Tot	ug/L	0.5	0.57
Barium, Tot	ug/L	17.8	24.2
Beryllium, Tot	ug/L	<0.2	<0.2
Cadmium, Tot	ug/L	<0.2	<0.2
Chromium, Tot	ug/L	0.3	0.3
Cobalt, Tot	ug/L	<0.2	0.25
Copper, Tot	ug/L	0.5	0.6
Iron, Tot	ug/L	26.6	166.0
Iron, Diss	ug/L		
Lead, Tot	ug/L	0.24	0.4
Lead, Diss	ug/L		
Manganese, Tot	ug/L	28.1	369.0
Manganese, Diss	ug/L		
Thallium, Tot	ug/L	<0.2	<0.2
Molybdenum, Tot	ug/L	0.3	0.3
Nickel, Tot	ug/L	0.6	0.8
Silver, Tot	ug/L	<0.2	<0.2
Vanadium, Tot	ug/L	0.5	0.41
Zinc, Tot	ug/L	1.8	2.3
Zinc, Diss	ug/L		
Antimony, Tot	ug/L	0.2	<0.2
Aluminum, Tot	ug/L	6.7	42.0
Aluminum, Diss	ug/L		
Selenium, Tot	ug/L	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	27.2	81.0	14.1	177.2	202.0	9.0	3.9
5.0	23.9	75.0		13.9	191.0	8.8	10.8
10.0	20.9	69.6	8.0	89.7	187.0	7.4	8.4
15.0	20.0	68.0	5.5	60.6	188.0	7.1	4.1
20.0	19.5	67.1	2.3	25.1	190.0	6.9	3.1
25.0	19.2	66.6	0.4	4.3	195.0	6.8	3.2
28.0	19.0	66.2	0.0	0.0	199.0	6.8	3.8

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

Station: 3COR20016 | Project: Cordell Hull | Location: Roaring River, Mile 0.8

State: Tennessee | Latitude: 36º 22" 43' | Quad: Whitleyville, TN
County: Jackson | Longitude: 85º 38" 7.8' | HUC: 05130106

Sample Date: 28 Aug 2013 | Water Surface Elevation = 504.3 ft | Secchi Disk = 1.0 m

Results of Laboratory Analyses			Profile Measurements							
			Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F
Sample Depth ft		10.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	70	0.0	27.8	82.0	10.1	128.2	258.0	8.3	3.1
Alkalinity, Phenol	mg/L	0	5.0	21.2	70.2		8.9	205.0	7.6	10.2
Solids, Tot	mg/L	142	10.0	18.3	64.9	7.3	77.8	187.0	7.2	3.2
Solids, Tot Diss	mg/L	153	15.0	18.1	64.6	6.5	69.0	190.0	7.1	2.2
Solids, Tot Susp	mg/L	11.0	20.0	17.8	64.0	3.1	32.7	203.0	7.0	1.9
Solids, Vol	mg/L	66.0	23.0	17.8	64.0	2.6	27.4	205.0	6.9	2.8
Solids, Vol Diss	mg/L	62.0								
Solids, Vol Susp	mg/L	<4.00								
Ammonia N, Tot	mg/L	0.0551								
Kjeldahl N, Tot	mg/L	0.260								
NO3+NO2, Tot	mg/L	0.310								
Phosphorus, Tot	mg/L	0.0097								
Phosphorus, Diss	mg/L	0.004								
OrthoPhosphate, D	mg/L	<0.05								
Organic Carbon, T	mg/L	<0.200								
Hardness, Tot	mg/L	84.2								
Sulfate, Tot	mg/L	24.6								
Calcium, Tot	mg/L	23.9								
Magnesium, Tot	mg/L	5.95								
Sodium, Tot	mg/L	4.64								
Potassium, Tot	mg/L	1.42								
Chloride, Tot	mg/L	3.71								
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	0.4								
Cobalt, Tot	ug/L	<0.2								
Copper, Tot	ug/L	0.5								
Iron, Tot	ug/L	78.4								
Iron, Diss	ug/L									
Lead, Tot	ug/L	0.4								
Lead, Diss	ug/L									
Manganese, Tot	ug/L	56.3								
Manganese, Diss	ug/L									
Thallium, Tot	ug/L	<0.2								
Molybdenum, Tot	ug/L	0.2								
Nickel, Tot	ug/L	0.8								
Silver, Tot	ug/L	<0.2								
Vanadium, Tot	ug/L	0.3								
Zinc, Tot	ug/L	2.1								
Zinc, Diss	ug/L									
Antimony, Tot	ug/L	<0.2								
Aluminum, Tot	ug/L	28.0								
Aluminum, Diss	ug/L									
Selenium, Tot	ug/L	0.3								
Mercury, Tot	ug/L									