

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: 36° 17" 13'

Quad: Carthage, TN

County: Smith

Longitude: 85° 56" 27'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation = 446.9 ft

Secchi Disk =

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	0.0	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
Alkalinity, Tot	mg/L 64	0.0	19.2	66.6	7.5	81.4	186.0	7.6	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 122								
Solids, Tot Diss	mg/L 117								
Solids, Tot Susp	mg/L 5								
Solids, Vol	mg/L 59.0								
Solids, Vol Diss	mg/L 56.0								
Solids, Vol Susp	mg/L 3.00								
Ammonia N, Tot	mg/L 0.230								
Kjeldahl N, Tot	mg/L 0.310								
NO3+NO2, Tot	mg/L 0.185								
Phosphorus, Tot	mg/L 0.0319								
Phosphorus, Diss	mg/L 0.0202								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.50								
Hardness, Tot	mg/L 81.1								
Sulfate, Tot	mg/L 28.9								
Calcium, Tot	mg/L 21.8								
Magnesium, Tot	mg/L 6.47								
Sodium, Tot	mg/L 5.23								
Potassium, Tot	mg/L 1.42								
Chloride, Tot	mg/L 3.55								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 0.7								
Iron, Tot	ug/L 109.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 1.1								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 77.2								
Manganese, Diss	ug/L 23.4								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 1.8								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 63.1								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L <0.005								

Water Quality Physical / Chemical Data Report

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United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R10020

Project: Cordell Hull

Location: Defeated Creek, Mile 5.2

State: Tennessee

Latitude: 36° 21" 8.5'

Quad: Carthage, TN

County: Smith

Longitude: 85° 53" 37.2'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation =

Secchi Disk =

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	0.0	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
Alkalinity, Tot	mg/L 168	0.0	16.6	61.9	10.9	112.3	330.0	7.8	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 212								
Solids, Tot Diss	mg/L 211.75								
Solids, Tot Susp	mg/L <0.250								
Solids, Vol	mg/L 31.0								
Solids, Vol Diss	mg/L 29								
Solids, Vol Susp	mg/L <2.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L <0.0700								
NO3+NO2, Tot	mg/L 1.03								
Phosphorus, Tot	mg/L 0.199								
Phosphorus, Diss	mg/L 0.179								
OrthoPhosphate, D	mg/L 0.132								
Organic Carbon, T	mg/L 1.90								
Hardness, Tot	mg/L 175								
Sulfate, Tot	mg/L 10.5								
Calcium, Tot	mg/L 58.2								
Magnesium, Tot	mg/L 7.28								
Sodium, Tot	mg/L 1.92								
Potassium, Tot	mg/L 1.32								
Chloride, Tot	mg/L 2.94								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 0.7								
Iron, Tot	ug/L 50.3								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 0.9								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 19.4								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 2.4								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 53.0								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

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United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R10022

Project: Cordell Hull

Location: Martin Creek, Mile 4.0

State: Tennessee

Latitude: 36° 14" 22'

Quad: Buffalo Valley, TN

County: Jackson

Longitude: 85° 45" 50'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation =

Secchi Disk =

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	0.0	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
Alkalinity, Tot	mg/L 150	0.0	17.4	63.3	10.0	104.7	152.0	7.9	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 184								
Solids, Tot Diss	mg/L 183.75								
Solids, Tot Susp	mg/L <0.250								
Solids, Vol	mg/L 92.0								
Solids, Vol Diss	mg/L 90								
Solids, Vol Susp	mg/L <2.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L <0.0700								
NO3+NO2, Tot	mg/L 0.554								
Phosphorus, Tot	mg/L 0.105								
Phosphorus, Diss	mg/L 0.0902								
OrthoPhosphate, D	mg/L 0.0701								
Organic Carbon, T	mg/L 1.40								
Hardness, Tot	mg/L 155								
Sulfate, Tot	mg/L 10.7								
Calcium, Tot	mg/L 48.4								
Magnesium, Tot	mg/L 8.20								
Sodium, Tot	mg/L 2.38								
Potassium, Tot	mg/L 0.904								
Chloride, Tot	mg/L 4.53								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 0.6								
Iron, Tot	ug/L <20.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 0.6								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 7.0								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 21.2								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L <20.0								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

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United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R10023

Project: Cordell Hull

Location: Roaring River, Mile 6.2

State: Tennessee

Latitude: 36° 21" 36.5'

Quad: Dodson Branch, TN

County: Jackson

Longitude: 85° 35" 1.8'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation =

Secchi Disk =

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	0.0	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
Alkalinity, Tot	mg/L 120	0.0	19.0	66.2	9.4	101.6	243.0	7.9	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 146								
Solids, Tot Diss	mg/L 145.75								
Solids, Tot Susp	mg/L <0.250								
Solids, Vol	mg/L 69.0								
Solids, Vol Diss	mg/L 67								
Solids, Vol Susp	mg/L <2.00								
Ammonia N, Tot	mg/L 0.280								
Kjeldahl N, Tot	mg/L 0.180								
NO3+NO2, Tot	mg/L 0.493								
Phosphorus, Tot	mg/L 0.0354								
Phosphorus, Diss	mg/L 0.0337								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 1.70								
Hardness, Tot	mg/L 122								
Sulfate, Tot	mg/L 6.65								
Calcium, Tot	mg/L 39.0								
Magnesium, Tot	mg/L 5.91								
Sodium, Tot	mg/L 2.50								
Potassium, Tot	mg/L 1.22								
Chloride, Tot	mg/L 4.96								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L <20.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 1.1								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 13.2								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 2.1								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L <20.0								
Aluminum, Diss	ug/L 34.9								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

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United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3COR10024

Project: Cordell Hull

Location: Mill Creek, Mile 1.7

State: Tennessee

Latitude: 36° 29" 36'

Quad: Burristown, TN

County: Clay

Longitude: 85° 33" 3'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation =

Secchi Disk =

(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	16.8	62.2	10.5	108.6	335.0	8.0	

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R20002

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: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 1.3 m

Results of Laboratory Analyses

Profile Measurements

Sample	Depth ft	0.0	70.0	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
Alkalinity, Tot	mg/L	58	58	0.0	23.1	73.6	11.8	137.6	183.1	9.0	9.9
Alkalinity, Phenol	mg/L	10	0	5.0	23.1	73.6	11.7	136.4	183.3	9.0	9.6
Solids, Tot	mg/L	132	134	10.0	23.0	73.4	11.3	131.5	183.2	8.9	12.5
Solids, Tot Diss	mg/L	129	133.75	15.0	22.3	72.2	9.8	112.8	183.8	8.6	8.4
Solids, Tot Susp	mg/L	3.00	<0.250	20.0	22.1	71.9	9.5	108.7	183.9	8.6	7.0
Solids, Vol	mg/L	91.0	97.0	25.0	20.6	69.1	7.5	83.7	185.8	7.6	3.5
Solids, Vol Diss	mg/L	88.0	95	30.0	19.1	66.4	6.2	66.4	186.9	7.2	2.0
Solids, Vol Susp	mg/L	3.00	<2.00	35.0	18.2	64.8	6.0	63.2	187.2	7.2	1.5
Ammonia N, Tot	mg/L	<0.200	0.250	40.0	17.7	63.9	5.8	61.0	187.1	7.1	1.0
Kjeldahl N, Tot	mg/L	0.330	0.220	45.0	17.4	63.3	5.9	61.8	187.5	7.1	0.9
NO3+NO2, Tot	mg/L	0.0237	0.373	50.0	17.1	62.7	6.0	62.3	187.2	7.1	0.6
Phosphorus, Tot	mg/L	<0.0200	0.0350	55.0	16.6	61.9	5.9	60.9	186.7	7.1	0.6
Phosphorus, Diss	mg/L	<0.0200	0.0282	60.0	16.4	61.5	5.6	57.6	186.7	7.1	0.6
OrthoPhosphate, D	mg/L	<0.0500	<0.0500	65.0	16.1	60.9	5.5	55.9	186.4	7.1	0.6
Organic Carbon, T	mg/L	2.60	2.10	70.0	16.0	60.8	5.4	55.0	186.2	7.1	0.6
Hardness, Tot	mg/L	79.4	81.8	75.0	15.9	60.7	5.4	54.9	186.2	7.1	0.8
Sulfate, Tot	mg/L	30.2	28.6	77.0	15.9	60.5	5.3	53.4	186.4	7.0	0.8
Calcium, Tot	mg/L	21.3	21.9								
Magnesium, Tot	mg/L	6.34	6.58								
Sodium, Tot	mg/L	5.17	5.25								
Potassium, Tot	mg/L	1.38	1.41								
Chloride, Tot	mg/L	3.41	3.53								
Arsenic, Tot	ug/L	<0.5	0.5								
Barium, Tot	ug/L										
Beryllium, Tot	ug/L										
Cadmium, Tot	ug/L										
Chromium, Tot	ug/L										
Cobalt, Tot	ug/L										
Copper, Tot	ug/L	1.0	1.0								
Iron, Tot	ug/L	51.4	207.0								
Iron, Diss	ug/L	<20.0	<20.0								
Lead, Tot	ug/L	2.7	2.8								
Lead, Diss	ug/L										
Manganese, Tot	ug/L	22.4	166.0								
Manganese, Diss	ug/L	<20.0	79.6								
Thallium, Tot	ug/L										
Molybdenum, Tot	ug/L										
Nickel, Tot	ug/L										
Silver, Tot	ug/L										
Vanadium, Tot	ug/L										
Zinc, Tot	ug/L	1.4	2.5								
Zinc, Diss	ug/L										
Antimony, Tot	ug/L										
Aluminum, Tot	ug/L	56.3	98.2								
Aluminum, Diss	ug/L	47.1	<20.0								
Selenium, Tot	ug/L	<0.5	0.56								
Mercury, Tot	ug/L	0.01	<0.005								

Water Quality Physical / Chemical Data Report

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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: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 0.8 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	22.9	73.1	9.6	111.6	189.0	8.3	6.7
5.0	22.8	73.1	9.4	108.7	189.3	8.3	5.5
10.0	22.4	72.3	8.6	98.6	189.6	7.9	2.2
15.0	22.0	71.5	7.8	89.4	189.6	7.7	1.2
20.0	20.2	68.3	6.6	72.7	189.3	7.3	0.7
25.0	18.9	65.9	6.4	68.5	188.8	7.2	0.7
30.0	18.1	64.5	6.3	66.4	188.6	7.2	0.6
35.0	17.5	63.6	6.1	63.8	188.3	7.1	0.5
40.0	17.1	62.7	5.9	61.5	188.0	7.1	0.5
45.0	16.7	62.0	5.8	59.5	187.7	7.1	0.4
50.0	16.1	61.0	5.7	57.5	186.7	7.1	0.4
55.0	15.8	60.4	5.5	55.2	186.3	7.0	0.4
60.0	15.4	59.7	5.0	49.6	185.5	7.0	0.5
65.0	15.2	59.4	4.7	46.5	185.5	7.0	0.5
70.0	15.1	59.2	4.1	40.8	185.7	6.9	0.6

Water Quality Physical / Chemical Data Report

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United States Army Corps of Engineers

Nashville District

CELNRN-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: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 1 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	22.9	73.1	8.9	103.8	190.7	8.1	2.6
5.0	22.0	71.7	8.4	96.3	190.1	7.8	2.5
10.0	21.5	70.6	7.8	88.0	190.0	7.6	1.8
15.0	20.9	69.7	7.5	83.6	189.0	7.5	1.3
20.0	20.1	68.1	7.2	79.0	187.9	7.3	1.1
25.0	19.3	66.8	6.7	73.2	187.6	7.2	0.9
30.0	18.7	65.6	6.7	71.3	187.1	7.2	0.6
35.0	17.7	63.9	6.2	65.3	187.4	7.1	0.6
40.0	16.6	61.9	5.3	54.3	188.5	7.0	0.5
45.0	16.3	61.3	4.9	49.9	188.4	7.0	0.5
50.0	15.9	60.6	4.6	46.7	188.0	7.0	0.5
55.0	15.8	60.4	4.4	44.6	188.2	7.0	0.6
60.0	15.6	60.1	4.0	40.1	188.3	7.0	0.8

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R20005

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: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 0.9 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	25.0	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
Alkalinity, Tot	mg/L 58	0.0	22.5	72.5	9.4	108.8	189.1	8.0	5.6
Alkalinity, Phenol	mg/L 0	5.0	21.0	69.8	9.4	105.0	188.7	7.8	8.4
Solids, Tot	mg/L 128	10.0	20.6	69.1	8.7	96.4	188.0	7.6	4.9
Solids, Tot Diss	mg/L 126	15.0	20.5	68.9	8.5	94.1	187.8	7.5	3.8
Solids, Tot Susp	mg/L 2.00	20.0	20.5	68.9	8.4	93.0	187.9	7.5	4.4
Solids, Vol	mg/L 82.0	25.0	20.3	68.5	8.1	89.8	187.3	7.4	3.1
Solids, Vol Diss	mg/L 80	30.0	18.7	65.6	7.0	75.0	186.1	7.2	1.5
Solids, Vol Susp	mg/L <2.00	35.0	17.7	63.8	6.5	67.9	186.2	7.1	0.8
Ammonia N, Tot	mg/L 0.240	40.0	17.3	63.2	6.3	65.5	185.9	7.1	0.6
Kjeldahl N, Tot	mg/L 0.290	45.0	17.0	62.7	6.1	63.6	186.6	7.1	0.7
NO3+NO2, Tot	mg/L 0.205	50.0	16.9	62.4	6.0	62.4	186.6	7.1	0.7
Phosphorus, Tot	mg/L 0.0258	55.0	16.9	62.4	6.0	61.5	186.9	7.1	0.8
Phosphorus, Diss	mg/L <0.0200	58.0	16.9	62.3	5.8	59.3	186.8	7.1	1.0
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.30								
Hardness, Tot	mg/L 80.5								
Sulfate, Tot	mg/L 28.9								
Calcium, Tot	mg/L 21.6								
Magnesium, Tot	mg/L 6.46								
Sodium, Tot	mg/L 5.23								
Potassium, Tot	mg/L 1.42								
Chloride, Tot	mg/L 3.67								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 0.8								
Iron, Tot	ug/L 87.1								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 2.9								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 52.4								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 1.3								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 49.1								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

United States Army Corps of Engineers

Nashville District

CELRN-EC-H / Water Management Section

Station: 3C0R20006

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: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 2 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	20.0	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
Alkalinity, Tot	mg/L 50	0.0	18.3	64.9	9.6	101.8	179.6	7.6	1.6
Alkalinity, Phenol	mg/L 0	5.0	18.0	64.3	9.7	101.9	179.3	7.5	2.5
Solids, Tot	mg/L 112	10.0	17.9	64.2	9.6	101.2	179.7	7.5	2.4
Solids, Tot Diss	mg/L 111	15.0	17.7	63.9	9.5	99.9	179.2	7.5	1.9
Solids, Tot Susp	mg/L 1.00	20.0	17.7	63.9	9.5	99.6	179.3	7.5	2.0
Solids, Vol	mg/L 88.0	25.0	17.7	63.9	9.5	99.4	179.3	7.5	1.7
Solids, Vol Diss	mg/L 86	30.0	17.7	63.8	9.5	99.4	179.2	7.5	1.7
Solids, Vol Susp	mg/L <2.00	35.0	17.7	63.8	9.5	99.4	179.4	7.5	1.7
Ammonia N, Tot	mg/L 0.340								
Kjeldahl N, Tot	mg/L 0.800								
NO3+NO2, Tot	mg/L 0.297								
Phosphorus, Tot	mg/L 0.0210								
Phosphorus, Diss	mg/L <0.0200								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 3.10								
Hardness, Tot	mg/L 77.0								
Sulfate, Tot	mg/L 30.6								
Calcium, Tot	mg/L 20.1								
Magnesium, Tot	mg/L 6.52								
Sodium, Tot	mg/L 5.43								
Potassium, Tot	mg/L 1.41								
Chloride, Tot	mg/L 3.62								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 1.0								
Iron, Tot	ug/L 77.2								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 3.1								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 30.3								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 1.9								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 42.6								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

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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: 36° 29" 44'

Quad: Burristown, TN

County: Clay

Longitude: 85° 34" 19'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation = 504.4 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	17.0	62.6	9.2	95.4	185.1	7.5	0.6
5.0	17.0	62.5	9.2	95.2	185.3	7.5	0.8
10.0	17.0	62.5	9.2	95.4	185.3	7.5	0.8
15.0	17.0	62.5	9.2	95.1	184.8	7.5	0.8
20.0	17.0	62.5	9.2	95.2	185.3	7.5	0.8
25.0	16.9	62.5	9.2	95.4	185.2	7.5	0.8
29.0	17.0	62.5	9.2	94.7	185.3	7.5	0.8

CELNRN-EC-H / Water Management Section

Location: Defeated Creek, Mile 1.0

Quad: Carthage, TN
HUC: 05130106

Secchi Disk = 1.3 m

Profile Measurements

[illegible]

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R20010

Project: Cordell Hull

Location: Cumberland River, Mile 381.0

State: Tennessee

Latitude: 36° 33" 23'

Quad: Celina, TN-KY

County: Clay

Longitude: 85° 30" 44'

HUC: 05130103

Sample Date: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 0.4 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	10.0	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
Alkalinity, Tot	mg/L 50	0.0	16.3	61.3	9.0	92.1	184.1	7.4	1.2
Alkalinity, Phenol	mg/L 0	5.0	16.3	61.3	9.0	92.1	183.8	7.4	1.7
Solids, Tot	mg/L 118	10.0	16.2	61.2	9.0	91.9	184.1	7.4	1.9
Solids, Tot Diss	mg/L 117	15.0	16.2	61.2	9.0	91.9	184.0	7.4	2.0
Solids, Tot Susp	mg/L 1.00	20.0	16.2	61.2	9.0	91.9	184.2	7.4	2.3
Solids, Vol	mg/L 80.0								
Solids, Vol Diss	mg/L 77.0								
Solids, Vol Susp	mg/L 3.00								
Ammonia N, Tot	mg/L 1.10								
Kjeldahl N, Tot	mg/L 3.40								
NO3+NO2, Tot	mg/L 0.451								
Phosphorus, Tot	mg/L 0.0442								
Phosphorus, Diss	mg/L 0.0226								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 7.50								
Hardness, Tot	mg/L 84.5								
Sulfate, Tot	mg/L 24.1								
Calcium, Tot	mg/L 23.1								
Magnesium, Tot	mg/L 6.48								
Sodium, Tot	mg/L 4.36								
Potassium, Tot	mg/L 1.55								
Chloride, Tot	mg/L 3.11								
Arsenic, Tot	ug/L 0.5								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 1.1								
Iron, Tot	ug/L 271.0								
Iron, Diss	ug/L 57.6								
Lead, Tot	ug/L 13.4								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 34.6								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 35.3								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 190.0								
Aluminum, Diss	ug/L 41.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

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United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3COR20013

Project: Cordell Hull

Location: Cumberland River, Mile 349.5

State: Tennessee

Latitude: 36° 21" 38'

Quad: Gainesboro, TN

County: Jackson

Longitude: 85° 40" 51'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 1.4 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	21.0	69.8	9.2	102.8	189.5	7.7	2.4
5.0	20.3	68.6	9.1	101.1	189.1	7.6	6.6
10.0	20.2	68.3	8.8	97.3	189.4	7.6	4.7
15.0	20.2	68.3	8.7	95.9	189.1	7.5	4.3
20.0	20.1	68.2	8.6	95.0	189.2	7.5	3.7
25.0	20.1	68.2	8.6	94.3	189.2	7.5	3.4
30.0	20.1	68.2	8.5	94.0	189.1	7.5	3.6
35.0	20.1	68.2	8.5	94.1	188.8	7.5	3.4
40.0	20.1	68.2	8.5	94.0	189.2	7.5	3.9
43.0	20.1	68.2	8.5	93.9	190.0	7.5	3.2

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R20015

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: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 1.1 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	15.0	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
Alkalinity, Tot	mg/L 62	0.0	23.3	74.0	10.1	118.4	194.7	8.7	5.1
Alkalinity, Phenol	mg/L 0	5.0	23.1	73.5	10.1	117.9	194.7	8.6	6.4
Solids, Tot	mg/L 132	10.0	21.8	71.2	7.6	86.8	192.4	7.8	2.1
Solids, Tot Diss	mg/L 130	15.0	21.5	70.7	6.5	73.8	193.1	7.5	1.6
Solids, Tot Susp	mg/L 2.00	20.0	19.7	67.4	3.6	39.1	194.9	7.1	1.3
Solids, Vol	mg/L 86.0	25.0	18.1	64.5	1.0	10.6	203.4	7.0	1.3
Solids, Vol Diss	mg/L 84	29.0	17.2	62.9	0.2	2.3	207.7	7.1	1.6
Solids, Vol Susp	mg/L <2.00								
Ammonia N, Tot	mg/L 0.300								
Kjeldahl N, Tot	mg/L 0.350								
NO3+NO2, Tot	mg/L 0.0951								
Phosphorus, Tot	mg/L 0.0340								
Phosphorus, Diss	mg/L 0.0215								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.40								
Hardness, Tot	mg/L 84.9								
Sulfate, Tot	mg/L 29.1								
Calcium, Tot	mg/L 23.2								
Magnesium, Tot	mg/L 6.55								
Sodium, Tot	mg/L 5.20								
Potassium, Tot	mg/L 1.42								
Chloride, Tot	mg/L 3.56								
Arsenic, Tot	ug/L 0.6								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 1.1								
Iron, Tot	ug/L 114.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 2.8								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 65.1								
Manganese, Diss	ug/L <20.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 3.3								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 98.4								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3C0R20016

Project: Cordell Hull

Location: Roaring River, Mile 0.8

State: Tennessee

Latitude: 36° 22" 43'

Quad: Whitleyville, TN

County: Jackson

Longitude: 85° 38" 7.8'

HUC: 05130106

Sample Date: 14 May 2012

Water Surface Elevation = 504.4 ft

Secchi Disk = 0.6 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	10.0	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
Alkalinity, Tot	mg/L 98	0.0	20.4	68.7	5.6	62.0	264.3	7.5	1.5
Alkalinity, Phenol	mg/L 0	5.0	20.2	68.3	5.2	57.5	264.7	7.4	1.1
Solids, Tot	mg/L 144	10.0	19.7	67.4	2.6	28.5	221.5	7.1	1.1
Solids, Tot Diss	mg/L 142	15.0	19.5	67.0	4.8	52.3	214.0	7.2	1.4
Solids, Tot Susp	mg/L 2.00	20.0	19.0	66.2	0.1	1.1	253.0	7.1	1.6
Solids, Vol	mg/L 89.0								
Solids, Vol Diss	mg/L 87								
Solids, Vol Susp	mg/L <2.00								
Ammonia N, Tot	mg/L 0.450								
Kjeldahl N, Tot	mg/L 0.450								
NO3+NO2, Tot	mg/L 0.231								
Phosphorus, Tot	mg/L 0.0369								
Phosphorus, Diss	mg/L 0.0237								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.20								
Hardness, Tot	mg/L 107								
Sulfate, Tot	mg/L 20.8								
Calcium, Tot	mg/L 32.0								
Magnesium, Tot	mg/L 6.51								
Sodium, Tot	mg/L 4.09								
Potassium, Tot	mg/L 1.47								
Chloride, Tot	mg/L 4.27								
Arsenic, Tot	ug/L 1.0								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L 1.3								
Iron, Tot	ug/L 251.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 3.0								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 445.0								
Manganese, Diss	ug/L 287.0								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L 2.3								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L 93.1								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								