

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: 07 Jul 2014

Water Surface Elevation = 449.7 ft

Stream Flow = 15700 cfs

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 60	0.0	20.9	69.6	8.0	89.7	190.0	7.6	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 140								
Solids, Tot Diss	mg/L 135								
Solids, Tot Susp	mg/L 5.00								
Solids, Vol	mg/L 40.0								
Solids, Vol Diss	mg/L 35.0								
Solids, Vol Susp	mg/L 5.00								
Ammonia N, Tot	mg/L 0.0476								
Kjeldahl N, Tot	mg/L 1.70								
NO3+NO2, Tot	mg/L 0.241								
Phosphorus, Tot	mg/L 0.0096								
Phosphorus, Diss	mg/L <0.007								
OrthoPhosphate, D	mg/L <0.05								
Organic Carbon, T	mg/L 2.30								
Hardness, Tot	mg/L 81.5								
Sulfate, Tot	mg/L 26.1								
Calcium, Tot	mg/L 22.7								
Magnesium, Tot	mg/L 6.02								
Sodium, Tot	mg/L 5.53								
Potassium, Tot	mg/L 1.49								
Chloride, Tot	mg/L 5.15								
Arsenic, Tot	ug/L 0.5								
Barium, Tot	ug/L 21.0								
Beryllium, Tot	ug/L <0.2								
Cadmium, Tot	ug/L <0.2								
Chromium, Tot	ug/L 0.38								
Cobalt, Tot	ug/L <0.2								
Copper, Tot	ug/L 0.7								
Iron, Tot	ug/L 80.7								
Iron, Diss	ug/L 7.9								
Lead, Tot	ug/L <0.2								
Lead, Diss	ug/L <0.2								
Manganese, Tot	ug/L 77.9								
Manganese, Diss	ug/L 8.4								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L 0.3								
Nickel, Tot	ug/L 2.5								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.5								
Zinc, Tot	ug/L 1.6								
Zinc, Diss	ug/L 3.9								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 24.9								
Aluminum, Diss	ug/L <7.0								
Selenium, Tot	ug/L 0.4								
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: 07 Jul 2014

Water Surface Elevation =

Stream Flow =

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 160	0.0	23.9	75.0	11.0	130.5	320.0	8.1	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 214								
Solids, Tot Diss	mg/L 212								
Solids, Tot Susp	mg/L 2.00								
Solids, Vol	mg/L 20.0								
Solids, Vol Diss	mg/L 15.0								
Solids, Vol Susp	mg/L 5.00								
Ammonia N, Tot	mg/L 0.0552								
Kjeldahl N, Tot	mg/L 1.40								
NO3+NO2, Tot	mg/L 0.607								
Phosphorus, Tot	mg/L 0.137								
Phosphorus, Diss	mg/L 0.125								
OrthoPhosphate, D	mg/L 0.0986								
Organic Carbon, T	mg/L 1.30								
Hardness, Tot	mg/L 168								
Sulfate, Tot	mg/L 9.47								
Calcium, Tot	mg/L 55.4								
Magnesium, Tot	mg/L 7.18								
Sodium, Tot	mg/L 2.05								
Potassium, Tot	mg/L 1.27								
Chloride, Tot	mg/L 3.18								
Arsenic, Tot	ug/L 0.5								
Barium, Tot	ug/L 15.5								
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 0.5								
Iron, Tot	ug/L 51.9								
Iron, Diss	ug/L								
Lead, Tot	ug/L <0.2								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 49.3								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L 0.8								
Nickel, Tot	ug/L 4.9								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 1.0								
Zinc, Tot	ug/L 1.7								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 28.1								
Aluminum, Diss	ug/L								
Selenium, Tot	ug/L 0.4								
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: 07 Jul 2014

Water Surface Elevation =

Stream Flow =

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 116	0.0	24.0	75.2	7.8	92.7	245.0	7.6	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 164								
Solids, Tot Diss	mg/L 164								
Solids, Tot Susp	mg/L <2.00								
Solids, Vol	mg/L 35.0								
Solids, Vol Diss	mg/L 30.0								
Solids, Vol Susp	mg/L 3.00								
Ammonia N, Tot	mg/L 0.0322								
Kjeldahl N, Tot	mg/L 1.70								
NO3+NO2, Tot	mg/L 0.349								
Phosphorus, Tot	mg/L 0.0158								
Phosphorus, Diss	mg/L 0.018								
OrthoPhosphate, D	mg/L <0.05								
Organic Carbon, T	mg/L 1.10								
Hardness, Tot	mg/L 118								
Sulfate, Tot	mg/L 6.91								
Calcium, Tot	mg/L 37.3								
Magnesium, Tot	mg/L 6.05								
Sodium, Tot	mg/L 2.71								
Potassium, Tot	mg/L 1.42								
Chloride, Tot	mg/L 5.81								
Arsenic, Tot	ug/L 0.4								
Barium, Tot	ug/L 21.3								
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 0.4								
Iron, Tot	ug/L 15.3								
Iron, Diss	ug/L								
Lead, Tot	ug/L <0.2								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 13.2								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L 0.7								
Nickel, Tot	ug/L 3.2								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.65								
Zinc, Tot	ug/L 1.4								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L <7.0								
Aluminum, Diss	ug/L								
Selenium, Tot	ug/L 0.4								
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: 3C0R10024

Project: Cordell Hull

Location: Mill Creek, Mile 1.7

State: Tennessee

Latitude: 36° 29' 36"

Quad: Burrirstown, TN

County: Clay

Longitude: 85° 33' 3"

HUC: 05130106

Sample Date: 07 Jul 2014

Water Surface Elevation =

Stream Flow =

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 158	0.0	20.4	68.7	8.1	90.0	349.0	7.7	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 256								
Solids, Tot Diss	mg/L 256								
Solids, Tot Susp	mg/L <2.00								
Solids, Vol	mg/L 50.0								
Solids, Vol Diss	mg/L 40.0								
Solids, Vol Susp	mg/L 5.00								
Ammonia N, Tot	mg/L 0.0498								
Kjeldahl N, Tot	mg/L 1.70								
NO3+NO2, Tot	mg/L 0.196								
Phosphorus, Tot	mg/L 0.0150								
Phosphorus, Diss	mg/L 0.011								
OrthoPhosphate, D	mg/L <0.05								
Organic Carbon, T	mg/L 1.50								
Hardness, Tot	mg/L 178								
Sulfate, Tot	mg/L 25.3								
Calcium, Tot	mg/L 55.5								
Magnesium, Tot	mg/L 9.69								
Sodium, Tot	mg/L 4.22								
Potassium, Tot	mg/L 1.26								
Chloride, Tot	mg/L 6.26								
Arsenic, Tot	ug/L 0.4								
Barium, Tot	ug/L 18.5								
Beryllium, Tot	ug/L <0.2								
Cadmium, Tot	ug/L <0.2								
Chromium, Tot	ug/L 0.5								
Cobalt, Tot	ug/L 0.2								
Copper, Tot	ug/L 1.0								
Iron, Tot	ug/L 26.2								
Iron, Diss	ug/L								
Lead, Tot	ug/L 0.44								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 26.2								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L 0.8								
Nickel, Tot	ug/L 4.9								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.5								
Zinc, Tot	ug/L 3.7								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 17.1								
Aluminum, Diss	ug/L								
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: 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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 1.3 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	40.0	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 70	0.0	29.1	84.4	10.6	137.5	193.0	9.2	2.9
Alkalinity, Phenol	mg/L 0	5.0	28.2	82.8	11.5	146.9	192.0	9.2	6.6
Solids, Tot	mg/L 142	10.0	25.2	77.4	11.2	135.9	191.0	9.0	13.2
Solids, Tot Diss	mg/L 137	15.0	23.2	73.8	8.9	104.2	192.0	8.3	15.4
Solids, Tot Susp	mg/L 5.00	20.0	20.8	69.4	6.8	76.1	191.0	7.4	10.2
Solids, Vol	mg/L 90.0	25.0	19.7	67.5	6.8	74.5	191.0	7.2	5.0
Solids, Vol Diss	mg/L 75.0	30.0	18.4	65.1	7.0	74.8	189.0	7.2	3.3
Solids, Vol Susp	mg/L 4.00	35.0	18.2	64.8	7.0	74.5	189.0	7.2	2.8
Ammonia N, Tot	mg/L 0.0906	40.0	18.2	64.8	7.0	74.5	189.0	7.1	2.7
Kjeldahl N, Tot	mg/L 1.60	45.0	18.1	64.6	7.0	74.3	189.0	7.1	2.4
NO3+NO2, Tot	mg/L 0.338	50.0	18.1	64.6	7.0	74.3	189.0	7.1	2.5
Phosphorus, Tot	mg/L <0.007	55.0	18.0	64.4	7.0	74.2	190.0	7.1	2.3
Phosphorus, Diss	mg/L <0.007	60.0	18.0	64.4	7.0	74.2	190.0	7.1	2.3
OrthoPhosphate, D	mg/L <0.05	65.0	18.0	64.4	7.0	74.2	189.0	7.1	2.3
Organic Carbon, T	mg/L 1.80	70.0	18.0	64.4	7.0	74.2	189.0	7.1	2.3
Hardness, Tot	mg/L 80.1	73.0	18.0	64.4	7.0	74.2	189.0	7.1	2.5
Sulfate, Tot	mg/L 26.5								
Calcium, Tot	mg/L 22.2								
Magnesium, Tot	mg/L 6.01								
Sodium, Tot	mg/L 5.60								
Potassium, Tot	mg/L 1.47								
Chloride, Tot	mg/L 5.21								
Arsenic, Tot	ug/L 0.5								
Barium, Tot	ug/L 22.1								
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 2.5								
Iron, Tot	ug/L 107.0								
Iron, Diss	ug/L <7.0								
Lead, Tot	ug/L 0.2								
Lead, Diss	ug/L <0.2								
Manganese, Tot	ug/L 102.0								
Manganese, Diss	ug/L 8.7								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L 0.22								
Nickel, Tot	ug/L 2.6								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.5								
Zinc, Tot	ug/L 3.8								
Zinc, Diss	ug/L 1.1								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 37.2								
Aluminum, Diss	ug/L <7.0								
Selenium, Tot	ug/L 0.4								
Mercury, Tot	ug/L 0.027								

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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 1.7 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	29.3	84.7	10.2	132.7	193.0	9.2	2.9
5.0	28.6	83.5	10.8	138.9	192.0	9.1	5.5
10.0	23.1	73.6	10.0	116.9	192.0	8.4	14.1
15.0	21.3	70.3	9.5	107.4	190.0	7.9	13.3
20.0	19.5	67.1	8.5	92.8	189.0	7.4	5.9
25.0	18.3	64.9	8.3	88.5	188.0	7.2	4.0
30.0	18.0	64.4	8.2	86.9	188.0	7.2	4.0
35.0	17.8	64.0	8.2	86.6	188.0	7.1	2.9
40.0	17.8	64.0	8.1	85.5	188.0	7.1	2.6
45.0	17.7	63.9	8.0	84.3	188.0	7.1	2.6
50.0	17.7	63.9	8.0	84.3	188.0	7.1	2.6
55.0	17.7	63.9	8.0	84.3	188.0	7.1	2.6
60.0	17.8	64.0	8.1	85.5	188.0	7.1	2.7
65.0	17.8	64.0	8.0	84.4	188.0	7.1	2.7
69.0	17.8	64.0	8.0	84.4	188.0	7.2	3.0

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: 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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 1.1 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	28.2	82.8	10.5	134.2	193.0	9.1	4.1
5.0	28.0	82.4	10.7	136.3	193.0	8.9	5.8
10.0	24.6	76.3	11.6	139.3	191.0	8.9	16.9
15.0	19.8	67.6	8.4	92.3	190.0	7.5	7.0
20.0	18.4	65.1	8.7	93.0	189.0	7.4	5.5
25.0	17.9	64.2	8.5	89.9	188.0	7.3	4.2
30.0	17.7	63.9	8.5	89.5	188.0	7.2	3.6
35.0	17.7	63.9	8.5	89.5	188.0	7.3	3.4
40.0	17.7	63.9	8.5	89.5	188.0	7.3	3.4
45.0	17.7	63.9	8.5	89.5	188.0	7.3	3.4
50.0	17.7	63.9	8.5	89.5	188.0	7.3	3.4
55.0	17.6	63.7	8.4	88.3	188.0	7.3	3.3
60.0	17.6	63.7	8.4	88.3	188.0	7.3	3.3

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: 07 Jul 2014

Water Surface Elevation = 504.20 ft

Secchi Disk = 0.8 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 64	0.0	23.8	74.8	10.9	129.0	193.0	8.5	4.2
Alkalinity, Phenol	mg/L 0	5.0	20.5	68.9	11.2	124.7	190.0	8.2	10.6
Solids, Tot	mg/L 162	10.0	18.8	65.8	10.2	109.9	189.0	7.7	6.6
Solids, Tot Diss	mg/L 158	15.0	17.4	63.3	9.4	98.4	188.0	7.4	3.7
Solids, Tot Susp	mg/L 4.00	20.0	17.2	63.0	9.2	95.9	188.0	7.4	3.0
Solids, Vol	mg/L 95.0	25.0	16.9	62.4	9.2	95.3	188.0	7.3	3.1
Solids, Vol Diss	mg/L 55.0	30.0	16.9	62.4	9.2	95.3	189.0	7.3	3.5
Solids, Vol Susp	mg/L <1.00	35.0	16.8	62.2	9.2	95.2	189.0	7.3	2.9
Ammonia N, Tot	mg/L 0.0593	40.0	16.7	62.1	9.1	93.9	189.0	7.3	2.9
Kjeldahl N, Tot	mg/L 0.770	45.0	16.7	62.1	9.1	93.9	189.0	7.3	3.0
NO3+NO2, Tot	mg/L 0.393	50.0	16.7	62.1	9.0	92.9	189.0	7.3	3.0
Phosphorus, Tot	mg/L 0.0075	55.0	16.7	62.1	8.9	91.9	189.0	7.3	3.1
Phosphorus, Diss	mg/L <0.007								
OrthoPhosphate, D	mg/L <0.05								
Organic Carbon, T	mg/L 1.90								
Hardness, Tot	mg/L 80.5								
Sulfate, Tot	mg/L 26.0								
Calcium, Tot	mg/L 22.4								
Magnesium, Tot	mg/L 5.98								
Sodium, Tot	mg/L 5.47								
Potassium, Tot	mg/L 1.46								
Chloride, Tot	mg/L 5.14								
Arsenic, Tot	ug/L 0.4								
Barium, Tot	ug/L 21.3								
Beryllium, Tot	ug/L <0.2								
Cadmium, Tot	ug/L <0.2								
Chromium, Tot	ug/L 0.5								
Cobalt, Tot	ug/L <0.2								
Copper, Tot	ug/L 2.6								
Iron, Tot	ug/L 92.0								
Iron, Diss	ug/L								
Lead, Tot	ug/L 0.2								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 42.3								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L 0.2								
Nickel, Tot	ug/L 2.6								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.5								
Zinc, Tot	ug/L 3.4								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 33.1								
Aluminum, Diss	ug/L								
Selenium, Tot	ug/L 0.42								
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: 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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 2.0 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	16.7	62.1	9.2	95.0	186.0	8.0	0.6
5.0	15.8	60.4	9.2	93.2	186.0	7.4	0.8
10.0	15.3	59.5	9.3	93.2	186.0	7.3	1.0
15.0	15.1	59.2	9.2	91.8	187.0	7.2	1.0
20.0	15.1	59.2	9.2	91.8	187.0	7.2	0.9
25.0	15.1	59.2	9.1	90.8	186.0	7.2	0.9
30.0	15.0	59.0	9.1	90.6	187.0	7.2	0.9
35.0	15.0	59.0	9.1	90.6	187.0	7.2	0.9

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
County: Clay

Latitude: 36° 29" 44'
Longitude: 85° 34" 19'

Quad: Burristown, TN
HUC: 05130106

Sample Date: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 2.2 m

(No Laboratory Analyses)

Profile Measurements								
Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F	
ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l	
0.0	14.6	58.3	9.6	94.8	185.0	7.6	0.5	
5.0	14.1	57.4	9.5	92.8	184.0	7.3	0.6	
10.0	14.1	57.4	9.5	92.8	184.0	7.3	0.7	
15.0	14.1	57.4	9.4	91.8	184.0	7.2	0.8	
20.0	14.1	57.4	9.4	91.8	184.0	7.2	0.8	
25.0	14.1	57.4	9.4	91.8	184.0	7.2	0.8	
28.0	14.1	57.4	9.4	91.8	184.0	7.2	0.8	

CELNRN-EC-H / Water Management Section

Location: Defeated Creek, Mile 1.0

Quad: Carthage, TN
HUC: 05130106

Secchi Disk = 1.4 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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 2.2 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 56	0.0	14.5	58.1	9.5	93.6	178.0	7.7	0.6
Alkalinity, Phenol	mg/L 0	5.0	14.5	58.1	9.5	93.6	178.0	7.2	0.6
Solids, Tot	mg/L 158	10.0	14.4	57.9	9.5	93.4	179.0	7.1	0.7
Solids, Tot Diss	mg/L 152	15.0	14.4	57.9	9.5	93.4	178.0	7.1	0.8
Solids, Tot Susp	mg/L 6.00								
Solids, Vol	mg/L 80.0								
Solids, Vol Diss	mg/L 65.0								
Solids, Vol Susp	mg/L 4.00								
Ammonia N, Tot	mg/L 0.134								
Kjeldahl N, Tot	mg/L 1.40								
NO3+NO2, Tot	mg/L 0.432								
Phosphorus, Tot	mg/L <0.007								
Phosphorus, Diss	mg/L <0.007								
OrthoPhosphate, D	mg/L <0.05								
Organic Carbon, T	mg/L 2.10								
Hardness, Tot	mg/L 71.2								
Sulfate, Tot	mg/L 29.0								
Calcium, Tot	mg/L 18.7								
Magnesium, Tot	mg/L 5.97								
Sodium, Tot	mg/L 6.08								
Potassium, Tot	mg/L 1.49								
Chloride, Tot	mg/L 5.28								
Arsenic, Tot	ug/L 0.3								
Barium, Tot	ug/L 19.5								
Beryllium, Tot	ug/L <0.2								
Cadmium, Tot	ug/L <0.2								
Chromium, Tot	ug/L 0.5								
Cobalt, Tot	ug/L <0.2								
Copper, Tot	ug/L 1.2								
Iron, Tot	ug/L 83.7								
Iron, Diss	ug/L								
Lead, Tot	ug/L 0.4								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 34.3								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L <0.2								
Nickel, Tot	ug/L 2.4								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.2								
Zinc, Tot	ug/L 2.6								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 29.9								
Aluminum, Diss	ug/L								
Selenium, Tot	ug/L 0.3								
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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 1.2 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	18.8	65.8	9.4	101.2	186.0	7.6	1.4
5.0	17.1	62.8	9.5	98.9	185.0	7.5	3.3
10.0	16.8	62.2	9.3	96.2	185.0	7.3	2.6
15.0	16.7	62.1	9.1	93.9	186.0	7.3	2.0
20.0	16.6	61.9	9.1	93.7	185.0	7.3	2.1
25.0	16.6	61.9	9.1	93.7	186.0	7.3	2.0
30.0	16.5	61.7	9.1	93.5	186.0	7.3	1.8
35.0	16.5	61.7	9.1	93.5	186.0	7.3	1.7
40.0	16.5	61.7	9.1	93.5	186.0	7.3	1.7
43.0	16.5	61.7	9.1	93.5	186.0	7.3	1.9

CELNRN-EC-H / Water Management Section

Location: Martin Creek, Mile 1.0

Quad: Granville, TN
HUC: 05130106

Secchi Disk = 0.9 m

Profile Measurements

[illegible]

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: 07 Jul 2014

Water Surface Elevation = 504.2 ft

Secchi Disk = 0.9 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 64	0.0	24.1	75.4	8.7	103.5	241.0	8.3	2.9
Alkalinity, Phenol	mg/L 0	5.0	17.8	64.0	8.6	90.8	192.0	7.4	4.2
Solids, Tot	mg/L 162	10.0	15.8	60.4	8.2	83.1	187.0	7.1	4.1
Solids, Tot Diss	mg/L 153	15.0	15.6	60.1	5.1	42.4	191.0	6.9	3.2
Solids, Tot Susp	mg/L 9.00	20.0	15.6	60.1	4.2	42.4	194.0	6.8	3.2
Solids, Vol	mg/L 80.0	23.0	15.6	60.1	3.7	37.3	195.0	6.8	3.2
Solids, Vol Diss	mg/L 70.0								
Solids, Vol Susp	mg/L 3.00								
Ammonia N, Tot	mg/L 0.144								
Kjeldahl N, Tot	mg/L 0.950								
NO3+NO2, Tot	mg/L 0.396								
Phosphorus, Tot	mg/L 0.0118								
Phosphorus, Diss	mg/L 0.008								
OrthoPhosphate, D	mg/L <0.05								
Organic Carbon, T	mg/L 2.20								
Hardness, Tot	mg/L 79.2								
Sulfate, Tot	mg/L 26.9								
Calcium, Tot	mg/L 21.8								
Magnesium, Tot	mg/L 5.99								
Sodium, Tot	mg/L 5.67								
Potassium, Tot	mg/L 1.44								
Chloride, Tot	mg/L 5.25								
Arsenic, Tot	ug/L 0.45								
Barium, Tot	ug/L 22.4								
Beryllium, Tot	ug/L <0.2								
Cadmium, Tot	ug/L <0.2								
Chromium, Tot	ug/L 0.48								
Cobalt, Tot	ug/L 0.3								
Copper, Tot	ug/L 1.1								
Iron, Tot	ug/L 136.0								
Iron, Diss	ug/L								
Lead, Tot	ug/L 0.4								
Lead, Diss	ug/L								
Manganese, Tot	ug/L 107.0								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L <0.2								
Molybdenum, Tot	ug/L <0.2								
Nickel, Tot	ug/L 2.7								
Silver, Tot	ug/L <0.2								
Vanadium, Tot	ug/L 0.5								
Zinc, Tot	ug/L 2.4								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L <0.2								
Aluminum, Tot	ug/L 44.4								
Aluminum, Diss	ug/L								
Selenium, Tot	ug/L 0.3								
Mercury, Tot	ug/L								