

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3DAL10001

Project: Dale Hollow

Location: Obey River, Mile 7.0

State: Tennessee

Latitude: 36° 32' 13.4'

Quad: Dale Hollow Dam, TN-KY

County: Clay

Longitude: 85° 27' 24.9'

HUC: 05130105

Sample Date: 21 Aug 2012

Water Surface Elevation = 511.6 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	0.0	10.7	51.3	6.6	59.7	193.0	6.7	0.6
Alkalinity, Phenol	mg/L								
Solids, Tot	mg/L								
Solids, Tot Diss	mg/L								
Solids, Tot Susp	mg/L								
Solids, Vol	mg/L								
Solids, Vol Diss	mg/L								
Solids, Vol Susp	mg/L								
Ammonia N, Tot	mg/L								
Kjeldahl N, Tot	mg/L								
NO3+NO2, Tot	mg/L								
Phosphorus, Tot	mg/L								
Phosphorus, Diss	mg/L								
OrthoPhosphate, D	mg/L								
Organic Carbon, T	mg/L								
Hardness, Tot	mg/L								
Sulfate, Tot	mg/L								
Calcium, Tot	mg/L								
Magnesium, Tot	mg/L								
Sodium, Tot	mg/L								
Potassium, Tot	mg/L								
Chloride, Tot	mg/L								
Arsenic, Tot	ug/L								
Barium, Tot	ug/L								
Beryllium, Tot	ug/L								
Cadmium, Tot	ug/L								
Chromium, Tot	ug/L								
Cobalt, Tot	ug/L								
Copper, Tot	ug/L								
Iron, Tot	ug/L								
Iron, Diss	ug/L								
Lead, Tot	ug/L								
Lead, Diss	ug/L								
Manganese, Tot	ug/L								
Manganese, Diss	ug/L								
Thallium, Tot	ug/L								
Molybdenum, Tot	ug/L								
Nickel, Tot	ug/L								
Silver, Tot	ug/L								
Vanadium, Tot	ug/L								
Zinc, Tot	ug/L								
Zinc, Diss	ug/L								
Antimony, Tot	ug/L								
Aluminum, Tot	ug/L								
Aluminum, Diss	ug/L								
Selenium, Tot	ug/L								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

Page 2

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3DAL10011

Project: Dale Hollow

Location: Wolf River, Mile 22.7

State: Tennessee

Latitude: 36° 35" 1'

Quad: Moodyville, TN-KY

County: Pickett

Longitude: 85° 7" 5'

HUC: 05130105

Sample Date: 22 Aug 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 116	0.0	23.4	74.1	9.1	106.9	355.0	8.2	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 184								
Solids, Tot Diss	mg/L 180								
Solids, Tot Susp	mg/L 4.00								
Solids, Vol	mg/L 94.0								
Solids, Vol Diss	mg/L 94.0								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L 0.190								
NO3+NO2, Tot	mg/L 0.268								
Phosphorus, Tot	mg/L 0.0259								
Phosphorus, Diss	mg/L 0.0320								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.20								
Hardness, Tot	mg/L 159								
Sulfate, Tot	mg/L 50.6								
Calcium, Tot	mg/L 47.4								
Magnesium, Tot	mg/L 9.74								
Sodium, Tot	mg/L 7.93								
Potassium, Tot	mg/L 1.44								
Chloride, Tot	mg/L 10.8								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L 61.1								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 1.2								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L 65.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 0.7								
Lead, Diss	ug/L 0.61								
Manganese, Tot	ug/L 17.5								
Manganese, Diss	ug/L 11.0								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L <0.5								
Nickel, Tot	ug/L 2.7								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L 0.7								
Zinc, Tot	ug/L 3.4								
Zinc, Diss	ug/L 2.1								
Antimony, Tot	ug/L <0.5								
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

Page 3

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3DAL10012

Project: Dale Hollow

Location: Spring Creek, Mile 2.7

State: Kentucky

Latitude: 36° 38" 6'

Quad: Albany, KY-TN

County: Clinton

Longitude: 85° 8" 43'

HUC: 05130105

Sample Date: 22 Aug 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 146	0.0	24.2	75.6	11.2	133.5	603.0	8.5	
Alkalinity, Phenol	mg/L 10								
Solids, Tot	mg/L 361								
Solids, Tot Diss	mg/L 357								
Solids, Tot Susp	mg/L 4.00								
Solids, Vol	mg/L 145								
Solids, Vol Diss	mg/L 145								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L 0.210								
NO3+NO2, Tot	mg/L 1.34								
Phosphorus, Tot	mg/L 0.0980								
Phosphorus, Diss	mg/L 0.0909								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.20								
Hardness, Tot	mg/L 220								
Sulfate, Tot	mg/L 77.7								
Calcium, Tot	mg/L 65.2								
Magnesium, Tot	mg/L 13.8								
Sodium, Tot	mg/L 33.7								
Potassium, Tot	mg/L 2.35								
Chloride, Tot	mg/L 55.3								
Arsenic, Tot	ug/L 1.0								
Barium, Tot	ug/L 36.5								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 4.6								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L 1.1								
Iron, Tot	ug/L 86.4								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 0.8								
Lead, Diss	ug/L 0.6								
Manganese, Tot	ug/L 19.0								
Manganese, Diss	ug/L 12.2								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L 0.8								
Nickel, Tot	ug/L 3.5								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L 2.3								
Zinc, Tot	ug/L 1.8								
Zinc, Diss	ug/L 1.5								
Antimony, Tot	ug/L <0.5								
Aluminum, Tot	ug/L 78.4								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L 1.0								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

Page 4

United States Army Corps of Engineers

Nashville District

CELRN-EC-H / Water Management Section

Station: 3DAL10014

Project: Dale Hollow

Location: East Fork Obey River, Mile 12.6

State: Tennessee

Latitude: 36° 25' 0"

Quad: Riverton, TN

County: Fentress

Longitude: 85° 1' 38"

HUC: 05130105

Sample Date: 22 Aug 2012

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 78	0.0	19.4	66.9	7.9	86.1	208.0	7.9	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 170								
Solids, Tot Diss	mg/L 166								
Solids, Tot Susp	mg/L 4.00								
Solids, Vol	mg/L 88.0								
Solids, Vol Diss	mg/L 88.0								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L <0.0900								
NO3+NO2, Tot	mg/L 0.252								
Phosphorus, Tot	mg/L 0.0244								
Phosphorus, Diss	mg/L <0.0200								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 1.50								
Hardness, Tot	mg/L 126								
Sulfate, Tot	mg/L 53.5								
Calcium, Tot	mg/L 38.4								
Magnesium, Tot	mg/L 7.35								
Sodium, Tot	mg/L 5.07								
Potassium, Tot	mg/L 1.54								
Chloride, Tot	mg/L 6.59								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L 34.1								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 0.9								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L 76.1								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 0.7								
Lead, Diss	ug/L 0.6								
Manganese, Tot	ug/L 41.9								
Manganese, Diss	ug/L 17.8								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L <0.5								
Nickel, Tot	ug/L 2.8								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L <0.5								
Zinc, Tot	ug/L 1.8								
Zinc, Diss	ug/L 1.6								
Antimony, Tot	ug/L <0.5								
Aluminum, Tot	ug/L 38.4								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

Page 5

United States Army Corps of Engineers

Nashville District

CELRN-EC-H / Water Management Section

Station: 3DAL10015

Project: Dale Hollow

Location: West Fork Obey River, Mile 7.5

State: Tennessee

Latitude: 36° 24" 7'

Quad: Alpine, TN

County: Overton

Longitude: 85° 10" 40'

HUC: 05130105

Sample Date: 22 Aug 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 122	0.0	19.8	67.6	7.9	87.8	384.8	8.2	
Alkalinity, Phenol	mg/L 0								
Solids, Tot	mg/L 235								
Solids, Tot Diss	mg/L 231								
Solids, Tot Susp	mg/L 4.00								
Solids, Vol	mg/L 91.0								
Solids, Vol Diss	mg/L 91.0								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L 0.140								
NO3+NO2, Tot	mg/L 0.352								
Phosphorus, Tot	mg/L 0.0250								
Phosphorus, Diss	mg/L 0.0256								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 1.70								
Hardness, Tot	mg/L 171								
Sulfate, Tot	mg/L 55.2								
Calcium, Tot	mg/L 52.3								
Magnesium, Tot	mg/L 9.89								
Sodium, Tot	mg/L 10.5								
Potassium, Tot	mg/L 1.24								
Chloride, Tot	mg/L 13.2								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L 27.5								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 1.3								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L 46.8								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L 0.7								
Lead, Diss	ug/L 0.6								
Manganese, Tot	ug/L 29.3								
Manganese, Diss	ug/L 22.0								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L <0.5								
Nickel, Tot	ug/L 2.9								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L 0.6								
Zinc, Tot	ug/L 1.2								
Zinc, Diss	ug/L 5.4								
Antimony, Tot	ug/L <0.5								
Aluminum, Tot	ug/L 27.0								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

United States Army Corps of Engineers

Station: 3DAL10028

State: Tennessee

County: Overton

Sample Date: 22 Aug 2012

Nashville District

Project: Dale Hollow

Latitude: 36° 28" 43.9'

Longitude: 85° 14" 29.7'

Water Surface Elevation =

CELRN-EC-H / Water Management Section

Location: Big Eagle Creek, Mile 5.3

Quad: Alpine, TN

HUC: 05130105

Secchi Disk =

(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	20.7	69.3	9.9	110.6	413.0	8.4				

United States Army Corps of Engineers

Nashville District

CELRN-EC-H / Water Management Section

Station: 3DAL20002

Project: Dale Hollow

Location: Obey River, Mile 7.7

State: Tennessee

Latitude: 36° 32' 24.1'

Quad: Dale Hollow Dam, TN-KY

County: Clay

Longitude: 85° 26' 46'

HUC: 05130105

Sample Date: 21 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 6.7 m

Results of Laboratory Analyses

Profile Measurements

Sample	Depth ft	0.0	60.0	130.0	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	76	78	78	0.0	27.2	80.9	8.4	106.1	193.5	8.4	0.8
Alkalinity, Phenol	mg/L	2	0	0	5.0	27.2	81.0	8.5	106.5	193.6	8.4	0.8
Solids, Tot	mg/L	94.0	102	102	10.0	27.1	80.9	8.5	106.9	193.5	8.3	1.1
Solids, Tot Diss	mg/L	90	98	98	15.0	27.1	80.7	8.5	107.1	193.4	8.4	1.1
Solids, Tot Susp	mg/L	4.00	4.00	4.00	20.0	27.0	80.6	8.5	106.7	193.3	8.4	1.3
Solids, Vol	mg/L	108	97.0	69.0	25.0	26.9	80.4	8.6	108.0	193.6	8.3	1.4
Solids, Vol Diss	mg/L	108	97.0	69.0	30.0	22.0	71.7	11.4	130.6	195.7	8.3	5.7
Solids, Vol Susp	mg/L	<4.00	<4.00	<4.00	35.0	16.5	61.8	8.8	90.5	195.3	7.3	4.4
Ammonia N, Tot	mg/L	<0.200	<0.200	<0.200	40.0	13.9	56.9	7.1	68.2	193.6	6.9	5.9
Kjeldahl N, Tot	mg/L	0.210	0.120	<0.0900	45.0	12.3	54.1	5.7	53.5	193.0	6.7	2.8
NO3+NO2, Tot	mg/L	<0.0200	0.392	0.306	50.0	11.6	52.8	5.2	47.8	191.4	6.6	1.6
Phosphorus, Tot	mg/L	<0.0200	<0.0200	0.0245	55.0	11.2	52.1	4.9	44.2	192.2	6.5	0.9
Phosphorus, Diss	mg/L	<0.0200	<0.0200	<0.0200	60.0	10.8	51.5	4.5	40.6	191.6	6.4	0.8
OrthoPhosphate, D	mg/L	<0.0500	<0.0500	<0.0500	65.0	10.6	51.0	4.2	38.1	191.9	6.4	0.7
Organic Carbon, T	mg/L	2.80	2.20	2.40	70.0	10.4	50.7	3.8	33.9	191.8	6.4	0.5
Hardness, Tot	mg/L	90.1	94.0	91.7	75.0	10.3	50.5	3.3	29.8	190.8	6.4	0.3
Sulfate, Tot	mg/L	16.4	16.7	16.0	80.0	10.2	50.3	3.2	28.6	191.1	6.4	0.3
Calcium, Tot	mg/L	27.6	29.4	28.5	85.0	10.1	50.2	2.9	26.1	192.9	6.4	0.3
Magnesium, Tot	mg/L	5.14	5.02	4.97	90.0	10.0	50.1	2.8	24.4	191.1	6.4	0.2
Sodium, Tot	mg/L	4.23	3.22	3.29	95.0	9.9	49.8	2.4	21.0	192.6	6.4	0.2
Potassium, Tot	mg/L	1.33	1.22	1.28	100.0	9.8	49.7	2.0	17.8	192.0	6.4	0.2
Chloride, Tot	mg/L	4.15	4.19	4.39	105.0	9.7	49.5	1.6	14.1	193.0	6.4	0.2
Arsenic, Tot	ug/L	0.53	<0.5	0.9	110.0	9.6	49.3	1.4	11.9	192.3	6.4	0.1
Barium, Tot	ug/L	17.9	21.8	19.1	115.0	9.6	49.2	1.2	10.3	193.1	6.4	0.1
Beryllium, Tot	ug/L	<0.5	<0.5	<0.5	120.0	9.5	49.2	1.1	9.3	193.0	6.4	0.1
Cadmium, Tot	ug/L	<0.5	<0.5	<0.5	125.0	9.5	49.0	0.7	6.1	193.7	6.5	0.0
Chromium, Tot	ug/L	0.7	0.7	0.6	130.0	9.4	48.9	0.4	3.2	194.8	6.5	0.0
Cobalt, Tot	ug/L	<0.5	<0.5	<0.5	135.0	9.4	48.9	0.1	1.2	195.2	6.5	0.1
Copper, Tot	ug/L	<0.5	<0.5	<0.5	138.0	9.4	48.9	0.1	0.6	195.3	6.5	0.2
Iron, Tot	ug/L	<20.0	<20.0	<20.0								
Iron, Diss	ug/L	<20.0	<20.0	<20.0								
Lead, Tot	ug/L	<0.5	<0.5	<0.5								
Lead, Diss	ug/L	<0.5	<0.5	<0.5								
Manganese, Tot	ug/L	7.7	20.9	260.0								
Manganese, Diss	ug/L	<0.5	3.0	0.6								
Thallium, Tot	ug/L	<0.5	<0.5	<0.5								
Molybdenum, Tot	ug/L	0.8	<0.5	<0.5								
Nickel, Tot	ug/L	1.7	1.9	1.8								
Silver, Tot	ug/L	<0.5	<0.5	<0.5								
Vanadium, Tot	ug/L	0.67	<0.5	<0.5								
Zinc, Tot	ug/L	0.6	1.4	0.74								
Zinc, Diss	ug/L	0.6	1.0	0.6								
Antimony, Tot	ug/L	<0.5	<0.5	<0.5								
Aluminum, Tot	ug/L	<20.0	<20.0	<20.0								
Aluminum, Diss	ug/L	<20.0	<20.0	<20.0								
Selenium, Tot	ug/L	<0.5	<0.5	<0.5								
Mercury, Tot	ug/L	0.032	0.016	0.016								

Water Quality Physical / Chemical Data Report

Page 8

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3DAL20003

Project: Dale Hollow

Location: Obey River, Mile 16.7

State: Tennessee

Latitude: 36° 32' 48.9'

Quad: Dale Hollow Dam, TN-KY

County: Clay

Longitude: 85° 23' 25.1'

HUC: 05130105

Sample Date: 21 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 5.5 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	27.6	81.6	8.5	107.3	192.7	8.4	0.3
5.0	27.6	81.6	8.4	106.9	192.6	8.3	0.3
10.0	27.4	81.4	8.4	106.8	192.4	8.3	0.7
15.0	27.4	81.3	8.5	106.9	192.7	8.3	1.0
20.0	27.4	81.3	8.4	106.5	192.4	8.3	1.3
25.0	27.1	80.9	8.6	108.2	192.5	8.3	2.0
30.0	21.1	70.0	10.8	121.6	193.3	8.1	5.9
35.0	17.1	62.7	8.5	88.4	189.0	7.3	6.4
40.0	14.3	57.7	6.4	62.4	193.4	7.0	6.8
45.0	12.3	54.2	4.1	38.3	192.8	6.7	2.4
50.0	11.4	52.4	2.5	23.1	191.1	6.6	0.8
55.0	10.9	51.7	2.0	18.2	192.2	6.5	0.7
60.0	10.7	51.3	1.5	13.7	193.0	6.5	0.8
65.0	10.6	51.0	1.2	10.4	191.7	6.4	0.6
70.0	10.4	50.8	1.0	9.3	192.8	6.4	0.5
75.0	10.3	50.6	0.8	7.2	192.1	6.4	0.4
80.0	10.3	50.5	0.9	8.4	192.6	6.4	0.4
85.0	10.1	50.1	0.9	7.8	192.3	6.4	0.4
90.0	10.0	50.0	0.6	5.5	192.2	6.4	0.3
95.0	9.9	49.9	0.5	4.4	192.2	6.4	0.3
100.0	9.8	49.6	0.3	2.6	192.3	6.4	0.2
105.0	9.7	49.5	0.1	0.5	193.6	6.4	0.2
110.0	9.7	49.4	0.0	0.3	194.9	6.4	0.1
115.0	9.7	49.4	0.0	0.2	194.5	6.4	0.1
124.0	9.6	49.3	0.0	0.3	197.1	6.4	0.3

CELNRN-EC-H / Water Management Section

Location: Obey River, Mile 27.7

Quad: Dale Hollow Reservoir SE, TN-KY
HUC: 05130105

Secchi Disk = 5.4 m

Profile Measurements

Sample				Depth	Water Temp	Water Temp	Dis Oxygen	Dis Oxygen	Spec Cond	pH	Chloro a F	
	Depth ft	0.0	50.0	100.0	ft	deg C	deg F	mg/l	% sat	umho/cm	units	ug/l
Alkalinity, Tot	mg/L	76	80	82	0.0	28.2	82.8	8.4	107.1	192.5	8.3	0.1
Alkalinity, Phenol	mg/L	2	0	0	5.0	27.4	81.4	8.5	106.9	191.3	8.3	0.4
Solids, Tot	mg/L	90.0	119	108	10.0	27.3	81.1	8.4	106.2	191.0	8.3	0.9
Solids, Tot Diss	mg/L	86	115	104	15.0	27.2	81.0	8.4	106.1	191.0	8.3	1.1
Solids, Tot Susp	mg/L	4.00	4.00	4.00	20.0	27.2	80.9	8.4	106.1	190.7	8.3	1.3
Solids, Vol	mg/L	128	88.0	72.0	25.0	27.1	80.8	8.4	105.7	191.5	8.3	1.5
Solids, Vol Diss	mg/L	128	88.0	72.0	30.0	21.7	71.0	8.8	100.1	197.3	7.7	6.7
Solids, Vol Susp	mg/L	<4.00	<4.00	<4.00	35.0	17.4	63.2	6.7	69.6	194.8	7.2	6.5
Ammonia N, Tot	mg/L	<0.200	<0.200	0.200	40.0	14.3	57.8	3.6	35.0	194.7	6.8	4.4
Kjeldahl N, Tot	mg/L	<0.0900	0.170	0.150	45.0	12.7	54.9	1.4	13.2	194.1	6.6	1.4
NO3+NO2, Tot	mg/L	<0.0200	0.370	0.270	50.0	11.7	53.1	0.2	1.7	193.7	6.5	1.3
Phosphorus, Tot	mg/L	<0.0200	<0.0200	<0.0200	55.0	11.2	52.1	0.1	0.4	194.5	6.5	0.7
Phosphorus, Diss	mg/L	<0.0200	<0.0200	<0.0200	60.0	10.9	51.6	0.0	0.3	197.2	6.5	0.7
OrthoPhosphate, D	mg/L	<0.0500	<0.0500	<0.0500	65.0	10.6	51.1	0.0	0.3	197.4	6.5	0.5
Organic Carbon, T	mg/L	2.80	2.20	2.60	70.0	10.5	50.8	0.0	0.3	198.3	6.5	0.4
Hardness, Tot	mg/L	86.9	92.1	91.7	75.0	10.4	50.6	0.0	0.3	198.2	6.5	0.3
Sulfate, Tot	mg/L	16.7	16.3	20.7	80.0	10.3	50.5	0.0	0.2	198.5	6.5	0.3
Calcium, Tot	mg/L	26.6	28.8	28.6	85.0	10.2	50.3	0.0	0.3	197.2	6.5	0.2
Magnesium, Tot	mg/L	4.98	4.90	4.90	90.0	10.1	50.1	0.0	0.3	198.8	6.5	0.2
Sodium, Tot	mg/L	3.15	2.94	2.97	100.0	10.0	50.0	0.0	0.3	199.1	6.5	0.1
Potassium, Tot	mg/L	1.11	1.17	1.22	103.0	10.0	49.9	0.0	0.2	199.2	6.5	0.2
Chloride, Tot	mg/L	4.14	4.21	4.29								
Arsenic, Tot	ug/L	<0.5	<0.5	1.0								
Barium, Tot	ug/L	18.3	22.2	28.0								
Beryllium, Tot	ug/L	<0.5	<0.5	<0.5								
Cadmium, Tot	ug/L	<0.5	<0.5	<0.5								
Chromium, Tot	ug/L	<0.5	0.6	0.7								
Cobalt, Tot	ug/L	<0.5	<0.5	<0.5								
Copper, Tot	ug/L	<0.5	<0.5	<0.5								
Iron, Tot	ug/L	<20.0	25.8	243.0								
Iron, Diss	ug/L	<20.0	<20.0	79.4								
Lead, Tot	ug/L	<0.5	<0.5	<0.5								
Lead, Diss	ug/L	<0.5	<0.5	<0.5								
Manganese, Tot	ug/L	10.1	44.3	1400.0								
Manganese, Diss	ug/L	9.5	28.0	1370.0								
Thallium, Tot	ug/L	<0.5	<0.5	<0.5								
Molybdenum, Tot	ug/L	<0.5	<0.5	0.6								
Nickel, Tot	ug/L	1.6	1.7	1.9								
Silver, Tot	ug/L	<0.5	<0.5	<0.5								
Vanadium, Tot	ug/L	<0.5	<0.5	<0.5								
Zinc, Tot	ug/L	<0.5	0.8	75.6								
Zinc, Diss	ug/L	<0.5	0.7	0.7								
Antimony, Tot	ug/L	<0.5	<0.5	<0.5								
Aluminum, Tot	ug/L	<20.0	<20.0	<20.0								
Aluminum, Diss	ug/L	<20.0	<20.0	<20.0								
Selenium, Tot	ug/L	<0.5	<0.5	<0.5								
Mercury, Tot	ug/L											

Water Quality Physical / Chemical Data Report

Page 10

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3DAL20005

Project: Dale Hollow

Location: Obey River, Mile 33.0

State: Tennessee

Latitude: 36° 35" 46.6'

Quad: Dale Hollow Reservoir SE, TN-KY

County: Clay

Longitude: 85° 17" 1.7'

HUC: 05130105

Sample Date: 21 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 4.6 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	28.3	82.9	8.3	106.3	194.8	8.3	0.2
5.0	27.8	82.0	8.4	106.7	194.2	8.1	0.4
10.0	27.5	81.5	8.4	106.4	193.9	8.2	0.7
15.0	27.4	81.4	8.4	106.4	194.5	8.2	1.1
20.0	27.3	81.1	8.4	105.9	194.1	8.2	1.4
25.0	27.2	81.0	8.0	100.5	194.5	8.1	100.8
30.0	21.0	69.8	7.8	87.8	198.9	7.4	4.5
35.0	16.6	61.9	5.8	59.3	194.2	7.0	5.2
40.0	14.0	57.2	2.2	21.2	191.5	6.6	2.1
45.0	12.2	54.0	0.1	0.6	189.5	6.4	0.8
50.0	11.6	52.8	0.0	0.4	192.6	6.3	0.6
55.0	11.1	52.1	0.0	0.3	193.1	6.3	0.5
60.0	10.8	51.4	0.0	0.3	195.3	6.3	0.5
65.0	10.6	51.1	0.0	0.3	196.4	6.3	0.5
70.0	10.6	51.0	0.0	0.3	196.4	6.3	0.4
75.0	10.5	50.9	0.0	0.3	197.4	6.3	0.3
80.0	10.4	50.8	0.0	0.3	197.9	6.3	0.3
85.0	10.3	50.5	0.0	0.3	198.5	6.3	0.3
90.0	10.3	50.5	0.0	0.3	199.3	6.4	0.2

CELNRN-EC-H / Water Management Section

Location: Obey River, Mile 41.6

Quad: Byrdstown, TN-KY
HUC: 05130105

Secchi Disk = 3 m

Profile Measurements

[illegible]

CELNRN-EC-H / Water Management Section

Location: Obey River, Mile 55.8

Quad: Alpine, TN
HUC: 05130105

Secchi Disk = 1.4 m

Profile Measurements

[illegible]

CELNRN-EC-H / Water Management Section

Location: Wolf River, Mile 8.7

Quad: Byrdstown, TN-KY
HUC: 05130105

Secchi Disk = 2.9 m

Profile Measurements

[illegible]

United States Army Corps of Engineers

Nashville District

CELNRN-EC-H / Water Management Section

Station: 3DAL20009

Project: Dale Hollow

Location: East Fork Obey River, Mile 2.0

State: Tennessee

Latitude: 36° 27' 6.9'

Quad: Riverton, TN

County: Pickett

Longitude: 85° 5' 38.5'

HUC: 05130105

Sample Date: 22 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 1.1 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 92	0.0	26.3	79.3	8.8	109.5	251.4	8.1	10.3
Alkalinity, Phenol	mg/L 0	5.0	26.0	78.7	8.6	106.3	252.3	8.0	11.7
Solids, Tot	mg/L 144	10.0	25.3	77.5	7.7	93.3	270.8	7.7	8.6
Solids, Tot Diss	mg/L 140	15.0	23.5	74.3	3.3	38.6	271.0	7.1	3.3
Solids, Tot Susp	mg/L 4.00	20.0	21.9	71.4	0.0	0.5	278.3	6.8	1.4
Solids, Vol	mg/L 102	24.0	21.7	71.1	0.0	0.5	284.3	6.8	1.4
Solids, Vol Diss	mg/L 102								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L 0.320								
NO3+NO2, Tot	mg/L <0.0200								
Phosphorus, Tot	mg/L 0.0231								
Phosphorus, Diss	mg/L <0.0200								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 2.90								
Hardness, Tot	mg/L 113								
Sulfate, Tot	mg/L 30.0								
Calcium, Tot	mg/L 34.6								
Magnesium, Tot	mg/L 6.42								
Sodium, Tot	mg/L 4.07								
Potassium, Tot	mg/L 1.25								
Chloride, Tot	mg/L 5.41								
Arsenic, Tot	ug/L <0.5								
Barium, Tot	ug/L 46.2								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 0.7								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L 113.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L <0.5								
Lead, Diss	ug/L <0.5								
Manganese, Tot	ug/L 60.3								
Manganese, Diss	ug/L 2.2								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L <0.5								
Nickel, Tot	ug/L 2.2								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L <0.5								
Zinc, Tot	ug/L 0.9								
Zinc, Diss	ug/L <0.5								
Antimony, Tot	ug/L <0.5								
Aluminum, Tot	ug/L 42.7								
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: 3DAL20010

Project: Dale Hollow

Location: West Fork Obey River, Mile 1.8

State: Tennessee

Latitude: 36° 26' 49.3'

Quad: Alpine, TN

County: Overton

Longitude: 85° 9' 8.9'

HUC: 05130105

Sample Date: 22 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 0.8 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	5.0	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	27.3	81.1	9.7	122.5	257.8	8.3	5.9
Alkalinity, Phenol	mg/L 0	5.0	26.0	78.9	9.3	114.7	258.6	8.1	19.3
Solids, Tot	mg/L 144	10.0	24.3	75.8	4.5	54.0	351.2	7.3	5.6
Solids, Tot Diss	mg/L 140	15.0	23.8	74.8	1.2	14.4	355.0	7.1	4.2
Solids, Tot Susp	mg/L 4.00	17.0	23.6	74.6	0.5	6.0	354.6	7.1	3.7
Solids, Vol	mg/L 63.0								
Solids, Vol Diss	mg/L 63.0								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L 0.270								
NO3+NO2, Tot	mg/L <0.0200								
Phosphorus, Tot	mg/L 0.0312								
Phosphorus, Diss	mg/L 0.0204								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 3.30								
Hardness, Tot	mg/L 117								
Sulfate, Tot	mg/L 29.1								
Calcium, Tot	mg/L 35.6								
Magnesium, Tot	mg/L 6.78								
Sodium, Tot	mg/L 4.34								
Potassium, Tot	mg/L 1.26								
Chloride, Tot	mg/L 5.61								
Arsenic, Tot	ug/L 0.7								
Barium, Tot	ug/L 55.8								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 0.7								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L 148.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L <0.5								
Lead, Diss	ug/L <0.5								
Manganese, Tot	ug/L 66.9								
Manganese, Diss	ug/L 5.2								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L <0.5								
Nickel, Tot	ug/L 2.2								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L 0.6								
Zinc, Tot	ug/L 2.0								
Zinc, Diss	ug/L <0.5								
Antimony, Tot	ug/L <0.5								
Aluminum, Tot	ug/L 50.2								
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: 3DAL20020

Project: Dale Hollow

Location: Spring Creek, Mile 0.5

State: Kentucky

Latitude: 36° 37' 54'

Quad: Albany, KY-TN

County: Clinton

Longitude: 85° 9' 28.9'

HUC: 05130105

Sample Date: 21 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 0.9 m

Results of Laboratory Analyses

Profile Measurements

Sample Depth ft	5.0	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 96	0.0	28.9	84.1	11.0	142.5	249.1	8.7	6.1
Alkalinity, Phenol	mg/L 6	5.0	26.7	80.0	9.1	113.5	257.7	8.3	11.5
Solids, Tot	mg/L 132	10.0	24.6	76.3	6.1	73.3	453.0	7.5	8.2
Solids, Tot Diss	mg/L 128	12.0	24.4	75.9	5.9	71.1	429.6	7.4	9.4
Solids, Tot Susp	mg/L 4.00								
Solids, Vol	mg/L 55.0								
Solids, Vol Diss	mg/L 55.0								
Solids, Vol Susp	mg/L <4.00								
Ammonia N, Tot	mg/L <0.200								
Kjeldahl N, Tot	mg/L 0.600								
NO3+NO2, Tot	mg/L 0.0202								
Phosphorus, Tot	mg/L 0.0397								
Phosphorus, Diss	mg/L 0.0206								
OrthoPhosphate, D	mg/L <0.0500								
Organic Carbon, T	mg/L 3.60								
Hardness, Tot	mg/L 108								
Sulfate, Tot	mg/L 24.5								
Calcium, Tot	mg/L 32.5								
Magnesium, Tot	mg/L 6.56								
Sodium, Tot	mg/L 6.47								
Potassium, Tot	mg/L 1.41								
Chloride, Tot	mg/L 9.82								
Arsenic, Tot	ug/L 0.9								
Barium, Tot	ug/L 36.7								
Beryllium, Tot	ug/L <0.5								
Cadmium, Tot	ug/L <0.5								
Chromium, Tot	ug/L 1.0								
Cobalt, Tot	ug/L <0.5								
Copper, Tot	ug/L <0.5								
Iron, Tot	ug/L 188.0								
Iron, Diss	ug/L <20.0								
Lead, Tot	ug/L <0.5								
Lead, Diss	ug/L <0.5								
Manganese, Tot	ug/L 53.8								
Manganese, Diss	ug/L 2.1								
Thallium, Tot	ug/L <0.5								
Molybdenum, Tot	ug/L <0.5								
Nickel, Tot	ug/L 1.9								
Silver, Tot	ug/L <0.5								
Vanadium, Tot	ug/L 1.0								
Zinc, Tot	ug/L 0.9								
Zinc, Diss	ug/L <0.5								
Antimony, Tot	ug/L <0.5								
Aluminum, Tot	ug/L 73.4								
Aluminum, Diss	ug/L <20.0								
Selenium, Tot	ug/L <0.5								
Mercury, Tot	ug/L								

Water Quality Physical / Chemical Data Report

Page 17

United States Army Corps of Engineers

Nashville District

CELRN-EC-H / Water Management Section

Station: 3DAL20067

Project: Dale Hollow

Location: Obey River, Mile 50.0

State: Tennessee

Latitude: 36° 30' 49.8'

Quad: Byrdstown, TN-KY

County: Pickett

Longitude: 85° 9' 28.3'

HUC: 05130105

Sample Date: 22 Aug 2012

Water Surface Elevation = 644.8 ft

Secchi Disk = 2.9 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	27.6	81.8	7.7	98.2	219.1	8.0	1.2
5.0	27.6	81.6	7.8	98.3	219.0	7.9	1.5
10.0	27.5	81.5	7.7	96.9	218.7	7.9	2.6
15.0	27.4	81.4	7.6	95.7	219.2	7.9	2.5
20.0	27.4	81.3	7.5	95.2	219.2	7.9	2.3
25.0	26.0	78.8	3.2	39.4	247.2	7.2	2.2
30.0	22.6	72.7	0.1	1.5	268.5	7.0	1.9
35.0	17.2	62.9	0.0	0.5	235.4	6.9	2.4
40.0	14.1	57.4	0.1	0.4	223.7	6.8	1.4
45.0	12.6	54.7	0.0	0.4	216.6	6.8	1.1
50.0	11.9	53.5	0.0	0.4	209.8	6.8	0.9
55.0	11.7	53.1	0.0	0.4	208.6	6.7	0.9