RESERVOIR SEDIMENT
DATA SUMMARY

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

Cordell Hull
NAME OF RESERVOIR

18-15
DATA SHEET NO.

DAM

1. OWNER U.S. Army Corps of Engrs	2. STREAM Cumberland River	3. STATE Tennessee
4. SEC. TWP. RANGE	5. NEAREST P.O. Carthage, TN	6. COUNTY Smith
7. LAT. 36° 17' 24" LONG. 85° 56' 37"	8. TOP OF DAM ELEVATION 513.0	9. SPILLWAY CREST ELEV. 505.71

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	508.0	13,920	51,800	310,900	Oct. 1967
b. MULTIPLE USE					
c. POWER	504.0	11,960	54,300	259,100	16. DATE NORMAL OPER. BEGAN
d. WATER SUPPLY					
e. IRRIGATION					March 1973
f. CONSERVATION					
g. INACTIVE	499.0	9,820	204,800	204,800	2/

17. LENGTH OF RESERVOIR 72 3/ MILES — AV. WIDTH OF RESERVOIR 0.30 MILES

WATERSHED

18. TOTAL DRAINAGE AREA 1,372 SQ. MI.		22. MEAN ANNUAL PRECIPITATION 57.89 (96 yrs)	INCHES
19. NET SEDIMENT CONTRIBUTING AREA 1,350 SQ. MI.		23. MEAN ANNUAL RUNOFF 21.5	INCHES
20. LENGTH 147.4 4/ MILES	AV. WIDTH 9.31 MILES	24. MEAN ANNUAL RUNOFF 1,573,227	AC.-FT.
21. MAX. ELEV. 1940 5/	MIN. ELEV. 439	25. ANNUAL TEMP.: MEAN 57.1 RANGE	29.1 - 77.2

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I. RATIO, AC.-FT. PER AC.-FT.
Sept. 1973	0	0	Range (D)	48	13,920	310,900	0.20
June 1980	6.8	6.8	Range (D)	50	13,920	308,027	0.20

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET			36. WATER INFL. TO DATE, AC.-FT.	
		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE
Sept. 1973	----	----	----	----	----	----
June 1980	58.8	11,296,008	14,061,153	76,812,853	11,296,008	76,812,853

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET			38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET		
	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Sept. 1973	----	----	----	----	----	----
June 1980	2,873	421	0.31	2,873	421	0.31

26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR.		41. STORAGE LOSS, PCT.		42. SED. INFLOW, PPM	
		a. PERIOD	b. TOTAL TO DATE	a. AV. ANN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE
Sept. 1973	----	----	----	----	----	----	----
June 1980	----	---No sediment samples were obtained---				----	----

ENG FORM 1787
NOV 66

PREVIOUS EDITIONS ARE OBSOLETE.

* Assumed

Exhibit 55

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION 6/											
	76-66	66-56	56-46	46-36	36-26	26-16	16-6	6-crest	crest-+4	+4-+14	-	-
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION *											
Sept. 1973	----	----	----	----	----	----	----	----	----	----	----	----
June 1980	22.83	9.50	8.04	9.54	18.18	15.38	11.34	5.19	-	-	-	-

26. DATE OF SURVEY	44. REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR *													
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Sept. 973	---	----	----	----	----	---	----	----	----	----	----	----	---	----	----
June 1980	37.77	24.90	17.75	0.21	0.73	0.00	7.79	6.03	4.65	0.17	-	-	-	-	-

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1968	487.50	445.90	10,742,274*				
1969	485.35	466.10	5,097,518*				
1970	486.84	464.50	8,364,888*				
1971	487.60	466.53	10,404,291*				
1972	487.87	466.56	12,570,637*				
1973	505.65	467.13	13,681,113*				
1974	505.71	497.65	13,691,173				
1975	508.00	498.96	13,630,081				
1976	505.00	498.85	9,667,589				
1977	504.70	498.65	7,188,348				
1978	504.70	499.00	10,482,166				
1979	505.20	499.00	13,116,927				

46. ELEVATION–AREA–CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
427	0	0	457	1,553	22,009	487	5,429	111,334
430	131	326	460	1,697	27,040	490	6,362	129,202
433	245	1,041	463	1,888	32,558	493	7,456	150,104
436	376	2,108	466	2,079	38,576	496	8,573	174,506
439	487	3,545	469	2,328	45,393	499	9,691	202,109
442	616	5,370	472	2,604	52,862	502	10,930	233,326
445	776	7,588	475	2,978	61,305	505	12,309	268,452
448	931	10,326	478	3,499	71,148	508	13,920	308,027
451	1,131	13,548	481	4,081	82,600	511	15,400	351,927
454	1,361	17,479	484	4,705	95,967	514	16,910	400,427

47. REMARKS AND REFERENCES

1/ Spillway topped by movable gates. Elevation given is the top of the gates in the closed position.

2/ Date reservoir first reached full pool elevation.

3/ Length given is along the Cumberland River to Celina, Tennessee.

4/ The length of the watershed is considered to extend to Wolf Creek Dam, mile 460.9 on the Cumberland River.

5/ Crest of Blaylock Mountain, Putnam County.

6/ Crest elevation assumed to be 506.

48. AGENCY MAKING SURVEY Nashville District Corps of Engineers, Engineering Div. H & H Br.

49. AGENCY SUPPLYING DATA Nashville District Corps of Engineers 50. DATE August 1980

U.S. GOVERNMENT PRINTING OFFICE: 1967 306-021 (98)

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

RESERVOIR SEDIMENT DATA SUMMARY

Cordell Hull
NAME OF RESERVOIR

18-15a
DATA SHEET NO.

DAM

1. OWNER US ARMY CORPS OF ENGRS	2. STREAM CUMBERLAND RIVER	3. STATE TENNESSEE
4. SEC TWP RANGE	5. NEAREST P O CARTHAGE, TN	6. COUNTY SMITH
7. LAT 36 ° 17 ' 24 " LONG 85 ° 56 ' 3 "	8. TOP OF DAM ELEVATION 513.0	9. SPILLWAY CREST ELEV. 505.7 1

RESERVOIR

10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. ORIGINAL SURFACE AREA, ACRES	13. ORIGINAL CAPACITY, ACRE-FEET	14. GROSS STORAGE, ACRE-FEET	15. DATE STORAGE BEGAN
a. FLOOD CONTROL	508.0	13,920	51,800	310,900	Oct 1967
b. MULTIPLE USE					
c. POWER	504.0	11,960	54,300	259,100	16. DATE NORMAL OPER. BEGAN
d. WATER SUPPLY					
e. IRRIGATION					
f. CONSERVATION					Mar 1973 2
g. INACTIVE	499.0	9,820	204,800	204,800	

WATERSHED

17. LENGTH OF RESERVOIR 67.4 21 MILES	AV. WIDTH OF RESERVOIR 0.30 MILES		
18. TOTAL DRAINAGE AREA 8,096 SQ. MI.	22. MEAN ANNUAL PRECIPITATION 51 (1973-1988) INCHES		
19. NET SEDIMENT CONTRIBUTING AREA 1,350 SQ. MI.	23. MEAN ANNUAL RUNOFF 22 (1968-1988) INCHES		
20. LENGTH 147.0 41 MILES	AV. WIDTH 9.31 MILES	24. MEAN ANNUAL RUNOFF 9,498,700 AC.-FT.	
21. MAX. ELEV. 1940 51	MIN. ELEV. 439	25. ANNUAL TEMP: MEAN 58 °F RANGE 29-77° F	

SURVEY DATA

26. DATE OF SURVEY	27. PERIOD YEARS	28. ACCL. YEARS	29. TYPE OF SURVEY	30. NO. OF RANGES OR CONTOUR INT.	31. SURFACE AREA, ACRES	32. CAPACITY, ACRE-FEET	33. C/I. RATIO, AC.-FT. PER AC.-FT.
Sep 1973	0	0	Range (D)	49	13,920	310,900	0.033
Jun 1980	6.75	6.8	Range (D)	49	13,936	305,800	0.032
Jun 1988	8.00	14.8	Range (D)	54	13,956	301,500	0.032

26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW, ACRE-FEET a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	36. WATER INFL. TO DATE, AC.-FT. a. MEAN ANNUAL	b. TOTAL TO DATE
Jun 1980	58.8	11,296,008	14,061,153	76,812,853	11,296,008	76,812,853
Jun 1988	44.0	7,604,250	11,148,102	60,833,994	9,331,990	37,646,847

26. DATE OF SURVEY	37. PERIOD CAPACITY LOSS, ACRE-FEET a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	38. TOTAL SED. DEPOSITS TO DATE, ACRE-FEET a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR
Jun 1980	5,131	760.15	0.56 61	5131	760.15	0.56 61
Jun 1988	4,240	530.00	0.39 61 —	9371	635.32	0.47 61

26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PER SQ. MI.-YR. a. PERIOD	b. TOTAL TO DATE	41. STORAGE LOSS, PCT. a. AV. ANN.	b. TOT. TO DATE	42. SED. INFLOW, PPM a. PERIOD	b. TOT. TO DATE
Jun 1980	----------	- No sediment samples taken--		----------	----------	----------	----------
Jun 1988	----------	- No sediment samples taken--					

ENG FORM 1787 NOV 65 PREVIOUS EDITIONS ARE OBSOLETE

EXHIBIT No. 63

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW AND ABOVE CREST ELEVATION											
	72-68	68-58	58-48	48-38	38-28	28-18	18-8	8-0	7‡			
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Jun 1980	32.64	32.90	32.10	1.17	18.36	18.40	-26.14	-9.40				
Jun 1988	22.10	19.54	25.00	7.96	7.77	28.67	-8.60	-2.44				

26. DATE OF SURVEY	44 REACH DESIGNATION PERCENT OF TOTAL ORIGINAL LENGTH OF RESERVOIR												
	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	-105	-110	-115	-120	-125
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
Jun 1980	46.24	28.12	11.10	2.45	3.44	-.42	7.50	7.57	.42	-6.42					
Jun 1988	29.65	19.51	14.02	11.67	6.40	1.13	7.73	8.60	1.08	0.21					

45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1968	487.50	445.90	10,742,274	1980	504.70	499.00	10,343,808
1969	485.35	466.10	5,097,518	1981	504.70	499.00	5,153,430
1970	486,84	464.50	8,364,888	1982	505.45	498.98	9,861,741
1971	487.60	466.53	10,404,296	1983	504.50	499.17	10,481,683
1972	487,87	466.56	12,570,637	1984	507.50	499.00	9,709,374
1973	505.65	467.13	13,681,118	1985	504.50	499.00	6,694,760
1974	505.71	497.65	13,601,183	1986	504.64	498.98	5,089,931
1975	508.00	498.96	13,630,081	1987	504.83	499.00	8,130,383
1976	505.00	498.85	9,667,589	1988	504.80	499.00	4,471,229
1977	504.70	498.65	7,188,348				
1978	504.70	499.00	10,482,166				
1979	505.20	499.00	13,116,927				

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
427	0	0	454	1,312	13,266	484	4,556	89,925
430	0	0	457	1,507	17,008	487	5,409	104,761
433	60	240	460	1,623	22,303	490	6,589	125,674
436	200	506	463	1,877	27,598	493	7,697	146,587
439	390	1,961	466	2,131	32,897	496	8,768	167,500
442	578	3,416	469	2,352	40,568	499	8,891	198,337
445	821	4,871	472	2,587	48,239	502	11,169	229,174
448	924	7,332	475	2,852	55,910	505	12,440	262,074
451	1,079	10,299	478	3,311	66,333	508	13,920	301,529
			481	3,868	78,129	511	15,400	345,485
						514	16,910	393,937

47. REMARKS AND REFERENCES

1/ Sediment deposition calculated below elevation 508.0, flood control pool. Elevation given is top of spillway gates in the closed position.

2/ Date reservoir reached full pool elevation.

3/ Cumberland River length from Cordell Hull Dam to Celina, Tennessee.

4/ Distance along the Cumberland River from Wolf Creek to Cordell Hull.

5/ Crest of Baylock Mountain, Putnam County.

6/ The uncontrolled drainage area of 1,350 acre feet was used to calculate the sediment rate.

7/ Top of power pool set as crest elevation.

48. AGENCY MAKING SURVEY U.S. Army Corps of Engineers

49. AGENCY SUPPLYING DATA U.S Army Corps of Engineers

50. DATE March 1989