

TENNESSEE VALLEY AUTHORITY
RESERVOIR SEDIMENTATION
DATA SUMMARY

Cherokee
NAME OF RESERVOIR

HYDRAULIC DATA BRANCH
20-5 b
DATA SHEET NO.

DAM	1. OWNER TVA			2. RIVER Holston			3. STATE Tennessee			
	4. SEC. TWP. RANGE			5. NEAREST TOWN Jefferson City			6. COUNTY Grainger-Jefferson			
	7. STREAM BED ELEV. 915			8. TOP OF DAM ELEV. 1,089			9. SPILLWAY CREST ELEV. 1/1,075			
RESERVOIR	10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. SURFACE AREA ACRES	13. STORAGE ACRE- FEET	14. ACCUMULATED ACRE- FEET	15. DATE STORAGE BEGAN				
	a. FLOOD CONTROL					12/5/41				
	b. POWER									
	c. MULTIPLE USE	1,075	30,650	1,556,130	1,559,570	16. DATE NORMAL OPER BEGAN				
	d. INACTIVE	2/ 935	450	3,440	3,440	4/16/42				
17. LENGTH OF RESERVOIR 59 MILES			AV. WIDTH OF RESERVOIR 0.81 MILES							
WATERSHED	18. TOTAL DRAINAGE AREA 3,428 SQ. MI.			22. MEAN ANNUAL PRECIPITATION 44.1(24) INCHES						
	19. NET SEDIMENT CONTRIBUTING AREA 3/ 1,477 SQ. MI.			23. MEAN ANNUAL RUNOFF 18.2(42) INCHES						
	20. LENGTH 219 MILES AV. WIDTH 16 MILES			24. MEAN ANNUAL RUNOFF 3,330,000 AC.-FT.						
	21. MAX. ELEV. 5,964 MIN. ELEV. 915			25. CLIMATIC CLASSIFICATION Humid						
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 _w RATIO AC.-FT. PER SQ. MI.		
	Dec. 5, 1941	0	0	Range	29	30,650	1,559,570	455		
	Apr. 21, 1949	7.4	7.4	Range	27	30,650	1,550,932	453		
	Apr. 29, 1954	5.0	12.4	Range	26	30,650	1,547,776	3/ -		
	Jun. 5, 1959	5.1	17.5	Range	27	30,650	1,545,960	-		
	(D)									
	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			
	Apr. 21, 1949	44.9	3,076,343	3,490,700	22,765,310	3,076,393	22,765,310			
	Apr. 29, 1954	45.2	3,030,439	4,280,829	15,152,197	3,057,863	37,917,507			
Jun. 5, 1959	45.8	3,219,104	4,023,058	16,417,431	3,104,854	54,334,938				
26. DATE OF SURVEY	37. PERIOD SEDIMENT DEPOSITS 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				
Apr. 21, 1949	8,638	1,167	0.340	8,638	1,167	0.340				
Apr. 29, 1954	3,157	631	3/	11,795	951	3/				
Jun. 5, 1959	1,815	356	0.241	13,610	778	0.527				
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. ANNUAL	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE			
Apr. 21, 1949	55*	407	407	0.075	0.554	334	334			
Apr. 29, 1954	55*	3/	3/	0.061	0.756	134	274			
Jun. 5, 1959	55*	289	631	0.050	0.873	97	221			

1/ Top of Gates.

2/ Centerline of Sluice

3/ Sediment contributing area reduced from 3,381 sq. mi. to 1,477 sq. mi. by closing of Watauga Dam on Dec. 1, 1948, South Holston on Nov. 20, 1950, Boone on Dec. 16, 1952, and Fort Patrick Henry on Oct. 27, 1953. Area above Watauga included in 1949 Survey as sediment contributing area.

* Assumed.

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											Top of Gates.
	166-150	150-135	135-120	120-105	105-90	90-75	75-60	60-45	45-30	30-15	15-	
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Apr. 21, 1949	1	1	8	11	34	21	12	5	1	0	0	
Apr. 29, 1954	1	1	8	15	32	22	14	6	1	0	0	
Jun. 5, 1959	1	5	9	16	31	21	12	5	1	4/-1	0	

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														
Apr. 21, 1949	27	13	10	9	20	15	6	0	0	0					
Apr. 29, 1954	23	12	12	11	18	15	9	0	0	0					
Jun. 5, 1959	23	13	12	12	17	16	7	0	0	0					

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1943	1071.04	1042.75	3,490,700	1952	1058.24	1017.08	2,880,268
1944	1074.37	1011.64	2,922,772	1953	1052.84	1001.12	2,732,140
1945	1059.58	1016.24	3,447,515	1954	1045.60	980.77	2,103,813
1946	1069.84	1019.79	3,190,779	1955	1060.25	982.00	2,899,837
1947	1045.12	990.83	2,783,636	1956	1068.33	981.15	2,674,151
1948	1058.55	980.94	2,869,149	1957	1062.43	995.25	4,023,058
1949	1072.33	997.88	3,355,598	1958	1073.40	1001.53	3,947,401
1950	1068.21	1015.94	4,280,829	1959	1051.78	985.10	2,512,585
1951	1061.96	1008.83	2,616,798				

46. ELEVATION-AREA-CAPACITY DATA (1941)								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
909	0	0	970	3,040	54,530	1,060	24,930	1,143,590
920	30	150	980	4,420	91,410	1,075	30,650	1,559,570
930	270	1,470	990	6,000	143,340			
940	620	5,410	1,000	7,880	212,500			
950	1,230	14,180	1,020	12,360	409,790			
960	1,950	29,850	1,040	18,270	712,580			

47. REMARKS AND REFERENCES
 4/ (-) Minus indicates scour. Treated as negative sediment.
 * Assumed.

48. AGENCY SUPPLYING DATA
 TENNESSEE VALLEY AUTHORITY
 HYDRAULIC DATA BRANCH

49. DATE ~~September 1, 1960~~

TENNESSEE VALLEY AUTHORITY
 RESERVOIR SEDIMENTATION
 DATA SUMMARY

Cherokee

NAME OF RESERVOIR

HYDRAULIC DATA BRANCH

20-5c

DATA SHEET NO.

DAM	1. OWNER TVA			2. RIVER Holston			3. STATE Tennessee					
	4. SEC. TWP. RANGE			5. NEAREST TOWN Jefferson City			6. COUNTY Grainger-Jefferson					
	7. STREAM BED ELEV. 915			8. TOP OF DAM ELEV. 1089			9. SPILLWAY CREST ELEV. 1/ 1075					
RESERVOIR	10. STORAGE ALLOCATION		11. ELEVATION TOP OF POOL		12. SURFACE AREA ACRES		13. STORAGE ACRE- FEET		14. ACCUMULATED ACRE- FEET		15. DATE STORAGE BEGAN	
	a. FLOOD CONTROL											
	b. POWER										12/5/41	
	c. MULTIPLE USE		1075		30, 650		1, 556, 130		1, 559, 570		16. DATE NORMAL OPER. BEGAN	
	d. INACTIVE		2/ 935		450		3, 440		3, 440			
											4/16/42	
WATERSHED	17. LENGTH OF RESERVOIR 59 MILES				AV. WIDTH OF RESERVOIR 0.81 MILES							
	18. TOTAL DRAINAGE AREA 3428 SQ. MI.				22. MEAN ANNUAL PRECIPITATION 44.2(28) INCHES							
	19. NET SEDIMENT CONTRIBUTING AREA 3/ 1477 SQ. MI.				23. MEAN ANNUAL RUNOFF 18.1(47) INCHES							
	20. LENGTH 219 MILES		AV. WIDTH 16 MILES		24. MEAN ANNUAL RUNOFF 3, 309, 000 AC.-FT.							
	21. MAX. ELEV. 5964		MIN. ELEV. 915		25. CLIMATIC CLASSIFICATION Humid							
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/W RATIO AC.-FT. PER SQ. MI.			
	Dec. 5, 1941		0	0	Range	29	30, 650	1, 559, 570	455			
	Jun. 5, 1964		5.0	22.5	Range	26	30, 650	1, 543, 927	-			
	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	d. MEAN ANNUAL	e. TOTAL TO DATE				
	Jun. 5, 1964		44.4		3, 179, 970	4, 129, 082	15, 899, 851	3, 121, 546	70, 234, 789			
	26. DATE OF SURVEY		37. PERIOD SEDIMENT DEPOSITS ACRE- FEET			38. TOTAL SED. DEPOSITS TO DATE ACRE- FEET.						
			a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	d. TOTAL TO DATE	e. AV. ANNUAL	f. PER SQ. MI.-YEAR				
	Jun. 5, 1964		2, 033	407	0.276	15, 643	695	0.471				
	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. ANNUAL	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE					
Jun. 5, 1964		55*	331	564	0.045	1.003	113	196				

*Assumed

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											Top of Gates			
	166-150	150-135	135-120	120-105	105-90	90-75	75-60	60-45	45-30	30-15	15-				
Jun. 5, 1964	1	3	9	16	33	25	14	6	0	4/-6	4/-1				
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION															
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
Jun. 5, 1964	23	15	14	12	17	15	6	4/-1	4/-1	0					
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION															
45. RANGE IN RESERVOIR OPERATION															
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.								
1960	1060.41	1009.50	3,300,393												
1961	1060.46	992.80	2,889,099												
1962	1067.58	1007.75	4,129,082												
1963	1057.84	1003.80	3,323,523												
1964	1064.18	1000.42	2,379,647												
46. ELEVATION-AREA-CAPACITY DATA															
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY							
909	0	0	980	4,420	91,410										
920	30	150	990	6,000	143,340										
930	270	1,470	1000	7,880	212,500										
940	620	5,410	1020	12,360	409,790										
950	1,230	14,180	1040	18,270	712,850										
960	1,950	29,850	1060	24,930	1,143,590										
970	3,040	54,530	1075	30,650	1,559,570										
47. REMARKS AND REFERENCES															
1/ Top of Gates.															
2/ Centerline of sluice.															
3/ Sediment contributing area reduced from 3,381 sq. mi. to 1,477 sq. mi. by closing of Watauga Dam on Dec. 1, 1948, South Holston on Nov. 20, 1950, Boone on Dec. 16, 1952, and Fort Patrick Henry on Oct. 27, 1953. Area above Watauga included in 1949 Survey as sediment contributing area.															
48. AGENCY SUPPLYING DATA 4/ (-) Minus indicates scour. Treated as negative sediment.															
TENNESSEE VALLEY AUTHORITY															
HYDRAULIC DATA BRANCH															
49. DATE <u>September 1, 1963</u>															

RESERVOIR SEDIMENT
DATA SUMMARY

Cherokee
NAME OF RESERVOIR

20-5C
DATA SHEET NO.

DAM	1. OWNER TVA			2. STREAM Holston			3. STATE Tennessee					
	4. SEC. TWP. RANGE			5. NEAREST POST OFF. Jefferson City			6. COUNTY Grainger, Jefferson					
7. LAT. 36° 10' 01" LONG. 83° 29' 52"			8. TOP OF DAM ELEVATION 1089			9. SPILLWAY CREST ELEV. 1/ 1075						
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											
	b. MULTIPLE USE		1,075		30,650		1,556,130		1,559,570		12-5-41	
	c. POWER											
	d. WATER SUPPLY										16. DATE NORMAL OPER. BEGAN	
	e. IRRIGATION											
	f. CONSERVATION											
g. INACTIVE		2/ 935		450		3,440		3,440		4-16-42		
WATERSHED	17. LENGTH OF RESERVOIR 54 MILES				AV. WIDTH OF RESERVOIR 0.81 MILES							
	18. TOTAL DRAINAGE AREA 3428 SQ. MI.				22. MEAN ANNUAL PRECIPITATION 44.1 INCHES							
	19. NET SEDIMENT CONTRIBUTING AREA 3/ 1,477 SQ. MI.				23. MEAN ANNUAL RUNOFF 17.8 INCHES							
	20. LENGTH 219 MILES		AV. WIDTH 16 MILES		24. MEAN ANNUAL RUNOFF 3,254,111 AC.-FT.							
	21. MAX. ELEV. 5,964		MIN. ELEV. 915		25. ANNUAL TEMP.: MEAN 56° RANGE -11 to 103							
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.			
	12-05-41		0	0	Range	29	30,650	1,559,570	.468			
	10-01-79		15.3	37.8	Range	28	30,650	1,543,070	-			
	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			
	10-01-79		46.5"		3,444,446	5,145,614	52,700,030	3,252,244	122,934,819			
	26. DATE OF SURVEY		37. PERIODIC 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				
	10-01-79		857	56	0.038	16,500	437	0.296				
	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. TOTAL TO DATE	b. PERIOD	a. AV. AN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE					
10-01-79		*55	45.5	355	.028	1.06	14.3	118				

*Assumed

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION											
	166-150	150-135	135-120	120-105	105-90	90-75	75-60	60-45	45-30	30-15	15-top of	es
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION												
10-01-79	1	1	11	18	35	30	18	4	4/-6	4/-12	4/-2	

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															
10-01-79	15	5	11	11	16	19	18	6	0	+/-1					

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1965	1,071.13	1,019.20	2,888,946	1976	1,057.48	1,024.16	2,312,158
1966	1,051.56	988.40	2,578,804	1977	1,060.97	1,014.26	3,321,887
1967	1,071.09	1,018.20	3,399,390	1978	1,059.17	1,022.71	4,056,198
1968	1,062.08	1,018.40	3,289,325	1979	1,071.88	1,026.65	4,058,043
1969	1,052.74	1,006.68	2,288,923				
1970	1,056.47	1,008.69	2,768,597				
1971	1,062.14	1,005.34	2,674,750				
1972	1,071.65	1,027.63	3,952,491				
1973	1,074.47	1,029.84	4,908,032				
1974	1,071.88	1,033.87	5,145,614				
1975	1,071.31	1,030.00	4,545,137				

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
909	0	0	990	6,000	129,580			
920	30	0	1,000	7,880	196,130			
930	270	1,080	1,020	12,360	389,500			
940	620	4,620	1,040	18,270	693,200			
950	1,230	12,200	1,060	24,930	1,126,680			
960	1,950	26,730	1,075	30,650	1,543,070			
970	3,040	48,940						
980	4,420	82,330						

47. REMARKS AND REFERENCES

1/ Top of gates.

2/ Centerline of sluice.

3/ Sediment contributing area reduced from 3,381 sq. mi. to 1,477 sq. mi. by closing of Watauga Dam on December 1, 1948, South Holston on November 20, 1950, Boone on December 16, 1952, and Ft. Patrick Henry on October 27, 1953. Area above Watauga included in 1949 Survey as sediment contributing area.

4/ (-) Minus indicates scour. Treated as negative sediment. For preceding data, see sheets 20-5a and b.