

**RESERVOIR SEDIMENT  
DATA SUMMARY**

**HEYBURN RESERVOIR**  
NAME OF RESERVOIR

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS

45-39

DATA SHEET NO.

<b>DAM</b>	1. OWNER Corps of Engineers			2. STREAM Polecat Creek			3. STATE Oklahoma				
	4. SEC. 18' TWP. 17N RANGE 10E			5. NEAREST TOWN Heyburn			6. COUNTY Creek				
	7. STREAM BED ELEVATION 723.7			8. TOP OF DAM ELEVATION 807			9. SPILLWAY CREST ELEV. 784				
<b>RESERVOIR</b>	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. MULTIPLE USE					March 1950					
	b. FLOOD CONTROL	784	3,700	49,500	59,700						
	c. POWER					16. DATE NORMAL OPER. BEGAN  10 Mar 51					
	d. WATER SUPPLY	761.5-755.4 <sup>1/</sup>	-	5,200 <sup>1/</sup>	10,200						
	e. IRRIGATION										
	f. CONSERVATION	761.5	1,070	10,200	10,200						
	g. SEDIMENT										
h. INACTIVE											
17. LENGTH OF RESERVOIR 11.1 MILES			AV. WIDTH OF RESERVOIR 0.5 MILES								
<b>WATERSHED</b>	18. TOTAL DRAINAGE AREA 123 SQ. MI.			22. MEAN ANNUAL PRECIPITATION 34.71 INCHES							
	19. NET SEDIMENT CONTRIBUTING AREA 117 SQ. MI.			23. MEAN ANNUAL RUNOFF 6.28 INCHES							
	20. LENGTH 14.2 MILES			AV. WIDTH 8.66 MILES			24. MEAN ANNUAL RUNOFF (16.2 yrs) 41,220 AC.-FT.				
	21. MAX. ELEV. 1050			MIN. ELEV. 723.7			25. CLIMATIC CLASSIFICATION HUMID				
<b>SURVEY DATA</b>	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.			
	Mar 1950	-	-	Range (D)	23	3,700	59,650	485			
	Dec 1959	9.8	9.8	Range (D)	23	3,700	57,270	466			
	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				
	Dec 1959	32.98	37,420	104,900	366,680	37,420	366,680				
	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				
Dec 1959	2,380	243	2.08	2,380	243	2.08					
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. AN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE				
Dec 1959	77.23 (15)	3,499	3,499	0.41	3.99	8,033	8,033				

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION										
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION										
Dec 1959	0.6	1.5	3.7	7.2	14.7	17.4	23.8	20.4	7.6	1.4	1.2

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														
Dec 1959	8.4	8.6	19.3	39.1	10.0	9.5	4.1	0.2	0.0	0.8					

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV. ♡	INFLOW AC.-FT.
1950 (7 mos)	-	-	41,990				
1951	763.31	754.85	19,280	1958	772.60	761.37	72,840
1952	763.87	760.47	20,900	1959	769.36	761.29	42,470
1953	765.26	759.80	26,030	1960	769.70	761.60	12,700
1954	766.65	759.29	13,750	(2 mos)			
1955	764.12	758.67	7,580				
1956	762.28	758.74	4,240				
1957	771.08	758.48	104,900				

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
725	0		761.5	977	8,210	795	5,267	106,600
730	11	14	765	1,289	12,180	800	6,020	134,800
735	32	122	770	1,698	19,470			
740	75	377	775	2,382	29,690			
745	132	909	780	3,165	43,530			
750	248	1,870	784	3,704	57,270			
755	481	3,600	785	3,849	61,110			
760	838	6,800	790	4,553	81,990			

47. REMARKS AND REFERENCES

1/ Utilization of storage for municipal water supply was authorized by the Flood Control Act of 30 June 1948. Under the Act approved May 23, 1952 (Public Law 360, 82nd Congress, 2d Session), the Government was authorized to, and did make the waters stored between m.s.l. elevations 761.5 feet and 755.4 feet available for water supply.

48. AGENCY MAKING SURVEY

49. AGENCY SUPPLYING DATA Department of the Army, CE, Tulsa Dist

50. DATE Revised June 1964

RESERVOIR SEDIMENT  
DATA SUMMARY

DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS

Heyburn Lake

NAME OF RESERVOIR

45-39a

DATA SHEET NO.

DAM	1. OWNER Corps of Engineers		2. STREAM Polecat Creek		3. STATE Oklahoma			
	4. SEC. 18 TWP. 17N RANGE 10E		5. NEAREST P.O. Heyburn		6. COUNTY Creek			
	7. LAT. 35° 56' 52" LONG. 96° 17' 55"		8. TOP OF DAM ELEVATION 807.0		9. SPILLWAY CREST ELEV. 784.0			
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	784.0	3,700	43,450	59,650	March 1950		
	b. MULTIPLE USE							
	c. POWER							
	d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN		
	e. IRRIGATION							
	f. CONSERVATION	761.5 <sup>1/2</sup>	1,070	10,200	10,200			
g. INACTIVE					10 Mar 1951			
WATERSHED	17. LENGTH OF RESERVOIR 11.1 MILES		AV. WIDTH OF RESERVOIR 0.5 MILES					
	18. TOTAL DRAINAGE AREA 123 SQ. MI.		22. MEAN ANNUAL PRECIPITATION 35.66 INCHES					
	19. NET SEDIMENT CONTRIBUTING AREA 117 SQ. MI.		23. MEAN ANNUAL RUNOFF 6.01 (28 yr) INCHES					
	20. LENGTH 14.2 MILES		AV. WIDTH 8.66 MILES		24. MEAN ANNUAL RUNOFF 39,420 (28 yr) AC.-FT.			
	21. MAX. ELEV. 1050		MIN. ELEV. 723.7		25. ANNUAL TEMP MEAN - RANGE -			
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.
	Mar 1950	-	-	Range (D)	23	3,700	59,650	1.41
	Dec 1959	9.8	9.8	Range (D)	23	3,700	57,270	1.35
	1 Oct 1971	11.8	21.6	Range (D)	23	3,700	55,026	1.40
	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		
	Dec 1959	32.98	39,190 <sup>2/</sup>	104,900	384,060 <sup>3/</sup>	39,190 <sup>2/</sup>	384,060 <sup>3/</sup>	
	1 Oct 1971	34.62	35,460	68,880	418,440	37,150	802,500	
	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	
Dec 1959	2,380	243	2.08	2,380	243	2.08		
1 Oct 1971	2,244	190	1.62	4,624	214	1.83		
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	
Dec 1959	77.23	3,499	3,499	0.41	3.99	7,690 <sup>2/</sup>	7,690 <sup>2/</sup>	
1 Oct 1971	91.51	3,776	3,647	0.36	7.75	9,170	8,450	

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION												
	60-50	50-40	40-30	30-20	20-10	10-Crest							
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION												
Dec 1959	2.1	10.9	32.6	44.2	9.0	1.2							
1 Oct 1971	2.0	8.8	30.3	40.8	12.9	5.2							

  

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														
Dec 1959	8.4	8.6	19.3	39.1	10.0	9.5	4.1	0.2	0.0	0.8					
1 Oct 1971	13.2	8.1	16.9	32.8	11.0	7.6	6.8	2.2	0.8	0.6					

  

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1950 (7 mos)	-	-	41,990	1962	770.1	761.3	68,880
1951	763.3	754.8	19,280	1963	765.1	761.0	16,910
1952	763.9	760.5	20,900	1964	771.4	759.8	35,800
1953	765.3	759.8	26,030	1965	764.5	760.6	25,180
1954	766.6	759.3	13,750	1966	765.4	760.7	16,250
1955	764.1	758.7	7,580	1967	764.3	759.8	18,380
1956	762.3	758.7	4,240	1968	764.0	760.7	20,500
1957	771.1	758.5	104,900	1969	765.2	760.8	34,130
1958	772.6	761.4	72,840	1970	765.1	760.5	23,000
1959	769.4	761.3	42,470	1971	770.0	760.8	46,270
1960	769.7	761.3	96,180				
1961	766.9	761.1	47,040				

  

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
Original Capacity (1949)			1971 Capacity			772	1,998	21,091
720	0	0	730	0	0	776	2,561	30,016
740	85	543	740	47	256	780	3,173	41,350
755.4	550	5,000	750	211	1,375	784	3,700	55,026
761.5	1,070	10,200	755.4	394	2,780	788	4,200	70,326
768	1,490	18,590	758	637	4,098	792	4,770	89,096
776	2,475	34,460	761.5	917	6,617	796	5,370	109,456
784	3,700	59,650	764	1,157	9,243	800	6,020	132,336
800	6,020	136,960	768	1,469	14,442			

  

47. REMARKS AND REFERENCES

1. Includes water supply storage between elevations 755.4 and 761.5.
2. Revision due to change in period total inflow.
3. Correction resulting from revision of tentative inflows for October and November 1959.

This report prepared in part by Wheeler and Associates, Consulting Engineers, Tulsa, Oklahoma.

  

48. AGENCY MAKING SURVEY Dept. of the Army, Corps of Engineers, Tulsa District  
 49. AGENCY SUPPLYING DATA Corps of Engineers, Dept. of Army 50. DATE 3 August 1972