

RESERVOIR SEDIMENT
DATA SUMMARY

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

DARDANELLE RESERVOIR
NAME OF RESERVOIR

44-13

DATA SHEET NO.

DAM	1. OWNER Dept. of the Army, C.ofE.		2. STREAM Arkansas River		3. STATE Arkansas		
	4. SEC. 18-19 TWP. 7N RANGE 20W		5. NEAREST P O Dardanelle, 2NW		6. COUNTY Pope-Yell		
	7. LAT 35° 14' 55" LONG 93° 10' 15"		8. TOP OF DAM ELEVATION 355		9. SPILLWAY CREST ELEV. 338.0 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					Oct. 1, 1964	
	b. MULTIPLE USE						
	c. POWER	338.0	33,920	60,600	460,300		
	d. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN Jan. 21, 1965	
	e. IRRIGATION						
	f. CONSERVATION 2/	336.0	30,690	390,600	399,700		
	g. INACTIVE 3/	300.0	1,420	9,100	9,100		
17. LENGTH OF RESERVOIR 50.9 MILES			AV. WIDTH OF RESERVOIR 1.04 MILES				
WATERSHED	18. TOTAL DRAINAGE AREA 153,703 4/ SQ. MI.		22. MEAN ANNUAL PRECIPITATION 12-50 INCHES				
	19. NET SEDIMENT CONTRIBUTING AREA 11,333 SQ. MI.		23. MEAN ANNUAL RUNOFF 3.02 (30 yrs) INCHES				
	20. LENGTH 1,184 MILES	AV. WIDTH 130 MILES	24. MEAN ANNUAL RUNOFF 24,770,000 (30 yr) AC.-FT.				
	21. MAX. ELEV. 14,431		MIN. ELEV. 287		25. ANNUAL TEMP MEAN 56 RANGE -21 to 113		
	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
Oct 1, 1964			Range (D)	52	33,920	460,300	.0532
Oct 31, 1965	1.08	1.08	Range (D)	52	30,690 2/ 1,420 3/	399,700 2/ 9,100 3/	.0532
Apr 30, 1968	2.50	3.58	Range (D)	52	33,850 27,330 25,050 2/ 1,250 3/	452,600 443,500 383,500 2/ 9,200 3/	.0540
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	
Oct 31, 1965		16,800,000	18,050,000	18,200,000	16,800,000	18,200,000	
Apr 30, 1968		15,064,000	11,100,000	37,660,000	15,603,350	55,860,000	
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	
Oct 31, 1965	7,700	7,100	.626	7,700	7,100	.626	
Apr 30, 1968	9,100	3,640	.321	16,800	4,690	.414	
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
Oct 31, 1965	80*	1,090	1,090	1.54	1.67	542	542
Apr 30, 1968	80	560	720	1.02	3.65	310	386

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW. [REDACTED] CREST ELEVATION											
	54-46	46-38	38-34	34-30	30-26	26-22	22-18	18-14	14-10	10-6	6-2	2-0
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Oct 1965	-2.6	+1.3	-1.3	+5.2	+6.5	+13.0	-2.6	+23.4	+31.1	+15.6	+5.2	+5.2
Apr 1968	+3.0	-3.6	+1.8	+7.6	+3.6	+7.1	+4.2	+19.1	+28.6	+19.0	+6.0	+3.6

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														
Oct 1965	-19.5	-24.7	+33.8	+32.4	-2.6	+33.8	+10.4	+24.7	+6.5	+5.2					
Apr 1968	-1.2	-4.9	+12.5	+18.4	+8.9	+24.3	+5.5	+17.3	+5.4	+3.6					

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC. FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC. FT.
1965	338.22	336.07	5/ 18,050,000				
1966	338.29	336.29	11,100,000				
1967	338.24	336.00	9,934,000				
1968 6/	338.11	335.88	16,775,000				

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
Original Survey - 1964			308	4,300	31,500	324	10,500	145,600
338	33,920	460,300	304	2,630	16,900	320	8,070	102,900
336	30,680	399,700	300	1,410	9,100	316	6,200	71,400
332	24,450	295,700	292	290	2,900	312	4,550	48,400
328	18,080	215,300	270	0	0	308	3,770	30,000
324	13,590	152,800	1968 Survey			304	2,380	16,700
320	9,960	106,900	338	27,330	443,500	300	1,250	9,200
316	6,860	74,700	336	25,050	383,500	292	322	2,900
312	5,110	50,500	332	19,480	280,500	270	0	0
			328	13,540	203,300			

47. REMARKS AND REFERENCES

- 1/ The tops of the gates in closed position are at elevation 339.0; however, gates are operated to limit the pool to elevations between 336 and 338 at the dam.
- 2/ Top of navigation pool.
- 3/ Top of spillway sill.
- 4/ 22,241 square miles is probably noncontributing.
- 5/ Minimum in water year 1965 after initial filling to bottom of power pool January 21, 1965.
- 6/ Through April 1968 (estimated).
- 7/ Adjustment based on inflow from net sediment contributing area (Item 19) as taken from USGS W.S. Papers. 1964 (8,673,000 AC. FT.); 1965 (8,510,000 AC. FT.); 1968 (8,200,000 AC. FT.)

48. AGENCY MAKING SURVEY Department of the Army, Corps of Engineers

49. AGENCY SUPPLYING DATA Southwestern Div., Little Rock Dist. 50. DATE October 16, 1969

RESERVOIR SEDIMENT
DATA SUMMARY

LAKE DARDANELLE
NAME OF RESERVOIR

44-13

DATA SHEET NO.

DAM	1. OWNER: Dept. of the Army, C. of E.		2. STREAM: Arkansas River		3. STATE: Arkansas											
	4. SEC 18-19 TWP. 7N RANGE 20W		5. NEAREST P.O. Dardanelle 2HW		6. COUNTY: Pope-Yell											
	7. LAT 35° 15' 01.6" LONG 93° 10' 07.6"		8. TOP OF DAM ELEVATION: 355		9. SPILLWAY CRIST ELEV. 339.0 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				Oct 1, 1964											
	b. MULTIPLE USE															
	c. POWER		338.0		33,920											
	d. WATER SUPPLY				60,600											
	e. IRRIGATION				460,300											
	1. CONSERVATION 2/		336.0		30,680											
2. IMPACTIVE 3/		300.0		1,420												
				390,600												
				399,700												
				9,100												
				9,100												
17. LENGTH OF RESERVOIR		49.1 MILES		AV. WIDTH OF RESERVOIR		1.08 MILES										
WATERSHED	18. TOTAL DRAINAGE AREA		153,666 SQ. MI.		22. MEAN ANNUAL PRECIPITATION		12-50 INCHES									
	19. NET SEDIMENT CONTRIBUTING AREA		11,335 SQ. MI.		23. MEAN ANNUAL RUNOFF		2.99 (35 yrs) INCHES									
	20. LENGTH		1.184 MILES		AV. WIDTH		130 MILES									
	21. MAX. ELEV.		14,431		MIN. ELEV.		287									
					24. MEAN ANNUAL RUNOFF		24,540,000 (35 yrs) AC.-FT.									
				25. ANNUAL TEMP: MEAN		56 RANGE -21 to 113										
SURVEY DATA	25. 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, 4/ AC.-FT. PER AC.-FT.	
	Oct 1, 1964						Range (D)		52		33,920		460,300		.0532	
	Oct 31, 1965		1.08		1.08		Range (D)		52		33,850		452,600		.0532	
	Apr 30, 1968		2.50		3.58		Range (D)		52		27,330		443,500		.0540	
	Oct 21, 1970		2.48		6.06		Range (D)		52		33,550		433,250		.0540	
	May 30, 1972		1.61		7.67		Range (D)		52		33,110		439,490		.0563	
											30,650 2/		378,370 2/			
											1,200 3/		7,420 3/			
	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			
	Oct 31, 1965				16,800,000		18,050,000		18,200,000		16,800,000		18,200,000			
	Apr 30, 1968				15,064,000		11,100,000		37,660,000		15,603,000		55,860,000			
	Oct 21, 1970				27,375,000		34,540,000		67,890,000		20,421,000		123,750,000			
	May 30, 1972				17,565,000		16,500,000		23,280,000		19,821,000		152,030,000			
	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				
Oct 31, 1965		7,700		7,100		.626		7,700		7,100		.626				
Apr 30, 1968		9,100		3,640		.321		16,800		4,690		.414				
Oct 21, 1970		10,250		4,133		.365		27,050		4,464		.394				
May 30, 1972		-6,240		-3,876		-.342		20,810		2,713		.239				
26. DATE OF SURVEY		39. AV. DRY WGT., LBS. PER CU. FT.		40. SED. DLP., 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		
Oct 31, 1965		80*		1,090		1,090		1.54		1.67		542		542		
Apr 30, 1968		80*		560		720		1.02		3.65		310		386		
Oct 21, 1970		80*		635		687		0.97		5.88		193		280		
May 30, 1972		80*		-596		416		0.59		4.52		37		229 5/		

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FLET BELOW, CREST ELEVATION													
	54-46	46-38	38-34	34-30	30-26	26-22	22-18	18-14	14-10	10-6	6-2	2-0		
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
Oct 1965	-2.6	+1.3	-1.3	+5.2	+6.5	+13.0	-2.6	+23.4	+31.1	+15.6	+5.2	+5.2		
Apr 1968	+3.0	-3.6	+1.8	+7.6	+3.6	+7.1	+4.2	+19.1	+28.6	+19.0	+6.0	+3.6		
Oct 1970	+3.9	+14.5	+13.5	+15.9	+19.3	+19.4	+24.4	+28.8	-24.2	-2.7	-12.6	-0.2		
May 1972	+2.8	-4.5	+0.9	-8.7	-13.7	+1.5	+0.4	-12.2	+1.0	-21.3	-28.6	-17.6		
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
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION													
Oct 1965	-19.5	-24.7	+33.8	+32.4	-2.6	+33.8	+10.4	+24.7	+6.5	+5.2				
Apr 1968	-1.2	-4.9	+12.5	+13.4	+8.9	+24.3	+15.5	+17.3	+5.4	+3.6				
Oct 1970	+20.8	+24.1	+15.4	+4.0	+21.0	+24.6	+3.7	-8.7	-17.8	-25.1				
May 1972	-1203	-25.2	-17.1	+15.5	+56.1	-24.4	+2.4	-1.6	+8.9	+5.7				
45. RANGE IN RESERVOIR OPERATION														
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.							
1965	338.22	336.07	18,050,000											
1966	338.29	336.29	11,100,000											
1967	338.24	336.00	9,934,000											
1968	338.22	335.88	27,800,000											
1969	338.27	336.03	34,540,000											
1970	338.31	335.81	21,500,000											
1971	338.10	336.03	16,500,000											
1972	338.15	336.01	15,380,000											
46. ELEVATION-AREA-CAPACITY DATA														
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY						
Original Survey - 1964			308	4,300	31,500	324	12,120	133,400						
338	33,920	460,300	304	2,630	16,900	320	8,290	92,900						
336	30,680	399,700	300	1,410	9,100	316	6,120	63,900						
332	24,450	295,700	292	290	2,900	312	4,740	42,700						
328	18,080	215,300	270	0	0	308	3,660	25,700						
324	13,590	152,800	1972 Survey			304	1,970	13,500						
320	9,960	106,900	330	33,110	439,500	300	1,200	7,400						
316	6,860	74,700	336	30,650	378,400	292	290	2,300						
312	5,110	50,500	332	23,220	272,300	270	0	0						
			328	16,970	193,500									
47. REMARKS AND REFERENCES														
1/ Top of spillway gates in closed position.														
2/ Top of navigation pool.														
3/ Spillway crest.														
4/ Adjustment based on inflow from net sediment contributing area (Item 19) as taken from USGS Water Resources Data; 1964 (8,673,000 AC. FT.); 1965 (8,510,000 AC. FT.); 1968 (8,200,000 AC. FT.); 1970 (8,021,000 AC. FT.); 1972 (7,808,010 AC. FT.).														
5/ Computed from measured suspended sediment concentrations.														
48. AGENCY MAKING SURVEY Department of the Army, Corps of Engineers														
49. AGENCY SUPPLYING DATA Southwestern Div., Little Rock Dist. 50. DATE 1 Nov 76														