

RESERVOIR SEDIMENTATION
DATA SUMMARY

Altus Reservoir

NAME OF RESERVOIR

50-11

DATA SHEET NO.

DAM	1. OWNER Bureau of Reclamation			2. RIVER North Fork of Red River			3. STATE Oklahoma			
	4. SEC. 22 TWP. 5N RANGE 20W			5. NEAREST TOWN Altus, Okla.			6. COUNTY Greer and Kiowa			
	7. STREAM BED ELEV. 1496.7			8. TOP OF DAM ELEV. 1564			9. SPILLWAY CREST ELEV. 1559 1/			
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	1559	6772		156,668	Dec. 1940 3/				
	b. POWER					16. DATE NORMAL OPER. BEGAN				
	c. WATER SUPPLY					June 19, 1946				
	d. IRRIGATION									
	e. CONSERVATION									
	f. INACTIVE									
WATERSHED	17. LENGTH OF RESERVOIR 13.1 MILES			18. AV. WIDTH OF RESERVOIR one MILES						
	18. TOTAL DRAINAGE AREA 2560 SQ. MI.			22. MEAN ANNUAL PRECIPITATION 24.3 INCHES						
	19. NET SEDIMENT CONTRIBUTING AREA 2560 SQ. MI.			23. MEAN ANNUAL RUNOFF 0.92 INCHES						
	20. LENGTH 147.2 MILES			24. AV. WIDTH 20 MILES			24. MEAN ANNUAL RUNOFF 70,828 (1939-44) AC.-FT.			
	21. MAX. ELEV. 1559			21. MIN. ELEV. 1547 2/			25. CLIMATIC CLASSIFICATION 124,785 (1945-48) 4/ Semi-arid			
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. 1940			contour	2 to 5 ft.	6772	156,668	61.20		
	June 1948	7.5	7.5	tion 5-ft. int.) combina/ 26 ranges)		6793	148,640	58.06		
	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. 1940									
	June 1948	27.0" 5/	125,200	256,700	949,743 6/	125,200	949,743			
	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. 1940									
June 1948	8028	1070.4	0.418	8028	1070.4	0.418				
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			
Dec. 1940										
June 1948	52.3	476	476	0.68	5.12	7090	7090			

1/ At uncontrolled spillway crest
 2/ Lowest crest elevation of dam
 3/ Data of original survey for new dam over the deposits placed behind old dam
 4/ At stations Carter, Okla. and Granite Okla. Granite discontinued 1911.
 5/ Recorded at Sayre and Birch, Okla.
 6/ As recorded at Granite, Okla., 1940-1944 and Carter, Okla.

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION										
	62.3-	60-	50-	40-	30-	20-	10-	crest-			
	60	50	40	30	20	10	crest	5			
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION										
Dec. 1940											
June 1948	0.01	5.26	8.22	28.31	25.96	22.62	12.44	-2.83			

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. 1940															
June 1948	14.26	4.48	11.83	11.10	14.42	12.31	7.97	11.93	7.93	3.78					

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1940				1947	1550.50	1538.23	185,070 <u>8/</u>
1941				1948	1548.01	1541.95	60,107 <u>8/</u>
1942				1949	1560.20	1540.80	168,359 <u>8/</u>
1943							
1944							
1945	1536.90	1523.20	59,000 <u>7/</u>				
1946	1531.20	1526.90	12,920 <u>7/</u>				

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
1496.7	0	0	1540	3,561	53,254			
1500	0	0	1545	4,120	72,444			
1505	0	0	1547	4,543	81,108			
1510	60	100	1550	5,102	95,568			
1515	664	1,640	1555	5,951	123,178			
1517.5	922	3,614	1559	6,793	148,640			
1520	1,292	6,368	1564	7,773	185,035			
1525	1,787	14,035						
1530	2,270	24,155						
1535	2,915	37,086						

47. REMARKS AND REFERENCES
 Sedimentation Survey of Altus Reservoir, Seavy, L.M., Hydrology Div.; Bur. of Recl., 1948
 U.S.G.S. Water Supply Papers - 927, 957, 977, 1007, 1057, 1087, 1117
 Project Histories of Altus Reservoir
7/ As recorded by U.S.G.S. at Carter, Okla.
8/ Taken from corresponding years of project histories.

48. AGENCY SUPPLYING DATA Bureau of Reclamation

49. DATE 9/29/50

RESERVOIR SEDIMENTATION
DATA SUMMARY

Altus Reservoir

NAME OF RESERVOIR

50-11a

DATA SHEET NO.

DAM	1. OWNER Bureau of Reclamation			2. RIVER North Fork, Red River			3. STATE Oklahoma				
	4. SEC. 22 TWP. 5N RANGE 20W			5. NEAREST TOWN Altus, Okla.			6. COUNTY Greer and Kiowa				
	7. STREAM BED ELEV. 1496.7			8. TOP OF DAM ELEV. 1567			9. SPILLWAY CREST ELEV. 1559 1/				
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					
	0. FLOOD CONTROL	(1564)	(7.705)	(36,174)	(192,842)	Dec. 1940 2/					
	b. BORDER	(Surcharge between elevations 1559 and 1564 used)									
	c. WATER SUPPLY	for flood control)					16. DATE NORMAL OPER. BEGAN				
	d. IRRIGATION	1559	6,772	152,060 2/	156,668						
	e. CONSERVATION					June 19, 1946					
	f. INACTIVE	1517.5	1,073	4,608	4,608						
17. LENGTH OF RESERVOIR 13.1 MILES			AV. WIDTH OF RESERVOIR one MILES								
WATERSHED	18. TOTAL DRAINAGE AREA 2,515 (Revised) SQ. MI.			22. MEAN ANNUAL PRECIPITATION 24.3 INCHES							
	19. NET SEDIMENT CONTRIBUTING AREA 2,116 SQ. MI.			23. MEAN ANNUAL RUNOFF 0.91 INCHES							
	20. LENGTH 146.5 MILES AV. WIDTH 17.2 MILES			24. MEAN ANNUAL RUNOFF 102,690 4/ AC.-FT.							
	21. MAX. ELEV. 3500 4 MIN. ELEV. 1547 5/			25. CLIMATIC CLASSIFICATION semi-arid							
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. 1940			contour	2 to 5 ft.	6,772	156,668	74.04			
	June 1948	7.5	7.5	contour & range	5 ft. int. 26 ranges	6,793	148,640	70.25			
	July 1953	5.1	12.6	contour & range	5 ft. int. 25 ranges	6,575	142,862	67.52			
							(185,035) 6/				
							178,610 6/				
	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. 1940										
	June 1948	27.0 1/	126,980	256,720	952,320	126,980	952,320				
July 1953	20.3 1/	107,940	256,720	550,473	119,270	1,502,793					
28. 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. 1940											
June 1948	8,028	1,070.4	0.506	8,028	1,070.4	0.506					
July 1953	(7,807)	(1,040.9)	(0.492)	(7,807)	(1,040.9)	(0.492)					
	5,770	1,132.9	0.535	13,806	1,095.1	0.510					
	(6,425)	(1,259.8)	(0.595)	(14,232)	(1,129.5)	(0.534)					
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				
Dec. 1940											
June 1948	52.3	576	576	0.683	5.12	7065	7065				
July 1953	66.9	780	755	0.699	8.81	11,253	9,849				
		(560)	(560)	(0.540)	4.05	(6871)	(6871)				
		(867)	(778)	(0.586)	(7.38)	(12,513)	(10,153)				

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION														
	60- 50	50- 40	40- 30	30- 20	20- 10	10- crest									
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION														
Dec. 1940															
June 1948	0.01	5.26	8.22	28.31	25.96	22.62	12.14	-2.83							
July 1953	0.01	3.24	16.48	26.61	16.47	14.85	19.35	2.99							
28. 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. 1940															
June 1948	4.26	4.48	11.83	11.01	4.2	12.31	7.97	11.93	7.93	3.78					
July 1953	not computed														
45. RANGE IN RESERVOIR OPERATION															
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.								
1940				1948	1548.01	1541.95	51,181								
1941				1949	1560.20	1540.80	139,885								
1942				1950	1560.39	1553.47	158,560								
1943				1951	1562.10	1551.59	211,777								
1944				1952	1551.82	1530.82	22,964								
1945	1536.90	1523.20	59,000	1953	1531.40	1525.63	15,752								
1946	1531.20	1526.90	12,924												
1947	1550.50	1528.23	160,213												
46. ELEVATION-AREA-CAPACITY DATA															
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY							
1496.7	0	0	1525	1,578	11,280	1559	6,575	142,862							
1500	0	0	1530	2,199	20,679	1564	7,740	178,610							
1505	0	0	1535	2,912	33,415										
1506.8	0	0	1540	3,577	49,609										
1510	41	44	1545	4,124	68,846										
1515	373	940	1547	4,442	77,390										
1517.5	735	2,300	1550	4,945	91,433										
1520.	1,111	4,591	1555	5,769	118,192										
47. REMARKS AND REFERENCES															
Sedimentation Survey of Altus Reservoir, Seavy, L. M., Hydrology Div. Bur. of Recl. Unpublished data on 1953 survey, Region 5, Bureau of Reclamation, Amarillo, Texas. U.S.G.S. Water Supply Papers, Part 7, 1939 through 1950 and advance records. Project Histories of W. C. Austin Project.															
48. AGENCY SUPPLYING DATA Bureau of Reclamation					49. DATE 2/5/54										

Footnote:

- 1/ Uncontrolled spillway crest
- 2/ Date of original survey for new dam over deposits placed behind old dam
- 3/ Includes 4,800 acre-feet of storage for municipal water
- 4/ As recorded at Granite, Oklahoma, 1938 through 1943 and at Carter, Oklahoma, 1944 through 1953. 1938 partially estimated.
- 5/ Sill elevation of controlled spillway
- 6/ At maximum water surface elevation 1564
- 7/ Recorded at Sayre and Erick, Oklahoma

Prior to the construction of Altus Reservoir, there existed in the same location a smaller dam which formed what was called Lake Altus. This dam served as a cofferdam during the construction of Altus Reservoir and was torn down after it had served its purpose.

In 1940, while Lake Altus was still in existence, a sedimentation survey was made. In 1943, when Altus Reservoir was partially completed, another sedimentation survey was made. The latter survey so contradicted the one made in 1940 that it was not considered feasible to use the 1943 survey.

To be consistent, the date of the 1940 survey has been used as the date upon which storage began.

RESERVOIR SEDIMENTATION
DATA SUMMARY

Altus Reservoir

50-11b

NAME OF RESERVOIR

DATA SHEET NO.

DAM	1. OWNER Bureau of Reclamation			2. RIVER North Fork, Red River			3. STATE Oklahoma			
	4. SEC. 22 TWP. 5N RANGE 20W			5. NEAREST TOWN Altus, Okla.			6. COUNTY Greer and Kiowa			
	7. STREAM BED ELEV. 1496.7			8. TOP OF DAM ELEV. 1567			9. SPILLWAY CREST ELEV. 1559 1/			
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	(1564)	(7.705)	(36,174)	(192,842)	Dec. 1940 2/				
	b. POWER	(Surcharge between elevations 1559 and 1564 used)							Dec. 1940 2/	
	c. WATER SUPPLY	for flood control)							16. DATE NORMAL OPER. BEGAN	
	d. IRRIGATION	1559	6.72	152,060 2/	156,668	June 19, 1946				
	e. CONSERVATION									
	f. INACTIVE	1517.5	1,073	4,608	4,608					
17. LENGTH OF RESERVOIR 13.1 MILES			AV. WIDTH OF RESERVOIR one MILES							
WATERSHED	18. TOTAL DRAINAGE AREA 2,515 (Revised) SQ. MI.			22. MEAN ANNUAL PRECIPITATION 24.3 INCHES						
	19. NET SEDIMENT CONTRIBUTING AREA 2,116 SQ. MI.			23. MEAN ANNUAL RUNOFF 0.91 INCHES						
	20. LENGTH 14.5 MILES			AV. WIDTH 17.2 MILES			24. MEAN ANNUAL RUNOFF 102,690 4/ AC.-FT.			
	21. MAX. ELEV. 3500 4			MIN. ELEV. 1547 2/			25. CLIMATIC CLASSIFICATION semi-arid			
	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. 1940				contour	2 to 5 ft.	6,772	156,668	74.04		
June 1948		7.5	7.5	contour & range	5 ft. int. 26 ranges	6,793	148,640 (185,035) 6/	70.25		
July 1953		5.1	12.6	contour & range	5 ft. int. 25 ranges	6,575	142,862 178,610 6/	67.52		
SURVEY DATA	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
	Dec. 1940									
	June 1948		27.0 1/		126,980		256,720	952,320	126,980 952,320	
	July 1953		20.3 1/		107,940		256,720	550,473	119,270 1,502,793	
	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
	Dec. 1940									
	June 1948		8,028 (7,807)		1,070.4 (1,040.9)	0.506 (0.492)	8,028 (7,807)		1,070.4 (1,040.9)	0.506 (0.492)
	July 1953		5,770 (6,425)		1,132.9 (1,259.8)	0.535 (0.595)	13,806 (14,232)		1,095.7 (1,129.5)	0.510 (0.534)
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		c. AV. ANNUAL	d. TOT. TO DATE	e. PERIOD	f. TOT. TO DATE	
Dec. 1940										
June 1948		52.3		576 (560)		0.683 (0.540)	5.12 4.05	7065 (6871)	7065 (6871)	
July 1953		66.9		780 (867)		0.699 (0.586)	8.81 (7.38)	11,253 (12,513)	9,849 (10,153)	

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION										
	62-60	60-50	50-40	40-30	30-20	20-10	10-crest	crest			
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Dec. 1940											
June 1948	0.01	5.26	8.22	28.31	25.96	22.62	12.11	2.83			
July 1953	0.01	3.24	16.48	26.61	16.47	14.85	19.35	2.99			

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. 1940															
June 1948	14.26	4.48	11.83	11.01	14.2	12.31	7.97	11.93	7.93	3.78					
July 1953	not computed														

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1940				1948	1548.01	1541.95	51,181
1941				1949	1560.20	1540.80	139,885
1942				1950	1560.39	1553.47	158,560
1943				1951	1562.10	1551.59	211,777
1944				1952	1551.82	1530.82	22,964
1945	1536.90	1523.20	59,000	1953	1531.40	1525.63	15,752
1946	1531.20	1526.90	12,924				
1947	1550.50	1528.23	160,213				

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
1496.7	0	0	1525	1,578	11,280	1559	6,575	142,862
1500	0	0	1530	2,199	20,679	1564	7,740	178,610
1505	0	0	1535	2,912	33,415			
1506.8	0	0	1540	3,577	49,609			
1510	41	44	1545	4,124	68,846			
1515	373	940	1547	4,442	77,390			
1517.5	735	2,300	1550	4,945	91,433			
1520	1,111	4,591	1555	5,769	118,192			

47. REMARKS AND REFERENCES

Sedimentation Survey of Altus Reservoir, Seavy, L. M., Hydrology Div. Bur. of Recl. Unpublished data on 1953 survey, Region 5, Bureau of Reclamation, Amarillo, Texas. U.S.G.S. Water Supply Papers, Part 7, 1939 through 1950 and advance records. Project Histories of W. G. Austin Project.

48. AGENCY SUPPLYING DATA Bureau of Reclamation

49. DATE 2/5/54

RESERVOIR SEDIMENT
DATA SUMMARY

Altus Reservoir
NAME OF RESERVOIR

50-11c

DATA SHEET NO.

DAM	1. OWNER U.S. Dept. of Int., Bur. of Recl.		2. STREAM North Fork, Red River		3. STATE Oklahoma			
	4. SEC. 22 TWP. 5N RANGE 20W		5. NEAREST P O Altus 18NE		6. COUNTY Greer-Kiowa			
	7. LAT. 34° 53' " LONG. 99° 18' "		8. TOP OF DAM ELEVATION 1567		9. SPILLWAY CREST ELEV. 1559			
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					Dec 1940 ⁵		
	b. MULTIPLE USE	¹ 1564	7,705	36,174	⁴ 192,842			
	c. POWER					16. DATE NORMAL OPER. BEGAN		
	d. WATER SUPPLY							
	e. IRRIGATION	1559	6,772	³ 152,060	156,668			
	f. CONSERVATION						June 19, 1946	
	g. INACTIVE	1517.5	1,073	4,608	4,608			
17. LENGTH OF RESERVOIR		13.1	MILES	AV. WIDTH OF RESERVOIR		1		
WATERSHED	18. TOTAL DRAINAGE AREA		2,515	SQ. MI.	22. MEAN ANNUAL PRECIPITATION		24.2 (14-39)	
	19. NET SEDIMENT CONTRIBUTING AREA		2,104	SQ. MI.	23. MEAN ANNUAL RUNOFF		0.78	
	20. LENGTH		146.5	MILES	AV. WIDTH		17.2	
				MILES	24. MEAN ANNUAL RUNOFF		⁶ 104,400	
	21. MAX. ELEV.		3,500+		MIN. ELEV.		1496.7	
				25. ANNUAL TEMP: MEAN		63.1		
				RANGE		65.9-62.3		
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.
	Dec 1940			Contour	2 to 5 ft	6,772	156,668	
	Jun 1948	7.5	7.5	Contour and range (S)	26 (R) 5 ft (CI)	6,793	⁷ (192,842) 148,640	
	Jul 1953	5.1	12.6	Contour and range (S)	25 (R) 5 ft (CI)	6,575	142,862 (185,035)	1.74
	Apr 14, 1967	13.8	26.4	Range (R)	25 (R)	6,260	134,549 (168,117)	1.61
	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 1940							
	Jun 1948	⁸ 27.0	126,980	256,700	952,320	126,980	952,320	
	Jul 1953	⁸ 20.3	107,940	213,400	550,473	119,270	1,502,793	
	Apr 14, 1967	⁹ 24.4	89,000	188,800	1,227,897	103,440	2,730,690	
	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 1940							
	Jun 1948	8,028 ⁷ (7,807)	1,070 ⁷ (1,041)	0.506 ⁷ (0.495)	8,028 ⁷ (7,807)	1,070 ⁷ (1,041)	0.509 ⁷ (0.495)	
	Jul 1953	5,778 (6,425)	1,133 (1,260)	0.535 (0.599)	13,806 (14,232)	1,096 (1,130)	0.521 (0.537)	
	Apr 14, 1967	8,313 (10,493)	602 (760)	0.286 (0.361)	22,119 (24,725)	838 (937)	0.398 (0.445)	
	26. DATE OF SURVEY	39. AV. DRY WGT., LBS. PER CU. FT.	40. SED. DEP., TONS PERSQ. 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 1940							
	Jun 1948	52.3	580 ⁷ (564)	580 ⁷ (564)	0.683 ⁷ (0.540)	5.12 ⁷ (4.05)	7,072 ⁷ (6,877)	7,065 ⁷ (6,871)
	Jul 1953	66.9	1,023 (1,104)	759 (782)	0.700 (0.586)	8.81 (7.38)	14,673 (15,835)	9,849 (10,153)
	Apr 14, 1967	70.2	472 (588)	609 (680)	0.535 (0.486)	14.12 (12.82)	8,213 (10,231)	9,113 (10,187)

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION									
	62.3-60	60-50	50-40	40-30	30-20	20-10	10-C	C-5		
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION									
Dec 1940										
Jun 1948	0.01	5.26	8.22	28.31	25.96	22.62	12.44	-2.83		
Jul 1953	0.01	3.24	16.48	26.61	16.47	14.85	19.35	2.99		
Apr 14, 1967	0.01	1.99	13.54	13.71	18.92	20.62	20.67	10.54		

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 1940															
Jun 1948	14.26	4.48	11.83	11.10	14.42	12.31	7.97	11.93	7.93	3.78					
Jul 1953	Not computed														
Apr 14, 1967	6.07	3.03	6.67	8.50	11.12	12.74	25.88	4.05	7.28	7.68	4.86	2.12			

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1940-44	-	-	-	1956	1544.99	1525.80	49,620
1945	1536.90	1523.20	¹⁰ 59,000	1957	1559.53	1525.02	122,900
1946	1531.20	1526.90	12,920	1958	1557.93	1549.43	64,190
1947	1550.50	1528.23	160,200	1959	1559.85	1548.62	120,600
1948	1548.01	1541.95	51,180	1960	1560.04	1552.47	136,700
1949	1560.20	1540.80	139,900	1961	1561.96	1552.69	188,800
1950	1560.39	1553.47	158,600	1962	1560.06	1551.83	122,800
1951	1562.10	1551.59	213,400	1963	1559.31	1554.06	62,800
1952	1551.82	1530.82	22,960	1964	1548.24	1529.30	31,300
1953	1531.40	1525.63	15,750	1965	1547.70	1528.48	79,660
1954	1549.63	1525.60	99,630	1966	1551.70	1537.65	68,740
1955	1543.90	1525.60	57,150	1967	1542.02	1530.03	42,340

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
	1940 Survey		1540	3,720	58,718	1517.5	643	1,663
1496.7	0	0	1545	4,279	78,704	1520	1,103	3,844
1500	1	2	1550	5,302	102,872	1525	1,645	10,752
1505	58	116	1555	6,007	131,132	1530	2,165	20,276
1510	135	586	1559	6,772	156,668	1535	2,616	31,972
1515	678	2,448	1564	7,705	192,842	1540	3,219	46,560
1517.5	1,073	4,608				1545	3,823	64,167
1520	1,445	7,732		1967 Survey		1550	4,626	85,565
1525	1,991	16,302	1509	0	0	1555	5,534	110,963
1530	2,510	27,668	1510	59	30	1559	6,260	134,549
1535	3,103	41,678	1515	182	632	1564	7,168	168,117

47. REMARKS AND REFERENCES

- ¹ Uncontrolled spillway crest.
- ² Maximum water surface--includes surcharge.
- ³ Includes 4,800 acre-feet of storage for municipal use.
- ⁴ Includes flood control between elevations 1559 and 1562 and surcharge between elevations 1562 and 1564.
- ⁵ Date of original survey for new dam over deposits placed behind old dam.
- ⁶ North Fork Red River near Carter, Oklahoma, 20-year average adjusted for drainage area.
- ⁷ Values in parentheses are for maximum water surface elevation 1564 feet.
- ⁸ Recorded at Sayre and Erick, Oklahoma.
- ⁹ Record at Altus Dam.
- ¹⁰ From records at Carter gage except 1963 and 1964 are from Project records.

48. AGENCY MAKING SURVEY	Bureau of Reclamation	50. DATE	January 29, 1971
49. AGENCY SUPPLYING DATA	Bureau of Reclamation		