

RESERVOIR SEDIMENT
DATA SUMMARY

Angostura Reservoir
NAME OF RESERVOIR

38-5

DATA SHEET NO.

DAM	1. OWNER Bureau of Reclamation		2. STREAM Cheyenne River		3. STATE South Dakota				
	4. SEC. 20 TWP. 8S RANGE 6E		5. NEAREST P. O. Hot Springs		6. COUNTY Fall River				
	7. LAT. 43° 20' 35" LONG. 103° 26' 15"		8. TOP OF DAM ELEVATION 3199.0		9. SPILLWAY CREST ELEV. 3187.201				
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						10-3-49		
	b. MULTIPLE USE								
	c. POWER								
	d. WATER SUPPLY								
	e. IRRIGATION						12-512/		
	f. CONSERVATION		3187.2	4841	90,655	159,919			
	g. INACTIVE		3163	2722	45,544	69,264			
17. LENGTH OF RESERVOIR 17.03 MILES				AV. WIDTH OF RESERVOIR 0.44 MILES					
WATERSHED	18. TOTAL DRAINAGE AREA 9100 SQ. MI.			22. MEAN ANNUAL PRECIPITATION 17.624 INCHES					
	19. NET SEDIMENT CONTRIBUTING AREA 9093 SQ. MI.			23. MEAN ANNUAL RUNOFF 0.40 INCHES					
	20. LENGTH 184 MILES		AV. WIDTH 49.5 MILES		24. MEAN ANNUAL RUNOFF 184,600 (28 years) AC.-FT.				
	21. MAX. ELEV. 7165		MIN. ELEV. 3065		25. ANNUAL TEMP.: MEAN 48.5° RANGE 112° to -41°				
	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 AC.-FT.
10-3-49		0	0	Contour (D)	5 ft	4841	159,919	17.6	
9-22-65		16.0	16.0	Range (D)	39	4706	138,761	15.3	
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	
9-22-65		6-19		96,500	328,300	1,544,020	96,500	1,544,020	
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		
9-22-65		21,158 (21,4836/)	1322 (1343)	.145 (.147)	21,158 (21,483)	1322 (1343)	.145 (.147)		
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
9-22-65		56.4	178 (181)	178 (181)	.827 (.617)	13.2 (9.87)	12,300 (12,500)	12,300 (12,500)	

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION											
	122.2-107.2	87.2-77.2	77.2-67.2	67.2-57.2	57.2-47.2	47.2-37.2	37.2-27.2	27.2-17.2	17.2-7.2	7.2-0	C-10.9	
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION												

9-22-65	1.07	6.95	9.32	15.90	19.03	6.13	8.44	7.50	8.39	9.23	6.53	1.51
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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														

9-22-65	22.5	15.5	9.0	13.0	12.0	5.5	11.0	7.5	3.0	1.0					
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45. RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW, AC.-FT.
1950	3146.3	--	54,7207/	1958	3187.34	3179.49	102,800
1951	3178.6	3141.8	125,800	1959	3180.69	3167.45	34,560
1952	3187.03	3172.67	110,000	1960	3173.06	3162.90	24,010
1953	3182.48	3173.80	64,070	1961	3166.50	3162.92	22,400
1954	3177.76	3172.73	43,830	1962	3189.00	3163.60	328,300
1955	3187.37	3172.53	159,500	1963	3187.45	3182.00	90,760
1956	3187.14	3171.40	51,570	1964	3187.30	3178.70	56,100
1957	3187.91	3170.06	140,600	1965	3187.90	3178.31	134,000

46. ELEVATION-AREA-CAPACITY DATA

ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3065	0	0	3115	4	12	3170	3170	72309
3070	0	0	3120	30	39	3175	3450	88718
3075	0	0	3125	110	488	3180	4050	107552
3080	0	0	3130	610	2253	3185	4420	128563
3085	0	0	3135	980	6275	3190	5080	152478
3090	0	0	3140	1100	11484	3195	5490	178888
3095	0	0	3145	1380	17640	3198.1	5790	196221
3100	0	0	3150	1700	25310			
3105	0	0	3155	2000	34672			
3110	0	0	3160	2350	45431			
			3165	2600	57765			

47. REMARKS AND REFERENCES
 1/Top of movable gates
 2/Power generation
 3/At normal water surface elevation 3187.2
 4/1915-1916 and 1918-1964
 49 years at Hot Springs Station
 5/Maximum and minimum recorded
 6/Deposits below maximum water surface elevation 3198.1 with original capacity of 217,704AF
 7/Cheyenne River near Hot Springs, South Dakota

Bureau of Reclamation

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	4. SEC. 20 TWP. 8S RANGE 6E		5. NEAREST P.O. Hot Springs		6. COUNTY Fall River			
	7. LAT 43° 20' 35" LONG 103° 26' 16"		8. TOP OF DAM ELEVATION 3199.0		9. SPILLWAY CREST ELEV. 3157.2			
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					10/3/49		
	b. MULTIPLE USE							
	c. POWER							
	d. WATER SUPPLY							
	e. IRRIGATION					16. DATE NORMAL OPER. BEGAN		
	f. CONSERVATION	3187.2	4841	90,655	159,919	1949		
g. INACTIVE	3163.0	2722	45,544	69,264				
WATERSHED	17. LENGTH OF RESERVOIR 17.0 3/		MILES		AV. WIDTH OF RESERVOIR 0.44			
	18. TOTAL DRAINAGE AREA 9100		SQ. MI.		22. MEAN ANNUAL PRECIPITATION 17.5			
	19. NET SEDIMENT CONTRIBUTING AREA 9093		SQ. MI.		23. MEAN ANNUAL RUNOFF 0.18 (27)			
	20. LENGTH 184		MILES		AV. WIDTH 49.5			
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21. MAX. ELEV. 7165		MIN. ELEV. 3065		25. ANNUAL TEMP. MEAN 48° F 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.
	10/3/49	0	0	Contour (D)	5 ft.	4841	159,919	0.866
	9/22/65	16	16	Range (D)	39	4706	138,761	0.752
	5/4/79	13.6	29.6	Range (D)	45	4612	130,768	0.669
	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		
	9/22/65	6-19	96,500	328,300	1,544,020	96,500	1,544,020	
	5/4/79	6-19	91,207	282,218	1,185,689	94,128	2,729,709	
	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	
9/22/65	21,158 (21,483)	1322 (1343)	0.145 (0.147)	21,158 (21,483)	1322 (1343)	0.145 (0.147)		
5/4/79	7,993 (9,093)	588 (669)	0.065 (0.074)	29,151 (30,576)	985 (1033)	0.108 (0.114)		
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	
9/22/65	56.4	178 (181)	178 (181)	0.827 (0.617)	13.2 (9.87)	12,300 (12,500)		

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION												
	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
	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.
1966	3187.31	3182.58	58,124				
1967	3188.00	3181.54	170,347				
1968	3187.57	3180.80	67,106				
1967	3187.63	3181.51	85,434				
1970	3187.24	3176.88	23,959				
1971	3188.42	3176.78	181,239				
1972	3187.54	3178.54	44,287				
1973	3187.29	3178.99	66,862				
1974	3187.31	3174.84	37,604				
1975	3184.20	3174.63	42,077				
1976	3182.14	3174.60	38,446				
1977	3179.16	3169.20	25,584				
1978	3189.27	3170.27	282,118				

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
3115	0	0	3155	1998	30,505			
3120	3	7	3160	2288	41,220			
3125	69	187	3165	2556	53,330			
3130	275	1,047	3170	2892	66,950			
3135	889	3,957	3175	3317	82,472			
3140	1,074	8,865	3180	3861	100,417			
3145	1,275	14,737	3185	4340	120,920			
3150	1,517	21,717	3190	4959	144,167			

47. REMARKS AND REFERENCES

3/ At normal water surface elevation 3187.2.

4/ Net inflow - Evaporation has been included.