

RESERVOIR SEDIMENTATION
DATA SUMMARY

Masters Upper Reservoir
NAME OF RESERVOIR

36-6

DATA SHEET NO.

DAM	1. OWNER Masters			2. RIVER			3. STATE Iowa			
	4. SEC. 10 TWP. 84N RANGE 43W			5. NEAREST TOWN Mapleton			6. COUNTY Monona			
	7. STREAM BED ELEV.			8. TOP OF DAM ELEV.			9. SPILLWAY CREST ELEV.			
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	1,259.0		27.50	37.95	Dec. 6, 1949				
	b. POWER									
	c. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN				
	d. IRRIGATION									
	e. CONSERVATION	1,247.3		10.45	10.45	Dec. 6, 1949				
	f. INACTIVE									
17. LENGTH OF RESERVOIR			MILES	AV. WIDTH OF RESERVOIR			MILES			
WATERSHED	18. TOTAL DRAINAGE AREA 0.178			SQ. MI.	22. MEAN ANNUAL PRECIPITATION 29.67 (40yr)			INCHES		
	19. NET SEDIMENT CONTRIBUTING AREA 0.169			SQ. MI.	23. MEAN ANNUAL RUNOFF 4.2 estimated			INCHES		
	20. LENGTH		MILES	AV. WIDTH		MILES	24. MEAN ANNUAL RUNOFF			AC.-FT.
	21. MAX. ELEV.		MIN. ELEV.		25. CLIMATIC CLASSIFICATION Sub-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		
	Dec. 6, 1949	-	-	Detailed	11 ranges	?	37.95	213		
	Sept. 19, 1950	0.79	0.79	"	" "		38.20	214		
	Aug. 3, 1951	0.87	1.66	"	" "		35.25	198		
	April 24, 1952	0.73	2.39	"	" "		34.80	195		
	Nov. 1952	0.6	3.0	"	" "		34.80	195		
	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		
	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	
	Sep. 19, 1950	0.25	-	-	0.25	-	-	-	-	-
	Aug. 3, 1951	2.95	3.39	20.1	2.95	3.39	20.1	2.95	3.39	20.1
Apr. 24, 1952	0.45	0.62	3.67	3.40	2.13	12.6	3.40	2.13	12.6	
Nov. 1952	Not measurable			3.40	1.55	9.17	3.40	1.55	9.17	
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			
Sep. 19, 1950										
Aug. 3, 1951	77.7 assumed	34,015	34,015	8.93	7.77	-	-	-	-	
Apr. 24, 1952	77.7 "	6,211	21,323	5.61	8.96	-	-	-	-	
Nov. 1952	77.7 (5)	-	15,518	4.08	8.96	-	-	-	-	

26. DATE OF SURVEY <u>6/</u>	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	Below Crest						Between crest and emergency					
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Sep. 19, 1950	100					Increase in capacity because of settlement						
Aug. 3, 1951	98					2						
Aug. 24, 1952	96					4						
Nov. 1952	96					4						

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.

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
1949:			1951:			Nov. 1952:		
1,258.0		37.95	1,258.0		35.25	1,258.0		34.80
1,247.3		10.45	1,247.3		7.50	1,247.3		7.15
1950:			Apr. 1952:					
1,248.0		38.20	1,258.0		34.80			
1,247.3		10.40	1,247.3		7.15			

47. REMARKS AND REFERENCES

1/ The increase in capacity in 1950 is due to settlement of the dam.

2/ Below Crest. Capacity-inflow ratio estimated to be 0.96 in 1949 and 1940. 0.89 in 1951, and 0.87 in 1952. Trap efficiency estimated to be 98% in 1949, and 1950, 97% in 1951 and 96% in 1952.

3/ Does not include 1949-1950 period, when capacity increased because of settlement.

4/ These figures are for total sediment to date of survey. In Little Sioux Watershed. Total load adjusted for trap efficiency 16,800 tons/sq. ft./y.