

RESERVOIR SEDIMENTATION
DATA SUMMARY

C. T. Gadd

35-7

Trib. of
NAME OF RESERVOIR

DATA SHEET NO.

DAM	1. OWNER C. T. Gadd		2. RIVER/E. Nishnabotna River		3. STATE Iowa			
	4. SEC. 27 TWP. 73N RANGE 38W		5. NEAREST TOWN Stennett		6. COUNTY Montgomery			
	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		2.09	7.05	14.48	Dec. 1940		
	b. POWER							
	c. WATER SUPPLY		1.35	7.43	7.43	16. DATE NORMAL OPER. BEGAN		
	d. IRRIGATION							
	e. CONSERVATION							
	f. INACTIVE					Dec. 1940		
17. LENGTH OF RESERVOIR			MILES	AV. WIDTH OF RESERVOIR		MILES		
WATERSHED	18. TOTAL DRAINAGE AREA 0.081		SQ. MI.	22. MEAN ANNUAL PRECIPITATION 31 (22)		INCHES		
	19. NET SEDIMENT CONTRIBUTING AREA 0.079		SQ. MI.	23. MEAN ANNUAL RUNOFF 4.4*		INCHES		
	20. LENGTH		MILES	AV. WIDTH		MILES	24. MEAN ANNUAL RUNOFF	
							AG-FT.	
21. MAX. ELEV.		MIN. ELEV.		25. CLIMATIC CLASSIFICATION 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 AC-FT. PER SQ. MI.
	Dec. 1940	-	-	-	-	1.35	7.43	91.7
	May 1949	8.4	8.4	Range Detailed	4	1.32	5.87	72.5
SURVEY DATA	26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW			36. WATER INFL. TO DATE		
			a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE	
	May 1949		(inches)			(inches)		
			6.3*			6.3*		
SURVEY DATA	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	
	May 1949	1.56 (1.66) <u>1/</u>	0.186 (0.198)	2.35 (2.51)	1.56 (1.66)	0.186 (0.198)	2.35 (2.51)	
SURVEY DATA	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
	May 1949	63.9 (3)	3,270 (3,490)	3,270 (3,490)	1.37 (2.50) ^{2/}	11.5 (21.6) ^{2/}	7,000 ^{2/} (7,450) ^{2/}	7,000 ^{2/} (7,450) ^{2/}

* Estimated

1/ Above-crest deposits within original flow line at emergency spillway crest elevation.

2/ Based on water supply pool.

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, 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.

46. ELEVATION-AREA-CAPACITY DATA								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY

47. REMARKS AND REFERENCES
 1. Gottschalk, L.C., and Brune, G.M. Sediment design criteria for the Missouri Basin Loess Hills. Soil Conserv. Serv. SCS-TP-97, 21 pp., illus., processed. Milwaukee, Wisconsin, 1950.
 2. U.S.D.A. Yearbook of Agriculture, Washington, D.C., 1941.

$$\frac{3}{42} = \frac{37b \times 39 \times 1,000,000}{35a \times 18 \times \frac{640 \times 62.4}{12}}$$

48. AGENCY SUPPLYING DATA Region 3, Soil Conservation Service 49. DATE January 9, 1950
 U. S. Dept. of Agriculture, Milwaukee, Wisconsin

RESERVOIR SEDIMENTATION
DATA SUMMARY

C. T. Gaad

35-7a

NAME OF RESERVOIR

DATA SHEET NO.

DAM	1. OWNER C. T. Gaad			2. RIVER Trib. of E. Nishnabotna		3. STATE Iowa		
	4. SEC. 27 TWP. 73 N RANGE 38 W			5. NEAREST TOWN Stennett		6. COUNTY Montgomery		
	7. STREAM BED ELEV.			8. TOP OF DAM ELEV.		9. SPILLWAY CREST ELEV. 100.0		
RESERVOIR	10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. SURFACE AREA ACRES	13. STORAGE ACRE- FEET	14. ACCUMULATED ACRE- FEET	15. Assumed DATE STORAGE BEGAN		
	a. FLOOD CONTROL	104.2	2.09	7.05	14.48	Dec. 1940		
	b. POWER							
	c. WATER SUPPLY	100.0	1.35	7.43	7.43	16. DATE NORMAL OPER. BEGAN		
	d. IRRIGATION							
	e. CONSERVATION							
	f. INACTIVE					Dec. 1940		
17. LENGTH OF RESERVOIR				MILES	AV. WIDTH OF RESERVOIR			
WATERSHED	18. TOTAL DRAINAGE AREA			0.081	SQ. MI.	22. MEAN ANNUAL PRECIPITATION 31(22)		
	19. NET SEDIMENT CONTRIBUTING AREA			0.079	SQ. MI.	23. MEAN ANNUAL RUNOFF 4.4 estimated		
	20. LENGTH		MILES	AV. WIDTH		MILES	24. MEAN ANNUAL RUNOFF	
	21. MAX. ELEV.		MIN. ELEV.		25. CLIMATIC CLASSIFICATION 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 AC- FT. PER SQ. MI.
	12/40	-	-	-Range	-	2.09	14.48	179
	5/49	8.4	8.4	Detailed	4 ranges	2.06	12.82	158
	6/52	3.1	11.5	"	"	2.03	11.98	148
	26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION		35. PERIOD WATER INFLOW ACRE- FEET			36. WATER INFL. TO DATE ACRE- FEET	
				a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	d. MEAN ANNUAL	e. TOTAL TO DATE
	5/49	-		(inches) 6.3 est.	-	-	(inches) 6.3 est.	-
	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	
	5/49	1.56 (1.66)	0.186 (0.198)	2.354 (2.506)	1.56 (1.66)	0.186 (0.198)	2.354 (2.506)	
6/52	0.62 (0.84)	0.200 (0.271)	2.53 (3.43)	2.18 (2.50)	0.190 (0.217)	2.41 (2.74)		
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	
5/49	63.9(3)	3,280 (3,492)	3,280 (3,492)	1.28	10.77	7,000 (7,452)	7,000 (7,452)	
6/52	57.9(3)	3,190 (4,330)	3,030 (3,460)	1.31	15.1			

1/ At crest.

2/ C/I ratio estimated to be 0.762 in 1940, 0.673 in 1949, and 0.630 in 1952. Trap efficiency estimated to be 97% up to 1952.

26. DATE OF SURVEY	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														
May 1949 June 1952	94 87					6 13									
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							
1940:															
104.2	2.09	14.48													
100.0	1.35	7.43													
1949:															
104.2	2.09	12.82													
100.0	1.32	5.87													
1952:															
104.2	2.09	11.98													
100.0	1.29	5.25													
47. REMARKS AND REFERENCES 1. Gottschalk, L.C., and G. M. Brune. Sediment Design Criteria for the Missouri Basin Loess Hills. Soil Conservation Service, Milwaukee, Wisconsin, 1950. 2. U.S.D.A. Yearbook of Agriculture, Washington, D.C., 1941. Reservoir formerly leaked through limestone 5 ft. below crest, and was 5.9 feet below crest in May 1949. June 1952 this hole had been sealed and water had been up to drop inlet recently. It was 2.6 feet below crest at time of survey in June 1952.															
1/ These figures are for total sediment to date of survey.															
48. AGENCY SUPPLYING DATA S.C.S., Milwaukee, Wis.										49. DATE July 20, 1952					