

RESERVOIR SEDIMENTATION
DATA SUMMARY

Barney Mundt

NAME OF RESERVOIR

35-21

DATA SHEET NO.

DAM	1. OWNER Barney Mundt		2. RIVER Trib. of Boyer R.		3. STATE Iowa			
	4. SEC. 6 TWP 82 N RANGE 38 W		5. NEAREST TOWN Denison		6. COUNTY Crawford			
	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		6.23	28.41	41.35	Oct. 1944		
	b. POWER							
	c. WATER SUPPLY		3.69	12.94	12.94	16. DATE NORMAL OPER. BEGAN		
	d. IRRIGATION							
	e. CONSERVATION							
	f. INACTIVE					Oct. 1944		
17. LENGTH OF RESERVOIR			MILES	AV. WIDTH OF RESERVOIR		MILES		
WATERSHED	18. TOTAL DRAINAGE AREA 0.336		SQ. MI.	22. MEAN ANNUAL PRECIPITATION 28' (40)			INCHES	
	19. NET SEDIMENT CONTRIBUTING AREA 0.330		SQ. MI.	23. MEAN ANNUAL RUNOFF 4.8 *			INCHES	
	20. LENGTH		MILES	AV. WIDTH		MILES	24. MEAN ANNUAL RUNOFF	AC.-FT.
	21. MAX. ELEV.		MIN. ELEV.		25. CLIMATIC CLASSIFICATION Sub-humid			
	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.
Oct. 1944	-	-	-	-	3.69	12.94	38.5	
April 1949	4.5	4.5	Range Detailed	5	2.81	8.05	24.0	
SURVEY DATA	26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW ACRE- FEET			36. WATER INFL. TO DATE ACRE- FEET		
	April 1949		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL	b. TOTAL TO DATE	
			(inches) 8.4 *			(inches) 8.4 *		
26. DATE OF SURVEY	37. PERIOD SEDIMENT DEPOSITS ACRE- FEET			38. TOTAL SED. DEPOSITS TO DATE ACRE- FEET.				
April 1949	a. PERIOD TOTAL	b. AV. ANNUAL	c. PER SQ. MI.-YEAR	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YEAR		
	4.89 (8.40)	1.087 (1.867)	3.29 (5.66)	4.89 (8.40)	1.087 (1.867)	3.29 (5.66)		
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	
April 1949	54.8 (3)	3,930	3,930	4.44	20.0	3/	3/	
		(6,760)	(6,760)	(8.40) ^{2/}	(37.8) ^{2/}	(10,890)	(10,890)	

* Estimated

1/ Includes 0.13 acre-foot of sediment above emergency spillway crest; all above-crest deposits within original flow-line at emergency spillway 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
 Gottschalk, L.C., and G.M. Brune. Sediment design criteria for the Missouri Basin Loess Hills. U.S. Soil Conserv. Serv., SCS-TP-97, 21 pp., illus., processed. Milwaukee, Wisconsin, 1950.

Mechanical analysis made of sediment.

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. Department of Agriculture
 Milwaukee, Wisconsin

RESERVOIR SEDIMENTATION
DATA SUMMARY

Barney Mundt

NAME OF RESERVOIR

35-21a

DATA SHEET NO.

DAM	1. OWNER Barney Mundt			2. RIVER Trib. of Boyer			3. STATE Iowa			
	4. SEC. 6 TWP. 82N RANGE 38W			5. NEAREST TOWN Denison			6. COUNTY Crawford			
	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	105.9	6.23	28.41	41.35	Oct. 1944				
	b. POWER									
	c. WATER SUPPLY	100.0	3.69	12.94	12.94	16. DATE NORMAL OPER. BEGAN				
	d. IRRIGATION									
	e. CONSERVATION									
f. INACTIVE					Oct. 1944					
17. LENGTH OF RESERVOIR				MILES	17. AV. WIDTH OF RESERVOIR				MILES	
WATERSHED	18. TOTAL DRAINAGE AREA 0.336			SQ. MI.	22. MEAN ANNUAL PRECIPITATION 28 (40)			INCHES		
	19. NET SEDIMENT CONTRIBUTING AREA 0.330			SQ. MI.	23. MEAN ANNUAL RUNOFF 4.8 est.			INCHES		
	20. LENGTH		MILES	20. AV. WIDTH		MILES	24. MEAN ANNUAL RUNOFF		AC.-FT.	
	21. MAX. ELEV.		21. MIN. ELEV.		25. CLIMATIC CLASSIFICATION Sub-Humid					
	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 2/ AC.-FT. PER SQ. MI.	
10/44		-	-	-	-	6.23	41.35	123		
4/49		4.5	4.5	Detailed	5 ranges	5.35	33.08	98.6		
6/52		3.2	7.7	"	"	5.24	29.22	86.9		
SURVEY DATA	26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION		35. PERIOD WATER INFLOW X ACRE- FEET			36. WATER INFL. TO DATE X ACRE- FEET			
		a. MEAN ANNUAL (Inches)	b. MAX. ANNUAL	c. PERIOD TOTAL	a. MEAN ANNUAL (Inches)	b. TOTAL TO DATE				
	4/49	-	8.4 est.	-	-	8.4 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			
4/49	4.89 (8.40) 3/	1.087 (1.867)	3.29 (5.66)	4.89 (8.40) 3/	1.087 (1.867)	3.29 (5.66)				
6/52	3.26 (3.86) 2/	1.02 (1.21)	3.09 (3.67)	8.15 (12.26) 3/	1.06 (1.59)	3.22 (4.82)				
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	c. PERIOD	d. TOT. TO DATE		
	4/49	54.8 (3)	3,930 (6,750)	3,930 (6,750)	2.63	11.83	6,340 (10,890)	6,340 (10,890)		
6/52	55.5 (3)	3,740 (4,440)	3,900 (5,830)	2.56	19.71					

1/ At crest. 2/ C/I ratio estimated to be 0.478 in 1944, 0383 in 1949 and 0.338 in 1952. Trap efficiency estimated to be 97% in 1944 and 96% in 1949 and 1952. 3/ Includes 0.13 A.F. sediment above emergency spillway.

26. DATE OF SURVEY <u>1/</u>	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION														
	Below crest						Between crest and emergency					above emergency			
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION															
April 1949	58						40					2			
June 1952	66						33					1			
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							
1944:															
105.9	6.23	41.35													
100.0	3.69	12.84													
1949:															
105.9	5.92	33.08													
100.0	2.81	8.05													
1952:															
105.9	5.92	29.22													
100.0	2.70	4.79													
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, Wis., 1950															
2. USDA Yearbook of Agriculture, Washington, D. C., 1941.															
Mechanical analysis made of sediment. June 1952 - some seepage below dam.															
48. AGENCY SUPPLYING DATA SCS, Milwaukee, Wisconsin 49. DATE July 20, 1952															

1/ These figures are for total sediment to date of survey.