

U.S. DEPARTMENT OF AGRICULTURE
RESERVOIR SEDIMENTATION
DATA SUMMARY

Mule Creek "B"

SOIL CONSERVATION SERVICE
35-46
DATA SHEET NO.

NAME OF RESERVOIR

DAM	1. OWNER Plumb Est. - Hilton			2. RIVER Trib. of Mule Cr.		3. STATE Iowa		
	4. SEC. 34 TWP. 72N RANGE 42W			5. NEAREST TOWN Malvern		6. COUNTY Mills		
	7. STREAM BED ELEV. 1,132.5			8. TOP OF DAM ELEV. 1,160.0		9. SPILLWAY CREST ELEV. 1,158.0		
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	1,158.00	6.834	43,568	55,301	Aug. 1954		
	b. POWER							
	c. WATER SUPPLY							
	d. IRRIGATION							
	e. CONSERVATION							
	f. INACTIVE 1/	1,150.64	2.720	11.733	11.733	Aug. 1954		
WATERSHED	17. LENGTH OF RESERVOIR 0.152 2/ MILES			AV. WIDTH OF RESERVOIR 0.055 MILES				
	18. TOTAL DRAINAGE AREA 0.383 SQ. MI.			22. MEAN ANNUAL PRECIPITATION 28.65 INCHES				
	19. NET SEDIMENT CONTRIBUTING AREA 0.368(0.379) SQ. MI.			23. MEAN ANNUAL RUNOFF 3.96 4/ INCHES				
	20. LENGTH 0.70 MILES		AV. WIDTH 0.547 MILES		24. MEAN ANNUAL RUNOFF 80.8 4/ AC-FT.			
	21. MAX. ELEV. 1,250.0		MIN. ELEV. 1,132.5		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 AC-FT. PER SQ. MI.
	Aug. 1954	-	-	Range	10	9.55(2.72)	55.3(11.7)	144(31)
	Oct. 1956	2.17	2.17	"	"	" "	52.6(9.22)	137(24)
	Sept. 1957	0.92	3.09	"	"	" "	51.8(8.82)	135(23)
	Oct. 1958	1.08	4.17	"	"	" "	50.3(7.71)	131(20)
	Jan. 1960	1.33	5.50	"	"	" "	47.6(5.34)	124(14)
	Dec. 1960	0.92	6.42	"	"	" "	47.1(5.24)	123(14)
	26. DATE OF SURVEY	34. PERIOD ANNUAL PRECIPITATION	35. PERIOD WATER INFLOW ACRE- FEET			36. WATER INFL. TO DATE AC-FT.		
	Cal. Year		a. MEAN ANNUAL	b. MAX. ANNUAL	c. PERIOD TOTAL	d. MEAN ANNUAL	e. TOTAL TO DATE	
	1954	40.73 3/						
	1955	20.91 3/						
	1956	28.56 3/						
	1957	38.80 3/						
1958	36.15							
1959	42.87							
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		
Oct. 1956	2.66(2.51)	1.22(1.16)	3.31(3.06)	2.66(2.51)	1.22(1.16)	3.31(3.06)		
Sept. 1957	0.86(0.40)	0.94(0.43)	2.55(1.13)	3.52(2.91)	1.14(0.94)	3.10(2.48)		
Oct. 1958	1.45(1.11)	1.34(1.03)	3.64(2.72)	4.97(4.02)	1.19(0.96)	3.23(2.53)		
Jan. 1960	2.70(2.38)	2.03(1.79)	5.52(4.72)	7.57(6.40)	1.39(1.16)	3.78(3.06)		
Dec. 1960	0.52(0.10)	0.57(0.11)	1.55(0.29)	8.19(6.50)	1.28(1.01)	3.48(2.66)		
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		
Oct. 1956	72.6	5.2(4.8)	5.2(4.8)	2.2(9.9)	4.8(21)			
Sept. 1957	69.5(2)	3.9(1.7)	4.7(3.8)	2.1(8.0)	6.4(25)			
Oct. 1958	59.2(2)	4.7(3.5)	4.2(3.3)	2.2(8.2)	9.0(34)			
Jan. 1960	67.2(2)	8.1(6.9)	5.5(4.5)	2.5(9.9)	13.9(55)			
Dec. 1960	55.3(2)	1.9(0.3)	4.2(3.2)	2.3(8.7)	14.8(55)			

(Thousand Tons)

26. DATE OF SURVEY Aug. 1954	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION												
	Inactive Pool	"F.C. Pool"											
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
Oct. 1956	95%		5%										
Sept. 1957	83		17										
Oct. 1958	81		19										
Jan. 1960	83		17										
Dec. 1960	79		21										

26. DATE OF SURVEY Aug. 1954	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															
Oct. 1956	20	26	20	17	11	4	1	1	0	0					
Sept. 1957	19	25	19	16	11	5	3	1	1	0					
Oct. 1958	17	22	18	18	13	6	3	1	1	1					
Jan. 1960	23	28	19	15	10	4	1	0	0	0					
Dec. 1960	23	27	18	12	11	5	2	1	1	0					

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
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47. REMARKS AND REFERENCES Quantities shown in parenthesis (except item 39) refer to amounts in the inactive pool only.

- 1/ Storage used for sediment pool
- 2/ Additional 0.118 miles of principal arm not included.
- 3/ Amount partially estimated.
- 4/ Water years 1954-55 thru 1958-59 at gage 5.2 miles downstream.
- 5/ Principal spillway elevation (1,150.64) ends at 42% of total length.

48. AGENCY SUPPLYING DATA Soil Conservation Service 49. DATE January 1961

**RESERVOIR SEDIMENT
DATA SUMMARY**

SCS-34 Rev. 6-62

Mule Creek "B"
NAME OF RESERVOIR

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

35-46A

DATA SHEET NO.

DAM	1. OWNER <u>Plumb Est.-Hilton</u>			2. STREAM Trib., <u>Nishnabotna R.</u>		3. STATE <u>Iowa</u>		
	4. SEC. <u>34</u> TWP. <u>72N</u> RANGE <u>42W</u>			5. NEAREST TOWN <u>Malvern</u>		6. COUNTY <u>Mills</u>		
	7. STREAM BED ELEVATION <u>1,132.5</u>			8. TOP OF DAM ELEVATION <u>1,160.0</u>		9. SPILLWAY CREST ELEV. <u>1,158.0</u>		
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. MULTIPLE USE							
	b. FLOOD CONTROL	<u>1,158.0</u>	<u>9.55</u>	<u>43.57</u>	<u>55.30</u>	<u>Aug. 1954</u>		
	c. POWER							
	d. WATER SUPPLY							
	e. IRRIGATION					16. DATE NORMAL OPER. BEGAN		
	f. CONSERVATION							
	g. SEDIMENT	<u>1,150.6</u>	<u>2.72</u>	<u>11.73</u>	<u>11.73</u>	<u>Aug. 1954</u>		
h. INACTIVE								
17. LENGTH OF RESERVOIR <u>0.152</u> ✓		MILES		AV. WIDTH OF RESERVOIR <u>0.055</u>		MILES		
WATERSHED	18. TOTAL DRAINAGE AREA <u>0.383</u>			SQ. MI.		22. MEAN ANNUAL PRECIPITATION <u>28.65</u> INCHES		
	19. NET SEDIMENT CONTRIBUTING AREA <u>0.368</u>			SQ. MI.		23. MEAN ANNUAL RUNOFF <u>3.96</u> ✓ INCHES		
	20. LENGTH <u>0.70</u> MILES		AV. WIDTH <u>0.55</u> MILES		24. MEAN ANNUAL RUNOFF <u>80.9</u> ✓ AC.-FT.			
	21. MAX. ELEV. <u>1,250</u>		MIN. ELEV. <u>1,132.5</u>		25. CLIMATIC CLASSIFICATION <u>Sub-humid</u>			
	26. DATE OF SURVEY		27. PERIOD YEARS		28. ACCL. YEARS		29. TYPE OF SURVEY	
Feb. 1962		<u>1.08</u> ✓		<u>7.50</u> ✓		<u>Range(D)</u>		
Jan. 1963		<u>0.92</u>		<u>8.42</u>		"		
Jan. 1964		<u>1.0</u>		<u>9.42</u>		"		
Jan. 1965		<u>1.0</u>		<u>10.42</u>		"		
Jan. 1966		<u>1.0</u>		<u>11.42</u>		"		
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.
	Feb. 1962	<u>1.08</u> ✓	<u>7.50</u> ✓	<u>Range(D)</u>	<u>10</u>	<u>9.55(2.72)</u>	<u>45.1(4.30)</u>	<u>118</u>
	Jan. 1963	<u>0.92</u>	<u>8.42</u>	"	"	" "	<u>43.5(2.8)</u>	<u>114</u>
	Jan. 1964	<u>1.0</u>	<u>9.42</u>	"	"	" "	<u>44.6(3.2)</u>	<u>117</u>
	Jan. 1965	<u>1.0</u>	<u>10.42</u>	"	"	" "	<u>42.7(2.5)</u>	<u>111</u>
	Jan. 1966	<u>1.0</u>	<u>11.42</u>	"	"	" "	<u>36.5(0.5)</u>	<u>95</u>
	26. DATE OF SURVEY cal. yr.	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	
	1960	<u>34.84</u> ✓						
	1961	<u>34.03</u> ✓						
	1962	<u>29.71</u> ✓						
	1963	<u>25.17</u> ✓						
1964	<u>38.24</u> ✓							
1965	<u>47.31</u> ✓							
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		
Feb. 1962	<u>2.03(0.93)</u>	<u>1.88(0.86)</u>	<u>5.11(2.27)</u>	<u>10.22(2.27)</u>	<u>1.36(0.99)</u>	<u>3.70(2.61)</u>		
Jan. 1963	<u>1.60(1.53)</u>	<u>1.74(1.66)</u>	<u>4.73(4.38)</u>	<u>11.82(8.96)</u>	<u>1.40(1.06)</u>	<u>3.80(2.79)</u>		
Jan. 1964	<u>-1.06(-0.45)</u>	<u>-1.06(-0.45)</u>	<u>-2.88(-1.19)</u>	<u>10.76(8.51)</u>	<u>1.14(0.90)</u>	<u>3.10(2.38)</u>		
Jan. 1965	<u>1.81(0.67)</u>	<u>1.81(0.67)</u>	<u>4.92(1.68)</u>	<u>12.57(9.18)</u>	<u>1.21(0.88)</u>	<u>3.29(2.32)</u>		
Jan. 1966	<u>6.22(2.10)</u>	<u>6.22(2.10)</u>	<u>16.91(5.53)</u>	<u>18.79(11.28)</u>	<u>1.65(0.99)</u>	<u>4.48(2.61)</u>		
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. AN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE	
Feb. 1962	<u>55.3(2)</u> ✓	<u>6.15(2.73)</u>	<u>4.5(3.1)</u>	<u>25(8.4)</u>	<u>18.5(63.3)</u>			
Jan. 1963	<u>62.1(2)</u>	<u>6.40(5.92)</u>	<u>5.1(3.8)</u>	<u>27(9.0)</u>	<u>21.4(76.4)</u>			
Jan. 1964	<u>51.8(2)</u>	-----	<u>3.5(2.7)</u>	<u>21(7.7)</u>	<u>19.4(72.5)</u>			
Jan. 1965	"	<u>5.55(1.90)</u>	<u>3.7(2.6)</u>	<u>22(7.5)</u>	<u>22.7(78.2)</u>			
Jan. 1966	"	<u>19.08(6.24)</u>	<u>5.1(2.9)</u>	<u>30(8.4)</u>	<u>34.0(96.1)</u>			

(Thousand Tons)

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	Sediment			F.C.			Pool					
	Pool PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Feb. 1962		73%		27%								
Jan. 1963		76%		24%								
Jan. 1964		79%		21%								
Jan. 1965		73%		27%								
Jan. 1966		60%		40%								

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														
Feb. 1962	21	27	19	14	11	5	2	1	0	0					
Jan. 1963	23	24	18	16	12	4	2	1	0	0					
Jan. 1964	23	27	18	15	10	4	2	1	0	0					
Jan. 1965	21.4	25.6	18.3	13.1	9.2	3.5	2.4	4.2	1.7	0.3					
Jan. 1966	26	30	20	11	8	3	1	0.5	0.3	0.2					

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 Quantities shown in parentheses (except item 39) refer to amounts in the sediment pool only

1/additional 0.118 miles of principal arm not included. 2/from gage 2.5 miles downstream for water years 1955-59. 3/adjusted to correct error from previous year. 4/Station - Malvern 5W, partially estimated. 5/Station - Malvern 4W. 6/Station - Glenwood 8SSE. 7/Station - Glenwood 2N. 8/based on Dec. 1960 sample.

48. AGENCY MAKING SURVEY Soil Conservation Service
 49. AGENCY SUPPLYING DATA Soil Conservation Service
 50. DATE March 1966

RESERVOIR SEDIMENT
DATA SUMMARY

SCS 34 Rev. 6-66

Mule Creek "B"

NAME OF RESERVOIR

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

35-46 B

DATA SHEET NO.

DAM	1. OWNER				2. STREAM Trib. of Nishnabotna STATE Iowa								
	4. SEC. 34 TWP. 72N RANGE 42W			5. NEAREST P.O. Malvern			6. COUNTY Mills						
	7. LAT. 40° 95' 30" LONG. 95° 39' 38"				8. TOP OF DAM ELEVATION 1160.0		9. SPILLWAY CREST ELEV. 1158.0						
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		1158.0		6.834		43.547		55.290		Aug. 1954		
	b. MULTIPLE USE												
	c. POWER												
	d. WATER SUPPLY										16. DATE NORMAL OPER. BEGAN		
	e. IRRIGATION										Aug. 1954		
	f. CONSERVATION												
	g. INACTIVE 1/		1150.64		2.720		11.743		11.743				
WATERSHED	17. LENGTH OF RESERVOIR 0.152 2/ MILES				AV. WIDTH OF RESERVOIR 0.055 MILES								
	18. TOTAL DRAINAGE AREA 0.383 SQ. MI.				22. MEAN ANNUAL PRECIPITATION 28.65 INCHES								
	19. NET SEDIMENT CONTRIBUTING AREA 0.368 (0.379) SQ. MI.				23. MEAN ANNUAL RUNOFF 3.96 4/ INCHES								
	20. LENGTH 0.70 MILES		AV. WIDTH 0.547 MILES		24. MEAN ANNUAL RUNOFF 80.8 4/ AC.-FT.								
	21. MAX. ELEV. 1250.0		MIN. ELEV. 1132.5		25. ANNUAL TEMP: MEAN 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.				
	Aug. 1966		0.58	12.00	Range (D)	10	9.55 (2.72)	39.893 (0.315)	0.494 (0.004)				
	June 1969		2.75	14.75	"	10	6.83 (2.72)	40.069 (.114)	0.50 (.001)				
	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				
	Aug. 1966		6/										
	June 1969		6/										
	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					
	Aug. 1966		-3.352 (0.182)	-5.779 (0.314)	-15.704 (0.828)	15.397 (11.428)	1.283 (0.952)	3.486 (2.512)					
June 1969		0.302 (0.201)	0.110 (0.073)	-0.298 (0.193)	15.221 (11.629)	1.032 (0.788)	2.804 (2.080)						
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					
Aug. 1966		51.8	-17.717 (0.934)	3.933 (2.834)	2.32 (8.11)	27.85 (97.31)							
June 1969		71.64 7/	-6.836 (5.039)	4.375 (3.246)	1.87 (6.71)	27.53 (99.03)							

(thousand tons)

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET BELOW, AND ABOVE, CREST ELEVATION												
	Inactive-Flbod Popl												
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
Aug. 1966													
June 1969		74			26								
		76.4			23.6								

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															
Aug. 1966	21.1	29.7	19.8	13.3	8.5	4.0	2.3	0.7	0.4	0.2					
June 1969	21.7	29.8	18.7	12.6	9.9	4.2	2.2	0.6	0.3	0.0					

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/ Storage used for sediment pool.
 2/ Additional 0.118 miles of principal are not included.
 3/ Water years 1954-55 thru 1958-59 at gage.
 4/ Station - Glenwood 2N
 7/ Weight determined by Gamma Probe

Note: Lower figures are for reservoir area below principal spillway.

48. AGENCY MAKING SURVEY SCS - 1966 Survey by ARS
 49. AGENCY SUPPLYING DATA SCS
 50. DATE May 1970