

RESERVOIR SEDIMENTATION
DATA SUMMARY

Herman Lage

NAME OF RESERVOIR

35-16

DATA SHEET NO.

| | | | | | | | | | |
|-------------------------|--|------------------------------------|------------------------------------|---|---------------------------------------|------------------------------------|-------------------------|-----------------------------------|---------|
| DAM | 1. OWNER Herman Lage | | | 2. RIVER Trib. of Elk Creek | | | 3. STATE Iowa | | |
| | 4. SEC. 2 TWP. 82 N RANGE 37 W | | | 5. NEAREST TOWN Aspinwall | | | 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 | | 1.63 | 3.83 | 12.07 | July 1941 | | | |
| | b. POWER | | | | | | | | |
| | c. WATER SUPPLY | | 1.14 | 8.24 | 8.24 | 16. DATE NORMAL OPER. BEGAN | | | |
| | d. IRRIGATION | | | | | | | | |
| | e. CONSERVATION | | | | | | | | |
| | f. INACTIVE | | | | | July 1941 | | | |
| 17. LENGTH OF RESERVOIR | | | | MILES | AV. WIDTH OF RESERVOIR | | | | MILES |
| WATERSHED | 18. TOTAL DRAINAGE AREA 0.038 | | | SQ. MI. | 22. MEAN ANNUAL PRECIPITATION 28 (40) | | | INCHES | |
| | 19. NET SEDIMENT CONTRIBUTING AREA 0.036 | | | SQ. MI. | 23. MEAN ANNUAL RUNOFF 4.9 * | | | 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. | |
| July 1941 | - | - | - | - | 1.14 | 8.24 | 217 | | |
| April 1949 | 7.8 | 7.8 | Range Detailed | 3 | 1.12 | 7.00 | 184 | | |
| SURVEY DATA | 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 | a. MEAN ANNUAL | b. TOTAL TO DATE | | |
| | April 1949 | | (inches) | | | (inches) | | | |
| | | | 7.7 * | | | 7.7 * | | | |
| 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 | | | |
| April 1949 | 1.24 (1.26) <u>1/</u> | 0.159 (0.162) | 4.42 (4.50) | 1.24 (1.26) | 0.159 (0.162) | 4.42 (4.50) | | | |
| 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) | 5,275 (5,370) | 5,275 (5,370) | 1.34 (1.93) ^{2/} | 10.4 (15.0) ^{2/} | 8,950 ^{3/} | 8,950 ^{3/} | | |

* Estimated

1/ 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 | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

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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 | -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.
 Water has never spilled over drop inlet. Trap efficiency 100 percent.

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

48. AGENCY SUPPLYING DATA Region 3, Soil Conservation Service
 U. S. Department of Agriculture
 Milwaukee, Wisconsin

49. DATE January 9, 1950

RESERVOIR SEDIMENTATION DATA SUMMARY

Herman Lage

35-16a

NAME OF RESERVOIR

DATA SHEET NO.

| | | | | | | | | | |
|-------------------------|---|-----------------------------------|---|------------------------------------|--|---|--------------------------------|---|--|
| DAM | 1. OWNER Herman Lage | | | 2. RIVER Trib. of Elk Creek | | 3. STATE Iowa | | | |
| | 4. SEC. 2 TWP. 82N RANGE 37W | | | 5. NEAREST TOWN Aspinwall | | 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 | 102.8 | 1.63 | 3.83 | 12.07 | July 1941 | | | |
| | b. POWER | | | | | | | | |
| | c. WATER SUPPLY | 100.0 | 1.14 | 8.24 | 8.24 | 16. DATE NORMAL OPER. BEGAN | | | |
| | d. IRRIGATION | | | | | | | | |
| | e. CONSERVATION | | | | | | | | |
| | f. INACTIVE | | | | | July 1941 | | | |
| 17. LENGTH OF RESERVOIR | | | | MILES | AV. WIDTH OF RESERVOIR | | | | |
| WATERSHED | 18. TOTAL DRAINAGE AREA 0.038 | | | SQ. MI. | 22. MEAN ANNUAL PRECIPITATION 28 (40) | | | | |
| | 19. NET SEDIMENT CONTRIBUTING AREA 0.036 | | | SQ. MI. | 23. MEAN ANNUAL RUNOFF 4.9 est. | | | | |
| | 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 AC-FT. PER SQ. MI. | |
| | 7/41 | - | - | - | - | 1.63 | 12.07 | 318 | |
| | 4/49 | 7.8 | 7.18 | Detailed | 3 ranges | 1.61 | 10.83 | 285 | |
| | 6/52 | 3.2 | 11.0 | Range | " | 1.61 | 8.98 | 249 | |
| | | | | " | " | | | | |
| | 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 | |
| | 4/49 | | - | (inches) | - | - | (inches) | - | |
| | | | | 7.7 est. | | | 7.7 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 | a. TOTAL TO DATE | b. AV. ANNUAL | c. PER SQ. MI.-YEAR | | |
| 4/49 | | 1.24 | 0.159 | 4.417 | 1.24 | 0.159 | 4.417 | | |
| | | (1.26) | (1.162) | (4.500) | (1.26) | (0.162) | (4.500) | | |
| 6/52 | | 1.85 | 0.578 | 16.1 | 3.09 | 0.281 | 7.81 | | |
| | | (1.85) | (0.578) | (16.1) | (3.11) | (0.283) | (7.85) | | |
| 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 | |
| 4/49 | | 54.8 (3) | 5,270 | 5,270 | 1.32 | 10.3 | 8,950 | 8,950 | |
| | | | (5,369) | (5,369) | | | (9,119) | (9,119) | |
| 6/52 | | 49.5(3) | 17,358 | 8,420 | 2.33 | 25.6 | | | |
| | | | (17,358) | (8,463) | | | | | |

C/I ratio estimated to be 1.21 in 1941, 1.09 in 1949, and 0.900 in 1952. Trap efficiency estimated to be 100% in 1941 and 1949, and 98% in 1952. Has spilled only once (1/2 day in June 1951)

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|---|------------|---|----------------|------------|------------|-----------------------------|----------------|----------|-------|-------|--------|------|------|------|------|------|
| 26. DATE OF SURVEY <u>1/</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 | | | | | | | | | | | | | | |
| April 1949 | | 98 | | | | | 2 | | | | | | | | | |
| | | 99 | | | | | 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 | | | | | | | | |
| 1941: | | | | | | | | | | | | | | | | |
| 102.8 | 1.63 | 12.07 | | | | | | | | | | | | | | |
| 100.0 | 1.14 | 8.24 | | | | | | | | | | | | | | |
| 1949: | | | | | | | | | | | | | | | | |
| 102.8 | 1.63 | 10.81 | | | | | | | | | | | | | | |
| 100.0 | 1.12 | 7.00 | | | | | | | | | | | | | | |
| 1952: | | | | | | | | | | | | | | | | |
| 102.8 | 1.63 | 8.96 | | | | | | | | | | | | | | |
| 100.0 | 1.12 | 5.15 | | | | | | | | | | | | | | |
| 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. USDA Yearbook of Agriculture, Washington D. C. 1941 | | | | | | | | | | | | | | | | |
| 48. AGENCY SUPPLYING DATA SCS, Milwaukee, Wisconsin | | | | | | | | | | | | | | | | |
| 49. DATE July 20, 1952 | | | | | | | | | | | | | | | | |

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