

RESERVOIR SEDIMENTATION DATA SUMMARY

Crooked Creek

21-24

NAME OF RESERVOIR

DATA SHEET NO.

1. OWNER Dept of Army, C. of E.		2. RIVER Crooked Creek		3. STATE Pennsylvania				
4. SEC. --- Twp Bethel Manor RANGE ---		5. NEAREST TOWN Ford City, Pa.		6. COUNTY Armstrong				
7. STREAM BED ELEV. 804.0		8. TOP OF DAM ELEV. 946.0		9. SPILLWAY CREST ELEV. 918.0				
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	918.0	1,900	86,090	90,060	April 1940		
	b. POWER							
	c. WATER SUPPLY							
	d. IRRIGATION					16. DATE NORMAL OPER. BEGAN		
	e. CONSERVATION	840.0	350	4,510	4,510	Oct 28, 1940		
f. INACTIVE								
17. LENGTH OF RESERVOIR 14.0 MILES		AV. WIDTH OF RESERVOIR 0.219 MILES						
WATERSHED	18. TOTAL DRAINAGE AREA 278 SQ. MI.		22. MEAN ANNUAL PRECIPITATION (24 yrs) 41.4 INCHES					
	19. NET SEDIMENT CONTRIBUTING AREA 275 SQ. MI.		23. MEAN ANNUAL RUNOFF (30 yrs.) 20.3 INCHES					
	20. LENGTH 29.3 MILES	AV. WIDTH 9.5 MILES	24. MEAN ANNUAL RUNOFF 300,400 AC.-FT.					
	21. MAX. ELEV. 1620		MIN. ELEV. 804.0		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.
	April 1940			Range	24 Ranges	1,900	90,060	324
	1 Sep 1945	4.8	4.8	Range	24 Ranges 1/		89,968	324
SURVEY DATA	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	
	1 Sep 1945	41.4	290,000	332,200 (1942)	1,436,800	290,000	1,436,800	
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.-YR.	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YR.	
	1 Sep 45	91.6	19.2	.069	91.6	19.2	.069	
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. TO DATE	a. PERIOD	b. TO DATE
	1 Sep 45	100*	150	150	0.022	0.10	102	102

21-24

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION													
	18-98	98-88	88-78	78-68										
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
1 Sep 45	6	34	51	9										

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														
1 Sep 45	23	26	28	22	1										

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1941 (Nov-Sep)	851.82	838.03	189,100				
1942	877.48	837.60	237,400				
1943	895.53	839.59	385,400				
1944	867.90	838.56	238,100				
1945 (Oct-Aug)	897.70	840.25	386,900				

46. ELEVATION-AREA-CAPACITY DATA 2/								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
804	0	0	850	562	8,940	890	1,300	45,310
815	32	150	855	646	12,050	895	1,404	52,150
820	70	460	860	718	15,570	900	1,510	59,490
825	144	900	865	800	19,250	910	1,724	75,550
830	194	1,650	870	890	23,350	918	1,900	90,060
835	260	2,850	875	992	28,200	920	1,944	93,900
840	350	4,510	880	1,094	33,840	930	2,142	114,400
845	464	6,450	885	1,196	39,150	940	2,452	137,600

47. REMARKS AND REFERENCES
 Letter report dated 12 December 1946, subject: "Report upon Sedimentation of Crooked Creek Reservoir, Allegheny River Basin, Pa," by District Engineer, Corps of Engineers, US Army, Pittsburgh, Pa, to Chief of Engrs, Dept of the Army, Washington 25, DC.
 1/ Ranges cover the reach of the conservation pool. No deposits were observed above elev 845. No delta formations were apparent.
 2/ Total capacity reduction of 92 ac-ft. is so small compared to total capacity of 90,060 ac-ft. to spillway crest El. 918 that it is believed inadvisable to adjust capacity curve at this time.

RESERVOIR SEDIMENTATION
DATA SUMMARY

Crooked Creek

21-24a

NAME OF RESERVOIR

DATA SHEET NO.

DAM	1. OWNER Corps of Engrs, U.S. Army		2. RIVER Crooked Creek		3. STATE Pennsylvania			
	4. SEC. -- TWP. Bethel RANGE --		5. NEAREST TOWN Ford City, Pa.		6. COUNTY Armstrong			
	7. STREAM BED ELEV. 803		8. TOP OF DAM ELEV. 946		9. SPILLWAY CREST ELEV. 918			
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	920 <u>1/</u>	1,940	89,400	93,900	April 1940		
	b. POWER							
	c. WATER SUPPLY							
	d. IRRIGATION					16. DATE NORMAL OPER. BEGAN		
	e. CONSERVATION					July 1940		
WATERSHED	17. LENGTH OF RESERVOIR 14.0 MILES		AV. WIDTH OF RESERVOIR 0.22 MILES					
	18. TOTAL DRAINAGE AREA 277 SQ. MI.		22. MEAN ANNUAL PRECIPITATION (24 yrs.) 41.4 INCHES					
	19. NET SEDIMENT CONTRIBUTING AREA 274 SQ. MI.		23. MEAN ANNUAL RUNOFF (30 yrs.) 20.3 INCHES					
	20. LENGTH 29.3 MILES		AV. WIDTH 9.5 MILES		24. MEAN ANNUAL RUNOFF 300,400 AC.-FT.			
	21. MAX. ELEV. 1620		MIN. ELEV. 803		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.
	April 1940	-	-	Contour (D)	5'	1,940	93,900	339
	1 Sep 1945	5.4	5.4	Range	24 <u>2/</u>	1,940	93,808	339
	26. DATE OF SURVEY	34. PERIOD ANNUAL MEAN 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		
	1 Sep 1945	41.4	266,100	332,200 (1942)	1,436,800	266,100	1,436,800	
	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.-YR.	a. TOTAL TO DATE	b. AV. ANNUAL	c. PER SQ. MI.-YR.	
	1 Sep 1945	91.6	17.0	0.062	91.6	17.0	0.062	
	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. TO DATE	a. PERIOD	b. TO DATE		
1 Sep 1945	65*	87.8	87.8	0.018	0.098	66.4	66.4	

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION												
	118-98	98-88	88-78	78-68									
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
1 Sep 1945	6	34	51	9									

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
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN REACH DESIGNATION														
1 Sep 1945	23	26	28	22	1									

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1941 (Nov-Sep)	851.82	838.03	189,100				
1942	877.48	837.60	237,400				
1943	895.53	839.59	385,400				
1944	867.90	838.56	238,100				
1945 (Oct-Aug)	897.70	840.25	386,900				

46. ELEVATION-AREA-CAPACITY DATA 3/								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
804	0	0	850	562	8,940	890	1,300	45,310
815	32	150	855	646	12,050	895	1,404	52,150
820	70	460	860	718	15,570	900	1,510	59,490
825	144	900	865	800	19,250	910	1,724	75,550
830	194	1,650	870	890	23,350	918	1,900	90,060
835	260	2,850	875	992	28,200	920	1,944	93,900
840	350	4,510	880	1,094	33,840	930	2,142	114,400
845	464	6,450	885	1,196	39,150	940	2,452	137,600

47. REMARKS AND REFERENCES

1/ Full pool elevation considered to be 2 feet above spillway crest

2/ Ranges cover the reach of the conservation pool. No deposits were observed above Elev. 845. No delta formations were apparent.

3/ Total capacity reduction of 92 acre-feet is so small compared to total capacity of 93,900 acre-feet, reservoir full Elev. 920, that it is believed inadvisable to adjust capacity curve at this time.

48. AGENCY SUPPLYING DATA US Army Engineer District, Pittsburgh⁴⁹. DATE Rev. 29 June 1962
Corps of Engineers, Pittsburgh, Pennsylvania

**RESERVOIR SEDIMENT
DATA SUMMARY**

CROOKED CREEK

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

NAME OF RESERVOIR

21-24b

DATA SHEET NO.

DAM	1. OWNER Corps of Engrs, US Army		2. STREAM Crooked Creek		3. STATE Pennsylvania			
	4. SEC. TWP. Bethel RANGE		5. NEAREST TOWN Ford City, Pa.		6. COUNTY Armstrong			
	7. STREAM BED ELEVATION 803		8. TOP OF DAM ELEVATION 946		9. SPILLWAY CREST ELEV. 918			
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					Apr 1940		
	b. FLOOD CONTROL	920 1/	1,940	89,400	93,900			
	c. POWER							
	d. WATER SUPPLY					July 1940		
	e. IRRIGATION							
	f. CONSERVATION							
	g. SEDIMENT							
	h. INACTIVE	840	350	4,500	4,500			
17. LENGTH OF RESERVOIR 14.0		MILES		14. AV. WIDTH OF RESERVOIR 0.22		MILES		
WATERSHED	18. TOTAL DRAINAGE AREA 277		SQ. MI.		22. MEAN ANNUAL PRECIPITATION (24 yrs) 41.4			
	19. NET SEDIMENT CONTRIBUTING AREA 274		SQ. MI.		23. MEAN ANNUAL RUNOFF (53 yrs) 20.7			
	20. LENGTH 29.3		MILES		24. MEAN ANNUAL RUNOFF (53 yrs) 305,900		AC.-F.T.	
	21. MAX. ELEV. 1620		MIN. ELEV. 803		25. CLIMATIC CLASSIFICATION 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
April 1940	-	-	Contour (D)	5'	1,940 2/	93,900 2/	339	
Sept 1945	5.4	5.4	Range	24	1,940 2/	93,808 2/	339	
Aug 1964	18.9	24.3	Range	32	1,940 2/	92,376 2/	334	
SURVEY DATA	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	
	Sept 1945	41.4	266,100	332,200 (1942)	1,436,800	266,100	1,436,800	
	Aug 1964	44.3	314,300	543,700 (1956)	5,939,700	303,600	7,376,500	
	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		
Sept 1945	91.6	17.0	0.062	91.6	17.0	0.062		
Aug 1964	1432	75.8	0.277	1524	62.7	0.229		
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. AN.	b. TOT. TO DATE	a. PERIOD	b. TOT. TO DATE	
Sept 1945	65*	87.8	87.8	0.018	0.098	66.4	66.4	
Aug 1964	51 (6)	308	254	0.067	1.62	197	169	

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	118-98	98-88	88-78	78-68	68-58							
	PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION											
Sept 1945	6	34	51	9								
Aug 1964	16	23	34	26	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														
Sept 1945	23	26	28	22	1										
Aug 1964	21	23	39	16	1										

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV. #	INFLOW AC.-FT.
See attached sheet							

46. ELEVATION-AREA-CAPACITY DATA 3/								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
804	0	0	850	562	8,940	890	1,300	45,310
815	32	150	855	646	12,050	895	1,404	52,150
820	70	460	860	718	15,570	900	1,510	59,490
825	144	900	865	800	19,250	910	1,724	75,550
830	194	1,650	870	890	23,350	918	1,900	90,060
835	260	2,850	875	992	28,200	920	1,944	93,900
840	350	4,510	880	1,094	33,840	930	2,142	114,400
845	464	6,450	885	1,196	39,150	940	2,452	137,600

47. REMARKS AND REFERENCES

1/ Full pool elevation considered to be 2 feet above spillway crest.

2/ At elevation 920.

3/ Area-capacity relations are based on 1940 data. The total capacity reduction of 1,524 acre-feet is so small compared to total capacity of 93,900 acre-feet, reservoir full Elev. 920, that it is believed inadvisable to adjust original capacity curve at this time.

48. AGENCY MAKING SURVEY U. S. Army Engineer Dist., Pittsburgh, Pa.

49. AGENCY SUPPLYING DATA U. S. Army Engineer Dist., Pittsburgh, Pa. 50. DATE Rev. February 65

45.

RANGE IN RESERVOIR OPERATION

WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW ACRE-FEET
1941 (Nov-Sept)	851.82	838.03	189,100
1942	877.48	837.60	237,400
1943	895.53	839.59	385,400
1944	867.90	838.56	238,100
1945	897.70	840.25	418,100
1946	873.04	839.35	342,700
1947	860.60	840.50	265,700
1948	899.02	840.17	342,700
1949	872.69	833.73	264,900
1950	870.64	840.06	311,400
1951	883.95	840.75	490,000
1952	884.51	840.27	349,200
1953	864.60	839.23	281,100
1954	864.45	840.03	223,400
1955	891.20	837.50	360,000
1956	878.28	840.08	543,700
1957	885.67	840.04	259,900
1958	871.48	840.56	288,700
1959	874.17	839.99	252,700
1960	882.60	840.00	330,800
1961	882.72	839.59	274,500
1962	877.16	839.35	251,500
1963	881.76	840.01	222,500
1964 (Oct-July)	896.48	828.63	252,300