

RESERVOIR SEDIMENTATION  
DATA SUMMARY

Tygart River

21-25

NAME OF RESERVOIR

DATA SHEET NO.

1. OWNER Dept of the Army, C of E				2. RIVER Tygart		3. STATE West Virginia							
4. SEC. --- TW Court House Knocttville				5. NEAREST TOWN Grafton, WVa.		6. COUNTY Taylor							
7. STREAM BED ELEV. 960.0				8. TOP OF DAM ELEV. 1190.0		9. SPILLWAY CREST ELEV. 1167.0							
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		1167		3,440		278,400 Winter		289,600				
	b. POWER						178,350 Summer				Oct 1937		
	c. WATER SUPPLY - LOW FLOW REGULATION		1094		1,750		100,050 Summer		11,200 Winter		DATE NORMAL OPER. BEGAN		
	d. IRRIGATION								111,250 Summer				
	e. CONSERVATION		1010		660		11,200		11,200		Feb. 1938		
	f. INACTIVE												
17. LENGTH OF RESERVOIR 13.1			MILES			AV. WIDTH OF RESERVOIR 0.233			MILES				
18. TOTAL DRAINAGE AREA 1,183					SQ. MI.		22. MEAN ANNUAL PRECIPITATION (36 yrs) 48.8					INCHES	
19. NET SEDIMENT CONTRIBUTING AREA 1,178					SQ. MI.		23. MEAN ANNUAL RUNOFF (39 yrs) 25.9					INCHES	
20. LENGTH 50.1			MILES			AV. WIDTH 23.6			MILES			24. MEAN ANNUAL RUNOFF 1,639,000	AC.-FT.
21. MAX. ELEV. 1775			MIN. ELEV. 960			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		33. C/W RATIO AC.-FT. PER SQ. MI.		
Feb 1938				Contour (D)			3,440		289,600		245		
1 Feb 1945		7.0	7.0	Range (D)	29 Ranges				289,216		245		
Calendar Year Basis													
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 Feb 1945		48.7		1,609,800	1,882,200 (1942)	11,269,100		1,609,800		11,269,100			
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 Feb 1945		384	55	.0465	384	55	.0465						
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 Feb 1945		100*	101.3	101.3	0.019	.13	55	55					

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION												
	207-157	157-137	137-117	117-97	97-82								
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION													
1 Feb. 1945	31	21	30	15	3								

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 Feb. 1945	21.5	12.0	22.5	28.0	11.0	5.0								
Range lines have not been established in the upstream 40 percent of the reservoir. In the survey, no deposits were observed above the limit of the low-water regulation pool (elevation 1094)														

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1938 (Feb-Sep)	1094.78	1003.01	1,271,100	1945 (Oct-Jan)	1114.18	1012.51	861,600
1939	1114.75	1004.98	1,568,600				
1940	1115.72	1005.15	1,462,700				
1941	1116.77	1009.02	1,171,400				
1942	1125.00	1009.98	1,285,500				
1943	1122.70	1011.00	2,162,600				
1944	1117.95	1012.88	1,485,500				

46. ELEVATION-AREA-CAPACITY DATA 1/								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
960	0	0	1090	1,688	104,450	1170	3,540	300,000
980	96	750	1100	1,836	122,050	1180	3,870	337,100
990	264	2,500	1120	2,128	161,650	1190	4,200	377,400
1000	428	5,900	1130	2,330	183,900			
1010	660	11,200	1140	2,576	208,400			
1020	794	18,450	1160	3,212	266,250			
1040	1,032	36,700	1167	3,440	289,600			
1060	1,288	60,000						
1080	1,550	88,300						

47. REMARKS AND REFERENCES  
 Letter report dated 8 May 1946, subject: Report Upon Sedimentation of Tygart River Reservoir by District Engineer, US Army, Pittsburgh, Pa. to Chief of Engineers, Dept of Army, Washington 25, D. C.

1/ Total capacity reduction of 384 acre-feet is so small compared to total capacity of 289,600 acre-feet to spillway crest elevation 1167 that it is believed inadvisable to adjust capacity curve at this time.

Deposits consisted of a light brown, fine, sandy silt.

RESERVOIR SEDIMENTATION  
DATA SUMMARY

Tygart River

21-25a

NAME OF RESERVOIR

DATA SHEET NO.

DAM	1. OWNER Corps of Engrs, U.S. Army		2. RIVER Tygart		3. STATE West Virginia			
	4. SEC. -- TW Court House Knottsville		5. NEAREST TOWN Grafton, W. Va.		6. COUNTY Taylor			
	7. STREAM BED ELEV. 960		8. TOP OF DAM ELEV. 1190		9. SPILLWAY CREST ELEV. 1167			
RESERVOIR	10. STORAGE ALLOCATION	11. ELEVATION TOP OF POOL	12. SURFACE AREA ACRES	13. STORAGE 1/ ACRE-Feet	14. ACCUMULATED 1/ ACRE-Feet	15. DATE STORAGE BEGAN		
	a. FLOOD CONTROL	1167	3,430	278,000 2/	287,700	Oct. 1937		
	b. <del>XXXXX</del> do.	1167	3,430	178,100 3/	178,100			
	c. WATER SUPPLY					16. DATE NORMAL OPER. BEGAN		
	d. IRRIGATION							
	e. CONSERVATION	1094	1,740	99,900 4/	109,600	Feb. 1938		
	f. INACTIVE	1010	620	9,700	9,700			
17. LENGTH OF RESERVOIR		13.1	MILES	AV. WIDTH OF RESERVOIR		0.41	MILES	
WATERSHED	18. TOTAL DRAINAGE AREA		1184	SQ. MI.	22. MEAN ANNUAL PRECIPITATION (20 yrs.)		47.2 INCHES	
	19. NET SEDIMENT CONTRIBUTING AREA		1179	SQ. MI.	23. MEAN ANNUAL RUNOFF (20 yrs.)		26.2 INCHES	
	20. LENGTH	58	MILES	AV. WIDTH	20.4	MILES	24. MEAN ANNUAL RUNOFF	1,653,100 AC.-FT.
	21. MAX. ELEV. 4842		MIN. ELEV. 960		25. CLIMATIC CLASSIFICATION			Humid Mesothermal
	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. 1937	-	-	Contour (D)	5'	3,430	289,600	245	
Feb. 1945 <sup>5/</sup>								
Mar. 1959	21.5	21.5	Range	63	3,430	287,700	243	
SURVEY DATA	26. DATE OF SURVEY	34. PERIOD Mean 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	
	March 1959	47.2	1,614,600	2,302,400 (1950)	34,714,000	1,614,600	34,714,000	
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.	
	March 1959	1900	88.4	0.075	1900	88.4	0.075	
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
	March 1959	65*	106	106	0.031	0.66	57.0	57.0

26. DATE OF SURVEY	43. DEPTH DESIGNATION RANGE IN FEET ABOVE, AND BELOW, CREST ELEVATION											
	207-157	157-73	73-0									
PERCENT OF TOTAL SEDIMENT LOCATED WITHIN DEPTH DESIGNATION												
March 1959	37.1	62.7	0.2									

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															
March 1959	26.0	13.2	26.3	20.5	10.0	4.0									

45. RANGE IN RESERVOIR OPERATION							
WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.	WATER YEAR	MAX. ELEV.	MIN. ELEV.	INFLOW AC.-FT.
1938	1094.78	1003.01	-	1949	1119.42	1012.80	1,795,400
1939	1144.75	1004.98	1,572,600	1950	1130.78	1015.16	2,302,400
1940	1115.72	1005.15	1,465,900	1951	1122.42	1011.70	2,003,100
1941	1116.77	1009.02	1,169,800	1952	1109.52	1010.40	1,561,200
1942	1125.00	1009.98	1,284,700	1953	1100.00	1010.90	1,325,700
1943	1122.70	1011.00	2,155,900	1954	1103.66	1010.82	1,126,900
1944	1117.95	1012.88	1,485,400	1955	1138.02	1010.06	1,761,300
1945	1134.39	1010.85	2,051,100	1956	1137.00	1009.87	2,102,200
1946	1107.70	1010.19	1,481,000	1957	1115.77	1010.48	1,637,600
1947	1121.52	1011.05	1,174,900	1958	1152.72	1010.30	2,173,600
1948	1132.19	1010.97	1,916,600	1959	1105.30	1009.92	1,166,600

46. ELEVATION-AREA-CAPACITY DATA 5/								
ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY	ELEVATION	AREA	CAPACITY
960	0	0	1065	1349	65070	1125	2223	171020
1010	617	9690	1070	1413	71970	1130	2320	182360
1015	725	13060	1075	1476	79190	1135	2438	194250
1020	790	16860	1080	1540	86730	1140	2556	206740
1025	859	20970	1085	1605	94590	1145	2716	219880
1030	916	25420	1090	1679	102800	1150	2897	233910
1035	973	30140	1095	1760	111390	1155	3055	248810
1040	1038	35170	1100	1836	120380	1160	3213	264460
1045	1102	40520	1105	1911	129750	1165	3372	280940
1050	1168	46190	1110	1986	139460	1167	3432	287740
1055	1236	52190	1115	2061	149610			
1060	1283	58490	1120	2141	160110			

47. REMARKS AND REFERENCES  
 1/ Capacities of original storage revised based on 1959 survey.  
 2/ Winter flood control  
 3/ Summer flood control  
 4/ Low water regulation  
 5/ In view of the limited amount sediment computed in the 1945 report (384 acre-feet), the values of the 1945 report are not included and were not used in computing survey data for the 1959 report. It is considered that the longer period (21.5 years) was necessary to develop a volume capable of being measured with a reasonable degree of accuracy.

48. AGENCY SUPPLYING DATA US Army Engineer District, Pittsburgh 49. DATE Rev. 29 June 1962  
 Corps of Engineers, Pittsburgh, Pennsylvania