03072000 DUNKARD CREEK AT SHANNOPIN, PA

Monongahela Basin
Lower Monongahela Subbasin

LOCATION.--Lat 39°45′33″, long 79°58′15″ referenced to North American Datum of 1927, Greene County, PA, Hydrologic Unit 05020005, on left bank 1,300 ft upstream from highway bridge at mine buildings at Shannopin, 1.2 mi north of Dunkard, 3.5 mi upstream from mouth, and 4 mi southwest of Greensboro.

DRAINAGE AREA.--229 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1940 to current year. Prior to December 1940 monthly discharge only, published in WSP 1305.

REVISED RECORDS.--WSP 1505: 1955.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 806.25 ft above National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Satellite telemetry at station.

COOPERATION.--Station established and maintained by the U.S. Geological Survey in cooperation with the U.S. Army Corps of Engineers, Pittsburgh District and the Pennsylvania Department of Environmental Protection.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Some regulation at low flow by mine pumpage above station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Dec 20	0100	4,830	9.03
Dec 25	0400	5,710	9.61
Jan 7	1800	4,280	8.63
May 4	2300	*6,180	*9.85

Minimum discharge, 8.7 ft^3/s, Aug. 31, gage height, 1.23 ft.

03072000 DUNKARD CREEK AT SHANNOPIN, PA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	22	23	99	226	391	179	431	329	94	56	77	20
2	22	21	151	191	590	162	404	1,890	150	58	83	20
3	22	22	112	182	494	125	535	1,170	315	57	60	19
4	22	21	91	159	e312	120	1,280	3,110	247	60	51	20
5	22	20	85	155	e221	134	664	2,850	532	50	42	19
6	21	21	83	155	e103	133	544	1,380	344	48	35	19
7	23	20	76	2,570	e213	131	517	1,690	222	44	31	24
8	26	19	61	1,780	e389	123	458	1,070	153	43	28	26
9	25	18	70	712	783	115	399	728	130	41	26	32
10	26	18	134	492	647	110	336	517	126	40	27	27
11	26	18	504	731	2,530	100	347	405	123	39	31	25
12	26	18	1,650	610	1,580	98	416	392	116	40	22	23
13	18	22	567	464	856	91	351	312	140	37	32	21
14	24	23	287	390	573	86	329	258	103	33	41	19
15	24	33	229	308	453	85	393	221	86	34	32	17
16	23	94	283	e178	361	85	793	183	75	29	25	21
17	22	93	897	e168	299	92	601	229	87	27	17	21
18	21	63	1,150	e157	277	89	468	195	1,090	180	16	20
19	21	52	1,480	e143	328	83	388	154	517	104	21	18
20	22	47	2,520	e131	288	81	371	126	348	62	25	18
21	23	45	733	e119	e232	74	593	114	313	43	30	20
22	22	41	411	e107	e201	67	548	104	199	29	35	21
23	24	35	223	e97	e173	67	499	95	141	26	36	20
24	25	33	824	e90	e154	64	434	91	107	54	29	19
25	31	72	3,740	e82	e139	68	360	85	89	53	23	18
26	51	178	1,010	e78	e129	134	308	104	80	36	22	23
27	54	119	755	e78	e119	1,160	267	114	85	30	24	37
28	41	93	573	262	188	722	225	100	69	27	23	50
29	34	81	425	1,050	---	692	252	153	62	26	26	45
30	25	72	333	689	---	828	249	191	59	24	19	41
31	24	---	278	434	---	531	---	122	---	33	11	---
Total	812	1,435	19,834	12,988	13,023	6,629	13,760	18,482	6,202	1,463	1,000	723
Mean	26.2	47.8	640	419	465	214	459	596	207	47.2	32.3	24.1
Max	54	178	3,740	2,570	2,530	1,160	1,280	3,110	1,090	180	83	50
Min	18	18	61	78	103	64	225	85	59	24	11	17
Cfsm	0.11	0.21	2.79	1.83	2.03	0.93	2.00	2.60	0.90	0.21	0.14	0.11
In.	0.13	0.23	3.22	2.11	2.12	1.08	2.24	3.00	1.01	0.24	0.16	0.12

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2009, BY WATER YEAR (WY)

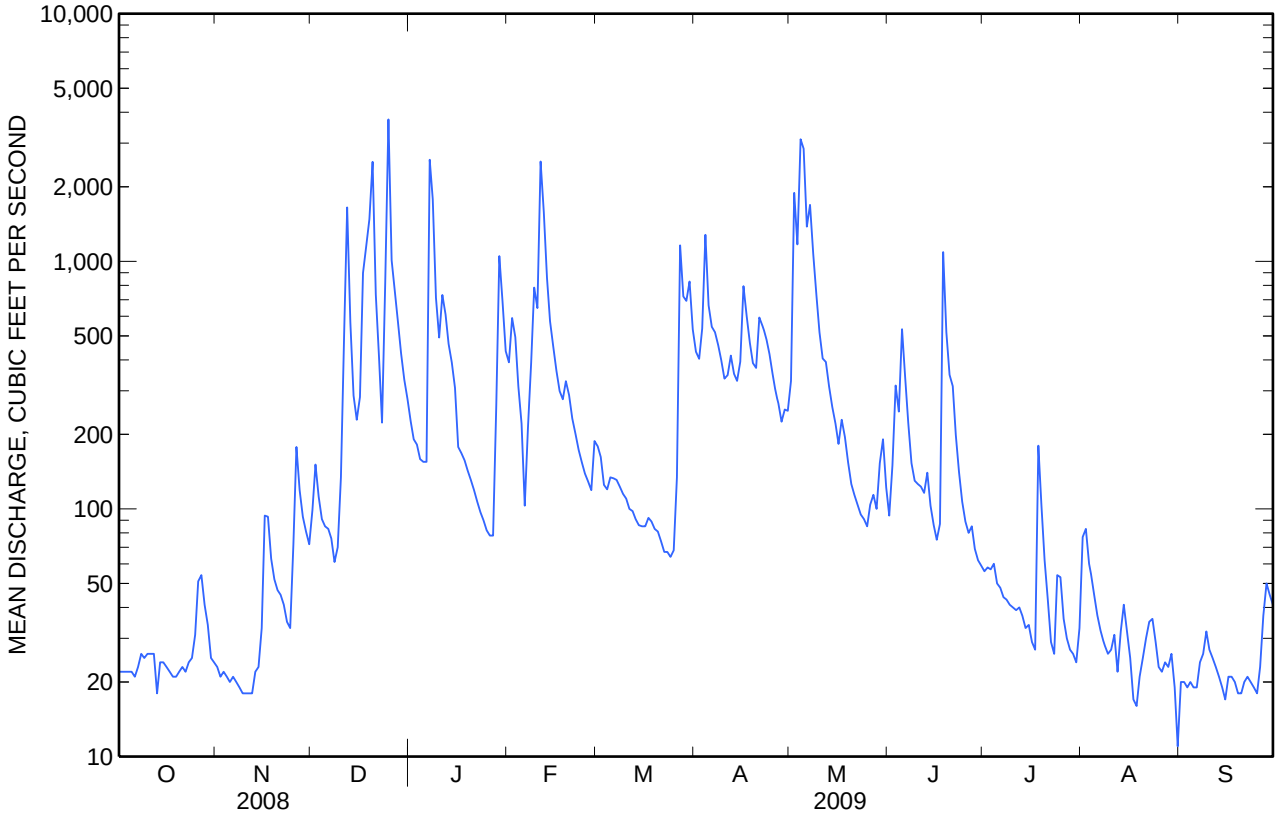
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	72.1	172	335	435	510	624	461	335	185	94.8	78.2	75.9
Max	381	1,149	1,071	1,243	1,100	1,475	1,033	903	877	461	890	573
(WY)	(1955)	(1986)	(1991)	(2005)	(1956)	(1994)	(1948)	(1968)	(1981)	(1996)	(1980)	(1975)
Min	1.73	2.44	7.46	26.5	63.5	112	80.9	57.4	10.2	4.62	2.45	2.38
(WY)	(1952)	(1954)	(1954)	(1967)	(1954)	(1987)	(1971)	(1986)	(1966)	(1962)	(1962)	(1999)

03072000 DUNKARD CREEK AT SHANNOPIN, PA—Continued

SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1941 - 2009	
Annual total	123,619		96,351			
Annual mean	338		264		281	
Highest annual mean					462	1994
Lowest annual mean					104	1954
Highest daily mean	3,740	Dec 25	3,740	Dec 25	11,200	Mar 5, 1963
Lowest daily mean	16	Sep 8	11	Aug 31	0.50	Aug 27, 1944
Annual seven-day minimum	19	Nov 6	18	Aug 30	0.73	Aug 25, 1944
Maximum peak flow			6,180	May 4	[a]17,600	Aug 18, 1980
Maximum peak stage			9.85	May 4	14.27	Aug 18, 1980
Instantaneous low flow			8.7	Aug 31	0.40	Aug 28, 1944
Annual runoff (cfsm)	1.47		1.15		1.23	
Annual runoff (inches)	20.08		15.65		16.67	
10 percent exceeds	852		654		686	
50 percent exceeds	170		94		100	
90 percent exceeds	24		21		8.5	

[a] From rating curve extended above 16,000 ft³/s.



03072000 DUNKARD CREEK AT SHANNOPIN, PA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April 2002 to current year.

REMARKS.--Analyses for pH, water temperature, specific conductance, and dissolved oxygen were performed on site. All other sample analyses were performed at the Pennsylvania Department of Environmental Protection laboratory in Harrisburg, Pa.

COOPERATION.--Water-quality samples were collected as part of the Pennsylvania Department of Environmental Protection Water-Quality Network (WQN) with cooperation from the Pennsylvania Department of Environmental Protection.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Part 1 of 3

[Remark codes: <, less than; M, presence verified but not quantified.]

Date	Time	Instantaneous discharge, ft^3/s (00061)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm @ 25 degC (90095)	Specific conductance, wat unf µS/cm @ 25 degC (00095)	Temperature, water, deg C (00010)	Dissolved solids dried @ 105degC wat flt mg/L (00515)	Hardness, water, mg/L as CaCO3 (00900)	Suspended solids, water, unfltrd mg/L (00530)	Calcium water unfltrd recoverable, mg/L (00916)	Magnesium, water, unfltrd recoverable, mg/L (00927)
Nov													
03...	1415	22	14.7	7.6	7.9	6,080	5,370	11.9	5,480	1,400	22	315	137
Dec													
18...	1200	1,080	12.2	7.8	7.6	465	456	4.5	316	110	116	30.7	8.3
Feb													
18...	1030	289	13.1	7.6	7.7	806	799	2.3	588	190	12	50.9	15.5
Mar													
31...	1015	559	11.1	7.5	7.8	628	627	7.6	448	150	6	41.0	12.3
Apr													
14...	1000	332	11.5	7.8	7.8	915	926	9.1	654	200	<5	51.3	16.9
May													
26...	1030	104	8.0	7.0	7.8	2,650	2,730	20.8	2,090	530	<5	138	45.2
Jun													
15...	1000	113	9.8	7.5	7.8	2,760	2,800	20.4	2,130	540	8	138	46.6
Jul													
09...	1100	41	9.5	7.6	8.0	5,380	5,470	20.0	4,240	1,000	22	255	94.9
Aug													
12...	1430	24	15.2	8.3	8.4	3,340	3,390	24.0	2,670	670	14	169	60.0
Sep													
09...	1600	35	13.8	8.1	8.2	7,790	7,880	21.5	7,260	1,700	26	425	143

03072000 DUNKARD CREEK AT SHANNOPIN, PA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
Part 2 of 3
[Remark codes: <, less than; M, presence verified but not quantified.]

Date	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (00417)	Chlor-ide, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, unfltrd mg/L as N (00610)	Nitrate water unfltrd mg/L as N (00620)	Nitrite water, unfltrd mg/L as N (00615)	Ortho-phos-phate, water, unfltrd mg/L as P (70507)	Phos-phorus, water, unfltrd mg/L as P (00665)	Total nitro-gen, water, unfltrd mg/L (00600)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, unfltrd recover-able, µg/L (01051)
Nov													
03...	140	--	3,250	.080	1.51	<.200	<.01	.070	2.1	800	M	360	<1.0
Dec													
18...	47	18.1	141	.160	.67	<.040	.03	.133	1.2	2,300	M	4,820	M
Feb													
18...	83	23.6	282	.200	.32	<.040	.01	.030	.64	300	<4	460	<1.0
Mar													
31...	65	23.0	211	.130	.37	<.040	.01	.032	.66	500	<4	820	M
Apr													
14...	85	27.9	334	.090	.19	<.040	.01	.021	.80	300	<4	350	<1.0
May													
26...	124	72.4	1,270	.160	.39	.060	.01	.036	.94	400	M	430	<1.0
Jun													
15...	124	132	1,260	.070	.70	<.040	.02	.043	1.2	600	<4	420	<1.0
Jul													
09...	153	187	2,760	.030	.92	<.040	.02	.062	1.4	800	M	350	<1.0
Aug													
12...	126	116	1,560	.180	.05	<.040	.03	.072	1.1	1,000	M	460	<1.0
Sep													
09...	167	193	4,360	.200	1.70	.140	.02	.067	2.9	600	M	220	<1.0

03072000 DUNKARD CREEK AT SHANNOPIN, PA—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
Part 3 of 3
[Remark codes: <, less than;
M, presence verified but not quantified.]

Date	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, unfltrd recoverable, µg/L (01067)	Zinc, water, unfltrd recoverable, µg/L (01092)
Nov			
03...	420	<50	20
Dec			
18...	260	<50	20
Feb			
18...	140	<50	<10
Mar			
31...	80	<50	<10
Apr			
14...	80	<50	<10
May			
26...	220	<50	20
Jun			
15...	210	<50	10
Jul			
09...	260	<50	10
Aug			
12...	240	<50	20
Sep			
09...	290	<50	<10