

Sub-watershed 7R (Un-named)

General Discussion

This sub-watershed encompasses 0.51 square miles or 324.97 acres of land area, approximately 0.79% of the total study area. This basin is drained by 1.69 miles of tributaries (0.63% of the total length of all watershed tributaries) and contains no lakes or ponds. State records indicate no surface or deep mines in this area. However, our field investigations have found 2 surface mines, neither flowing, and 1 deep mine with only 1 opening which is flowing.

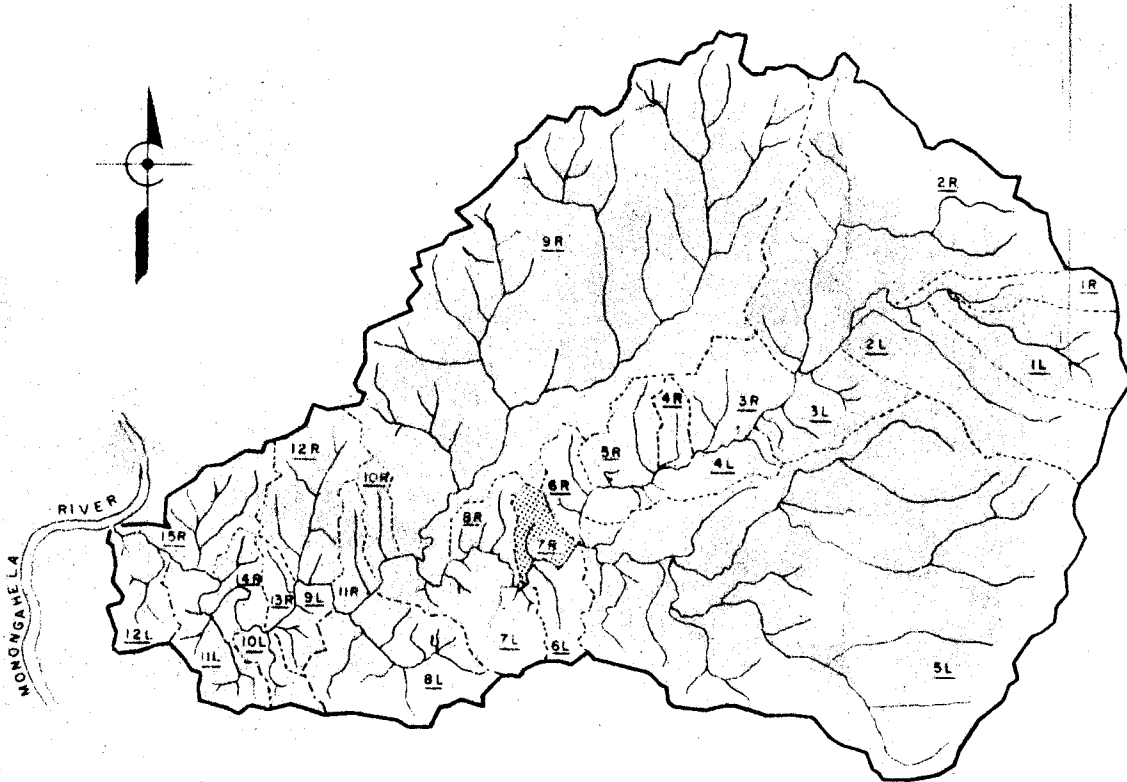
The following information gives the combined averages of the sampling stations designated as GC7R1, GC7R2, and GC7R3, all un-named. Their locations can be seen on Drawing 7316-7, while their individual averages are shown in Table 58. In the case where more than one tributary contributes to a sub-watershed, the values have been combined. The percentages of pollution load and flow that this sub-watershed contributes to Monitoring Station GC8 near the mouth of Georges Creek are also given.

	<u>Averages</u>		<u>Percent of Total Watershed</u>
pH	5.6		
Net Hot Acidity	1,373	PPD	5.71%
Ferrous Iron	0	PPD	0 %
Total Iron	97	PPD	3.48%
Sulfate	2,300	PPD	3.36%
Flow	852,480	GPD	1.44%





TABLE 58  
 TRIBUTARY AVERAGE WATER QUALITY DATA  
 Sub-watershed  
 7R

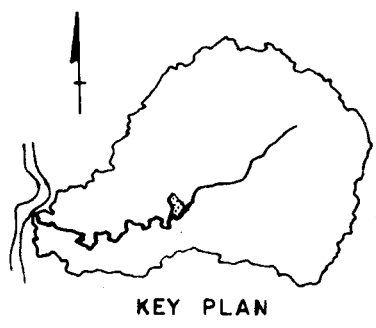
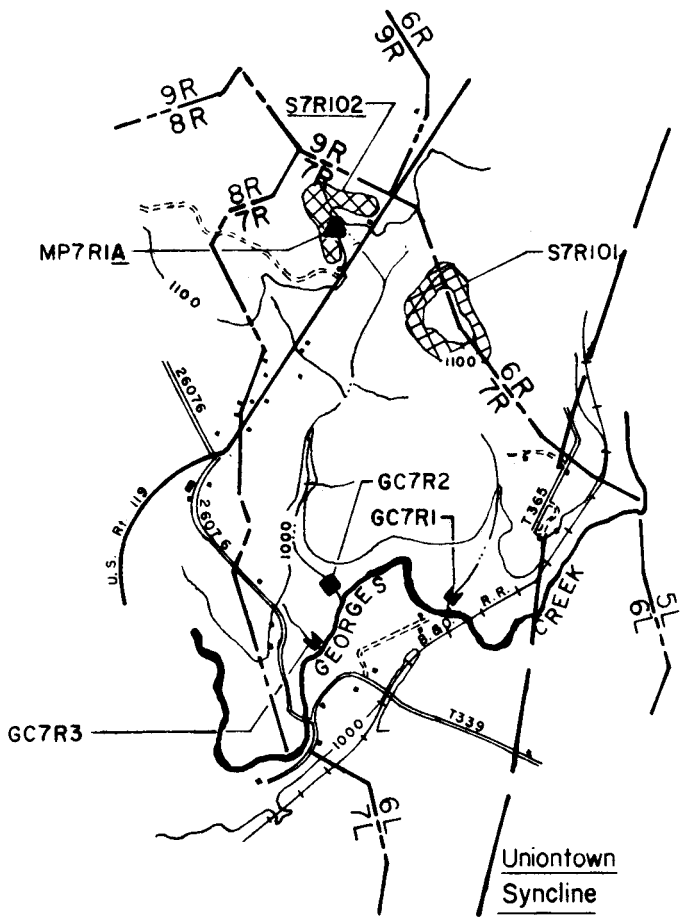
Station	pH	Hot Acid		Alkalinity		Net Hot Acid		Ferrous Iron		Iron as Fe		Sulfate		Flow	
		PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	GPM	G.P.D.
GC7R1	6.7	2.57	.91	126.85	30.66	0	0	0	0	41.90	.54	94.29	16.79	17	24,480
GC7R2	5.1	182.86	1430.13	.13	.05	182.73	1430.08	0	0	12.44	95.14	320.00	2271.67	560	806,400
GC7R3	6.9	3.71	1.20	148.29	29.16	0	0	0	0	22.13	.66	65.71	11.08	15	21,600

# Location Plan



## LEGEND FOR THE FOLLOWING PLATES

- Y DEEP MINE OPENING (M9R59A)
- ▲ DEEP MINE PIPE (SAMPLE STATIONS - MP5L2A, or BH9R2)
- M WEIR (TRIBUTARY SAMPLE STATION - GC7L1)
- CROSS-SECTION (TRIBUTARY SAMPLE STATION - GC9R1)
- ⊙ GEORGES CREEK CROSS-SECTION (SAMPLE STATION - GC5)
-  STRIP MINE (ABANDONED-UNRECLAIMED - S11L102)
-  STRIP MINE (ACTIVE - S4R107)
-  STRIP MINE (ABANDONED-RECLAIMED - S7L106)
-  GOB PILE (G9R301)
- A,B,C UNDERLINED SUFFIX INDICATES FLOWING DEEP MINE SAMPLE STATIONS - M9R74A,B,C
- S7L101 UNDERLINE - INDICATES FLOWING STRIP MINE, GOB PILE, OR BORE HOLE SAMPLE STATION



**MAP OF  
SUB-WATERSHED 7R**  
(UN-NAMED)  
SCALE: 1"=2000'

## Deep Mines

The Commonwealth records indicate that there are deep mines in this sub-watershed. Our field investigations located 1 deep mine with 1 opening, which happens to be flowing. Table 59 lists the abandoned deep mines within the sub-watershed with the following information: mine number, name of mine or operator if known, strip mine connection, available mine maps, permit numbers, acres and seam mined, mine opening designation, openings with flows, and estimated elevation of the openings.

Table 60 gives the averages of the abandoned deep mine flows. Directly under the averages are the percentages of flows and pollution loads that each complex contributes to the pollution load of the sub-watershed as measured at the following sampling stations: GC7R1, GC7R2, and GC7R3, all un-named. When more than one major tributary drains a sub-watershed, the averages of each are combined. Similarly, when more than one deep mine opening of the same complex is flowing, the averages are also combined.

TABLE 59  
 ABANDONED DEEP MINES  
 Sub-Watershed  
 7R

Mine Number	Name of Mine or Operator	Strip Mine Connection	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Opening No.	Elev. of Opening	Flow	Permit Number
M7R1	Unknown	S7R102	-	-	PGH	MP7R1A	1090'	Yes	-

TABLE 60  
 ABANDONED DEEP MINE AVERAGE WATER QUALITY DATA  
 Sub-Watershed  
 7R

Station	pH	Hot Acid		Alkalinity		Net Hot Acid		Ferrous Iron		Iron as Fe		Sulfate		Flow	
		PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	GPM	G.P.D.
M7R1	2.6	700	395.46	0	0	700	395.46	0	0	57.83	32.67	950	536.69	47	67,680
%	-	-	-	-	-	-	28.82%	-	0%	-	33.91%	-	23.34%	-	7.94%

Deep Mine M7H1

General Description:

This complex of the Pittsburgh coal seam is located approximately 1,500 feet south of the intersection of Route 119 and T 373. The only aperture is a flowing mine pipe located in an open pasture field about 100 feet north of Route 119. The pipe is adjacent to the southern edge of Strip Mine S7RI02. The pipe is spotted on the map of Sub-watershed 7R.

Recommendations:

This mine pipe is probably the means used to drain a portal which has previously been air-sealed and covered. To eliminate the flow, a hydraulic seal must replace the existing air seal. It is unknown what effect Strip Mine S7R102 has upon the flow from this mine pipe. Regardless, before any reclamation is performed on the surface mine, the deep mine opening should be sealed first.

Costs:

Known	1 seal	\$25,000
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## Strip Mines

The Commonwealth records indicate there are no strip mines in this sub-watershed. Our field investigations located 2 surface mines with neither having flows. Table 61 lists the abandoned strip mines within the sub-watershed with the following information: the name of the mine or operator if known, permit numbers, the acres of area mined and which seam was mined, the designation we give the mine, whether or not there is a flow, and whether they, are connected to deep mines.

The total acreage of abandoned surface mines in Sub-watershed 7R is 15.60 acres or 4.80% of the total sub-watershed land area.

Table 62 gives the averages of the abandoned surface mine flow. Directly under the averages are the percentages of flows and pollution loads that it contributes to the pollution load of the sub-watershed as measured at the following sample stations: GC7R1, GC7R2, and GC7R3.

Where a single surface mine has more than 1 flow, the averages of the flows are added together.

When more than one major tributary drains a sub-watershed, the averages of each are also combined.

Following Table 62 are the descriptions of the flowing strip mines along with the abatement recommendations.



TABLE 61  
 ABANDONED SURFACE MINES  
 Sub-Watershed  
 7R

Mine Number	Name of Mine or Operator	Permit No.	Area Mined (Acres)	Seam Mined	Flowing	Connection w/Deep Mine
S7R101	Unknown	--	8.26	PGH *	No	--
S7R102	Unknown	--	7.34	PGH *	Yes	M7R1A

TABLE 62  
 ABANDONED SURFACE MINE AVERAGE WATER QUALITY DATA  
 Sub-Watershed  
 7R

Station	pH	Hot Acid		Alkalinity		Net Hot Acid		Ferrous Iron		Iron as Fe		Sulfate		Flow	
		PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	PPM	#/Day	GPM	G.P.D.
S7R102	2.6	500	12.02	0	0	500	12.02	1.12	.03	54.35	1.31	1450	34.86	2	2,880
%	-	-	-	-	-	-	.88%	-	-	-	1.36%	-	1.52%	-	.34%

\* Assumed

Strip Mine S7RI02

General Description:

This strip mine is located about 4,000 feet southwest of Smithfield and about 2,500 feet northeast of the intersection between L.R. 26076 and U.S. Route 119. It is a small strip only 7.34 acres and it is assumed to have mined the Pittsburgh coal seam. It is 95% reclaimed through grading and vegetation. The strip is completely vegetated with grasses and trees. There is no highwall and the only leach is located off the strip near the southeastern edge. It originates from 2 small spoil piles. A deep mine connection with M7R1 has been established. The strip mine is shown on the map of Sub-watershed 7R.

Recommendations:

It is recommended that the 2 spoil piles be flattened to a good slope and then planted. A diversion ditch upslope to prevent surface water from crossing the strip unguided will be required.

Costs:

Grading	1 acre @ \$800/acre	\$1,800
Vegetation	1 acre @ \$600/acre	600
Ditches	600 feet @ \$1/foot	<u>600</u>
		\$3,000

## Recommendations

Table 63 gives the recommendations for the polluting deep and strip mines, along with the costs associated with each recommendation. The order in which they are placed is determined by the cost per pound of acid removal.

An estimated effectiveness of 75% reduction of pollution load is assigned for each recommendation.

Table 64 lists the sources abated, the amount of beneficiation, and the costs associated with each plan.

The distance from Sampling Station GC7R2 to the next polluting tributary downstream, GC6L4, is .2 miles. This is the minimum distance on Georges Creek that would benefit from the recommended work.

TABLE 63  
 RECOMMENDED ABATEMENT PROCEDURES - COST BENEFICATION  
 SUB-WATERSHED  
 7R

Rank	Mine No.	TOTAL COSTS		COST \$/POUND ACID REMOVAL		Total Acid Abated PPD	Total Iron Abated PPD	% of Total Sub-Watershed	
		Known Sources	Potential Sources	Known Sources	Potential Sources			Acid	Iron
1	M7R1	\$25,000	\$25,000	\$ 84.29	\$ 84.29	296.6	24.5	2%	.25%
2	S7R102	3,000	3,000	332.59	332.59	9.02	1	1%	-

TABLE 64  
 BENEFICATION - RECOMMENDED PLANS  
 SUB-WATERSHED  
 7R

PLAN	No. of Sources ABATED	ACID		IRON		SULFATE		TOTAL CONS'T COSTS	
		PPD	% of Total Sub-Watershed	PPD	% of Total Sub-Watershed	PPD	% of Total Sub-Watershed	Known Sources	Potential Sources
A	2	305.62	22%	25.5	26%	428.66	19%	\$28,000	\$28,000

It is recommended Plan "A" be initiated for this Sub-Watershed