

SUB-WATERSHED 7R
(SCHROCK RUN)

Sub-watershed 7R (Schrock Run)

General Discussion

This sub-watershed encompasses 4.9 square miles or 3,144 acres of land area which is approximately 3.53% of the total study area. It is drained by 6.5 miles of tributaries (2.77% of the total length of all watershed tributaries) and 18.7 acres of lakes and ponds (.59% of the total sub-watershed area). Commonwealth records indicate there are 23 surface mines and 19 deep mines. Our field investigations locate 13 surface mines of which 8 are flowing and 24 deep mine openings of which 6 have flows.

The following information gives the averages of the sampling station designated as SC7R1, located at the mouth of Schrock Run and shown on drawing 7119-6. The percentage that this station contributes in pollution load and flow, as measured at Monitoring Station SC1 on Stony Creek is also included.

	<u>Averages</u>	<u>Percent of Total Watershed</u>
pH	5.5	
Net Cold Acidity	327.53 PPD	1.05%
Net Hot Acidity	2,910.43 PPD	2.68%
Ferrous Iron	28.76 PPD	3.75%
Total Iron	149.40 PPD	3.34%
Sulfate	11,168.00 PPD	5.80%
Hardness	12,926.00 PPD	6.28%
Flow	7,391,520 GPD	4.63%

The following plate shows the locations of all deep mine openings and strip mines where they exist within this subwatershed, as well as the location of all sampling stations.

Deep Mines

The Commonwealth records indicate that there are 19 deep mines in this sub-watershed. Our field investigations locate 24 deep mine openings of which 6 are flowing. Table 43 lists the abandoned deep mines within the sub-watershed with the following information: name of mine or operator if known, available mine maps, acres and seam mined, mine opening designation, estimated elevation of openings, openings with flows, and head in feet, which is the difference in coal elevations on an up-dip mine.

Table 44 gives the averages of the abandoned deep mine flows. Directly under the averages are the percentages of flows and pollution load that each contributes to the pollution load of the sub-watershed as measured at Sampling Station SC7R1, Schrock Run. The averages, taken at the mine openings, are added together where more than one opening of a mine complex has a flow.

TABLE 43

Abandoned Deep Mines
Sub-watershed 7R

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
M7R6	Wm. Aust	No	-	E*	M7R6A	2200'	Yes	100*
				E*	M7R6B	2200'	Yes	
M7R7	Weigle Bros.	No	-	D*	M7R7A	2250'	Yes	100*
		-	-	D*	M7R7B	2250'	Yes	
		-	-	D*	M7R7C	2250'	Yes	
#M7R23	Cambria Fuel Co.	Yes	-	D	M7R23A	2330'	No	-
M7R24	T. Luce	No	-	D	M7R24A	2330'	Yes	-
#M7R27	Cambria Fuel Co.	Yes	-	D	M7R27A	2420'	No	-
M7R29	(see M7R31)	No	-	D	M7R29A	2450'	No	-
#M7R30	Cambria Fuel Co.	Yes	-	D	M7R30A	2420'	No	-
				D	M7R30B	2420'	No	
M7R31	Pete & Dave Nicholson	Yes	-	D	M7R31A	2400'	No	-
				D	M7R31B	2400'	No	
M7R44	Unknown	No	-	D*	M7R44A	2250'	No	-
M7R45	(see M7R31)			D	M7R45A	2450'	No	-
M7R100	Unknown	No	-	D*	M7R100A	2280'	No	-
M7R101	T. Luce	Yes	73.5	D	M7R101A	2308'	No	-
		No	-	D*	M7R101B	2292'	No	
M7R102	Unknown	No	-	D*	M7R102A	2322'	No	-
		-	-	D*	M7R102B	2293'	No	
				D*	M7R102C	2308'	No	

TABLE 43 (cont'd)

Abandoned Deep Mines
Sub-watershed 7R

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
ØM7R103	Unknown	No	-	D*	M7R103A	2280'	No	-
				D*	M7R103B	2280'	No	

*Indicates assumed.

∧ Possible interconnection with Strip Mine S7R9.

Possible interconnection with Strip Mine S7R32.

∧ Possible interconnection with Strip Mine S7R20 & Deep Mine M7R101.

≡ Possible interconnection with Strip Mine S7R28.

+ Possible interconnection with Strip Mine S7R28 & Deep Mines M7R29 & M7R45.

Ø Possible interconnection with Strip Mine S7R19.

TABLE 44

Abandoned Deep Mine Average Water Quality Data

Sub-watershed 7R

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
M7R6	3.6	16.17 4.9%	16.01 .6%	.11 .4%	1.04 .7%	67.06 .6%	67.77 .5%	36,000 .5%
M7R7	3.1	1,105.00 337.4%	1,453.00 49.9%	37.36 129.9%	280.81 188%	2,166 19.4%	1,792 13.9%	465,120 6.3%
M7R24	5.3	.81 .3%	* -	.02 .1%	.06 -	3.11 -	* -	5,760 .1%

*Not analyzed.

Strip Mines

The Commonwealth records indicate that there are 23 strip mines in this sub-watershed. Our field investigations locate 13 surface mines with 8 flowing. Table 45 lists the abandoned strip mines within the sub-watershed with the following information: the name of the mine or operator if known, the area and seam mined, the designation we give the mine, whether or not there is a flow, and whether it connects with a deep mine.

The total acreage of abandoned surface mines in subwatershed 7R is 728.88 acres (23.18% of this sub-watershed area).

Table 46 gives the average of the abandoned surface mine flows. Directly under the averages are the percentages of flows and pollution load that each contributes to the pollution load of the sub-watershed as measured at Sampling Station SC7R1, Schrock Run.

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

Following Table 46 are the descriptions of the flowing strip mines along with abatement recommendations.

TABLE 45
Abandoned Surface Mines
Sub-watershed 7R

Mine Number	Name of Mine or Operator	Area Mined (Acres)	Seam Mined	Flowing	Connection w/Deep Mine
S7R1	Fyock & Reed	26.62	C'	No	No
S7R9	J & R Coal Co. E. E. Feller Fyock & Reed	123.93	D D D	Yes	M7R6, M7R7
S7R11	Weigel Bros. Wm. Scurfield Ray E. Bruening	44.06	D D D	Yes	No
S7R19	Denise	264.38	D	Yes	M7R100, M7R101 M7R102, M7R103
S7R20	Thermal C. M. C. Zubek & Yantus C.Co.	112.91	D	Yes	M7R24
S7R26	Thermal Coal Mining Co.	47.74	D	Yes	No
S7R28	Thermal Coal Mining Co.	25.70	D	Yes	M7R29, M7R30 M7R31, M7R45
S7R32	Thermal Coal Mining Co.	29.38	D	Yes	M7R23, M7R27
S7R40	Thermal C. M. Co. Svonavec Coal Co.	36.72	D	Yes	No
S7R46	Unknown	17.44	D	No	No

TABLE 46

Abandoned Surface Mine Average Water Quality Data
Sub-watershed 7R

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
S7R9	3.8	265.90 81.2%	1,122.28 38.6%	12.82 44.6%	56.55 37.9%	1,027.56 9.2%	799.30 6.2%	118,080 1.6%
S7R11	4.6	131.30 40.1%	*	10.32 35.9%	27.35 18.3%	606.16 5.4%	*	378,720 5.1%
S7R19	6.1	0 -	*	.46 1.6%	.58 .4%	72.96 .7%	*	84,960 1.2%
S7R20	5.4	1.7 .5%	*	.13 .5%	.21 .1%	133.73 1.2%	*	106,560 1.4%
S7R26	5.2	2.43 .7%	*	1.16 4%	2.10 1.4%	19.13 .2%	*	24,480 .3%
S7R28	6.2	0 -	*	1.11 3.9%	1.12 .8%	419.36 3.8%	*	676,800 9.2%
S7R32	6.3	0 -	*	6.55 22.8%	11.17 7.5%	410.80 3.7%	*	385,920 5.2%
S7R40	5.6	0 -	*	1.33 4.6%	28.60 19.1%	1,644.63 14.7%	*	181,440 2.5%

* Not analyzed.

Strip Mine: S7R9

Area: 123.93 acres

Location: West of Stony Creek between T-696 and T-529

Status: Reclaimed

Owned by: J. & R. Coal Co., E. E. Feller, Fycock & Reed

Seam Mined: D

Connection with deep mines: M7R6, M7R7

Flowing: Flows collected by three ponds

General Description:

Reclamation has been done on the north side of this strip, however the deep mines in the center and south produce flows as well as the strip itself. Leaching and erosion off the terrace and spoil area were observed.

Recommendation:

Ditches across the strip from across T 565 almost to T 696 then leading to Stony Creek are recommended, as well as grading and backfilling. Reclamation of this strip will have to be done in conjunction with the deep mines.

Cost:

Ditches	6000'	\$ 6,000
Grading	10 acres @ \$1000/acre	<u>10,000</u>
	Total	\$16,000

Strip Mine: S7R11

Area: 44.06 acres

Location: South of L.R. 55058 and T. R. T 694

Status: Reclaimed

Owned by: Weigel Bros., Wm Scurfield, Ray E. Bruening

Seam Mined: D

Connection with deep mines: None

Flowing: Five leaching areas

General Description:

Most of this area is well reclaimed, however some erosion and leaching exists toward the railroad tracks.

Recommendation:

Diversion ditches are recommended and gob piles to be graded and reclaimed.

Cost:	Ditch	4000'	\$4,000
	Gob Pile	1 Acre	<u>5,000</u>
		Total	\$9,000

Strip Mine: S7R19

Area: 264.38 acres

Location: NW of Schrock Run

Status: Abandoned and partly reclaimed

Owned by: Denise Coal Co.

Seam mined: D

Connection with deep mines: M7R100, M7R101, M7R102, M7R103

Flowing: Three leaching areas.

General Description:

Only a small part of this area is reclaimed with trees and grasses. Flow from the deep mines and the strip creates leaching and erosion particularly along the 30' highwall where ponds are in evidence at their base. A large gob pile exists near Schrock Run.

Recommendation:

The water from this strip mine is of such quality that it creates no pollution threat. Therefore there is no recommendation at this time.

Strip Mine: S7R20

Area: 112.91 acres

Location: East of L.R. 55057

Status: Abandoned and partly reclaimed

Owned. by: Thermal Coal Mining Co. and Zubek & Yantus Co.

Seam mined: D

Connection with deep mine: M7R24

Flowing: Two leaching areas

General Description:

Small pines are growing in the reclaimed area, however the rest of the strip is badly scarred with little vegetation. The deep mine was not found, but several 15' to 20' highwalls are in the area and spoil piles near the location where the openings would be. A depression is in the center of the strip area creating a pond from the runoff and allowing the water to leach through the spoil.

Recommendation:

Ditching leading toward the highway with grading and backfilling of the spoil piles should be done. If the deep mine is intercepted with this program, additional cost to reclaim the area should be anticipated.

Cost:

Ditches	3000'	\$ 3,000
Grading and backfilling @ \$1000/acre		25,000
Revegetation	30%	<u>20,000</u>
	Total	\$48,000

Strip Mine: S7R26

Area: 47.74 acres

Location: West of L.R. 55057 with a small portion intersected by T. R. 529

Status: Abandoned

Owned by: Thermal Coal Mining Co.

Seam mined: D

Connection with deep mine: None

Flowing: Five leaching areas

General Description:

Depressions, leaching and erosion occur here with spoil area sloping toward the 20 feet in height highwall. Some grasses and trees are in the area.

Recommendation:

Backfilling and grading over 30% of the area plus a diversion ditch system is necessary leading to the tributary.

Cost: Ditches	3,500'	\$ 3,500
Backfilling & grading @ \$1,000/acre		17,000
Revegetation		<u>8,500</u>
	Total	\$28,000

Strip Mine: S7R28

Area: 25.70 acres

Location: West of T. R. T 650

Status: Abandoned

Owned by: Thermal Coal Mining Company

Seam mined: D

Connection with deep mines: M7R29, M7R30, M7R31, M7R45

Flowing: Two leaching areas

General Description:

Erosion and leaching is off the 30' highwalls draining onto S9R7. The remainder of the area has been reclaimed.

Recommendation:

The water from this strip mine is of such quality that it creates no pollution threat. Therefore there is no recommendation at this time.

Strip Mine S7R32

Area: 29.38 acres

Location: East of T. R. T 650

Status: Partly reclaimed

Owned by: Thermal Coal Mining Co.

Seam mined: D

Connection with deep mines: M7R27 and M7R23

Flowing: Twelve leaching areas

General Description:

Erosion over the terrace and leaching along the highwall, plus depressions and swamps in the area, require improvements.

Recommendation:

The water from this strip mine is of such a quality that it creates no pollution threat. Therefore there is no recommendation at this time.

Strip Mine: S7R40

Area: 36.72 acres

Location : North of T. R. T 529 and East of T 694

Status: Reclaimed

Owned by: Thermal Coal Mining Co. and Svonavec Coal Co.

Seam mined: D

Connection with deep mine: None

Flowing: Three leaching areas

General Description:

The northern section of this area is swampy and eroded. The remainder is in a good vegetated condition.

Recommendation:

The water from this strip mine is of such a quality that it creates no pollution threat. Therefore there is no recommendation at this time.

Recommendations

Table 47 gives the recommendations for the polluting deep and strip mines along with the cost associated with each recommendation.

An estimated effectiveness of 60% reduction of the pollution load is assigned for each recommendation.

Table 48 lists the sources abated, the amount of beneficiation and the costs associated with each plan.

The distance from station SC7R1 to the next polluting tributary downstream, SC5R1, is 2.67 miles. This is the minimum distance on Stony Creek that would benefit from Schrock Run becoming a clean stream.

TABLE 47

Recommended Abatement Procedures - Cost Benefication

Sub-watershed 7R

RANK	Number	Recommended Abatement		Total Costs		Cost \$/Pound Acid Removal		Total Acid Abate-ment ppd	Total Iron Abate-ment ppd	Percent of Total Sub-watershed	
		Known Sources	Poten-tial Sources	Known Sources	Poten-tial Sources	Known Sources	Poten-tial Sources			Acid	Iron
1	S7R9	123.93 Acres	5 Seals	\$16,000	\$141,000	\$100.29	\$883.79	159.54	33.93	48.71	22.71
2	M7R7	3 Seals	-	75,000	75,000	113.00	113.00	663.00	168.49	202.42	112.78
3	S7R11	44.06 Acres	-	9,000	9,000	114.24	114.24	78.78	16.41	24.05	10.98
4	M7R6	2 Seals	-	50,000	50,000	5,155	5,155	9.70	.62	2.96	.41
5	S7R26	47.74 Acres	-	28,000	28,000	19,178	19,178	1.46	1.26	.46	.84
6	S7R20	112.91 Acres	1 Seal	48,000	73,000	48,000	73,000	1.00	.13	.30	.09
7	M7R24	1 Seal	-	25,000	25,000	51,020	51,020	.49	.04	.15	.03

TABLE 48

Benefication - Recommended Plans
Sub-watershed 7R

Plan	Abated	Acid		Iron		Total Construction Costs	
		ppd	% of Total Sub-water-shed	ppd	% of Total Sub-water-shed	Flowing Sources	Potential Sources
A	1 thru 7	913.97	279%	220.88	148%	\$251,000	\$401,000
B	1 thru 3	901.32	275%	218.83	146%	100,000	225,000

It is recommended that Plan "B" be initiated for this sub-watershed.

SUB-WATERSHED 9L
(UN-NAMED)

Sub-watershed 9L (unnamed)

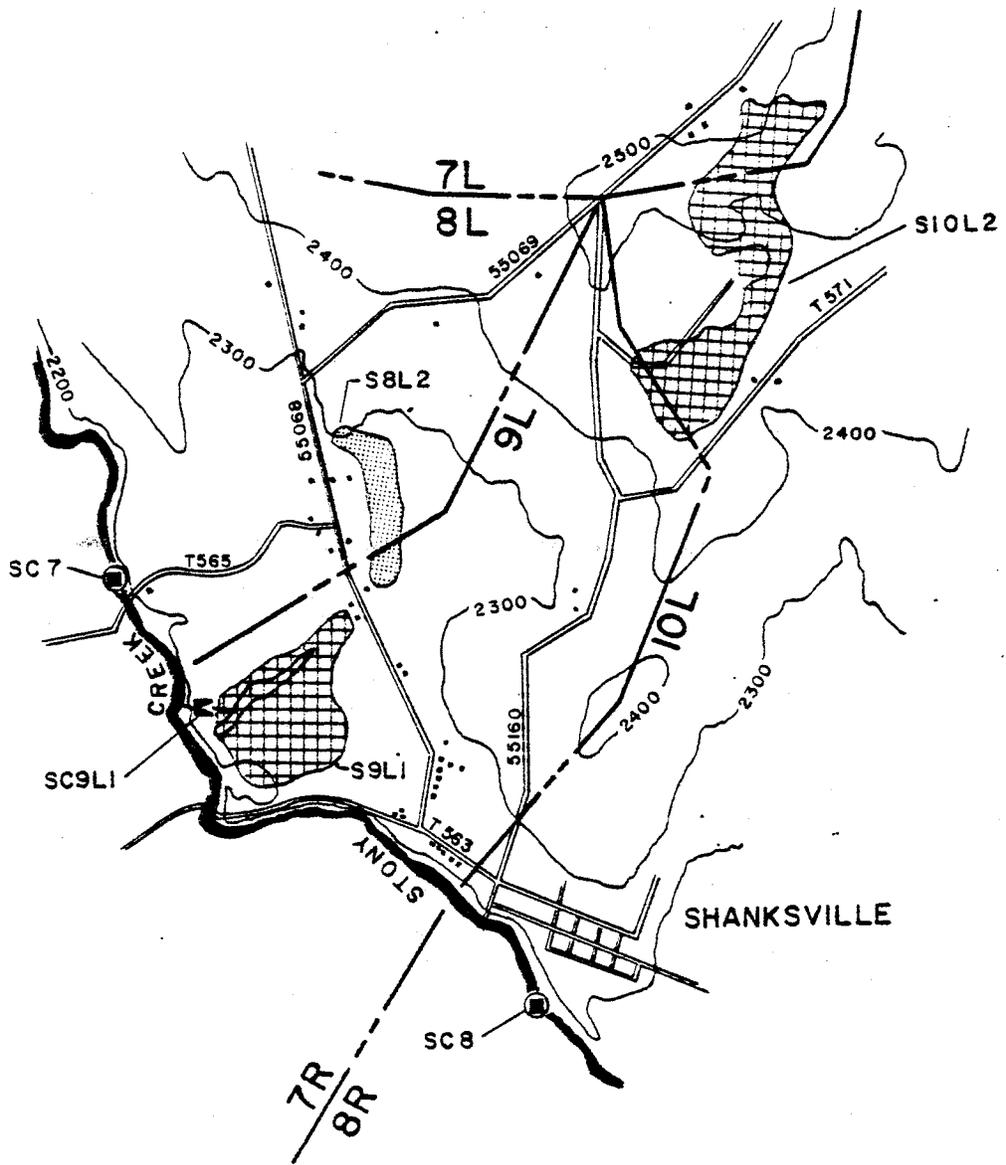
General Discussion

This sub-watershed encompasses .6 square miles or 364 acres of land area which is approximately .41% of the total study area. It is drained by .4 of a mile of tributaries (.17% of the total length of all watershed tributaries) and contains 4.8 acres of lakes and ponds (1.32% of the total sub-watershed area). Commonwealth records indicate 3 strip mines and 1 deep mine in the area. Our field investigations find 1 strip mine, not flowing, and no deep mines.

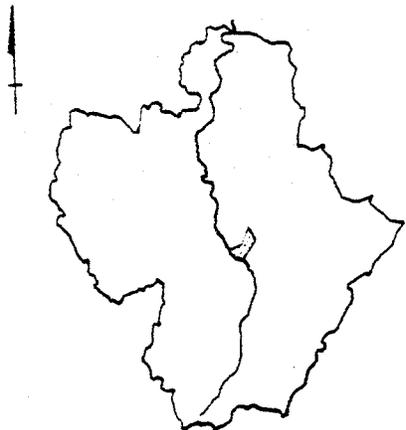
The following information gives the averages of the sampling station designated as SC9L1, located at the mouth of the unnamed tributary and shown on drawing 7119-6. The percentage that this station contributes in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC1 on Stony Creek is also included.

	<u>Averages</u>	<u>Percent of Total Watershed</u>
pH	6.4	
Net Cold Acidity	2.8 PPD	.01%
Net Hot Acidity	0 PPD	0 %
Ferrous Iron	1.86 PPD	.24%
Total Iron	8.86 PPD	.20%
Sulfate	923.30 PPD	.48%
Hardness	1,485 PPD	.72%
Flow	1,432,800 GPD	.90%

The following plate shows the locations of all deep mine openings and strip mines where they exist within this sub-watershed as well as the locations of all sampling stations.



KEY PLAN



MAP OF SUB-WATERSHED 9L

(UN-NAMED)
SCALE: 1" = 2000'

Strip Mines

The Commonwealth records indicate that there are 3 strip mines in this sub-watershed. Our field investigations locate 1 surface mine with no flow. Table 49 lists the abandoned strip mine within this sub-watershed with the following information: the name of the mine or operator if known, the area and seam mined, the designation we have given the mine, whether or not there is a flow, and whether it connects with a deep mine.

The total acreage of abandoned surface mines in subwatershed 9L is 34.88 acres (9.58% of the sub-watershed area).

TABLE 49

Abandoned Surface Mines

Sub-watershed 9L

Mine Number	Name of Mine or Operator	Area Mined (Acres)	Seam Mined	Flowing	Connection w/Deep Mine
S9L1	P. J. Gallo & W. E. Scurfield Harold E. Goden	34.88	C', D, E	No	No

Recommendation

There are no recommendations for this area.