

SUB-WATERSHED 1L  
(DIXIE RUN)

Sub-watershed 1L (Dixie Run)

General Discussion

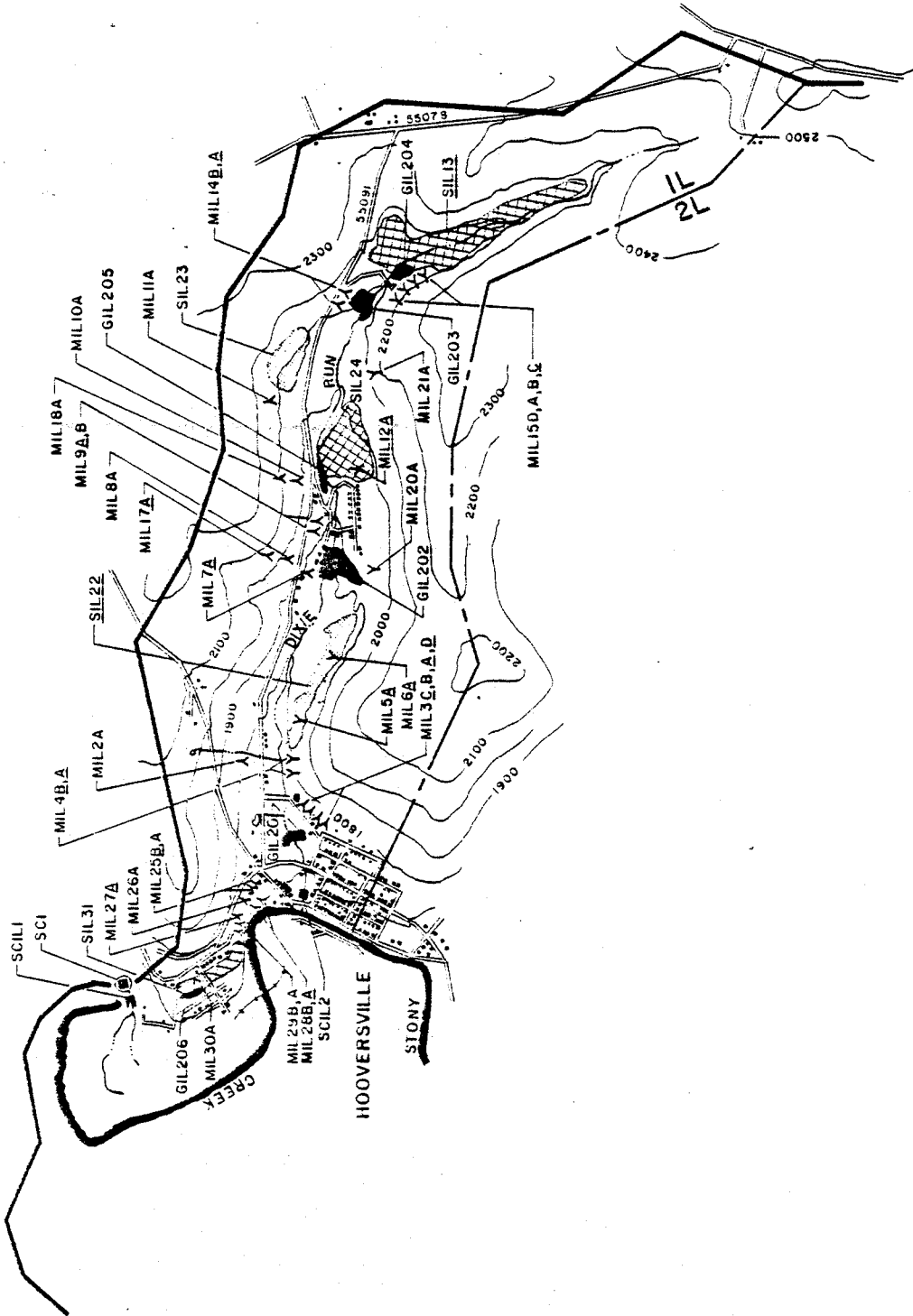
This sub-watershed encompasses 2.2 square miles or 1,388 acres of land area. This is approximately 1.6% of the total study area. There are two major tributaries draining this basin having a combined length of 6.4 miles, which is 2.7% of all the tributaries feeding Stony Creek. The main stream, Dixie Run, flows in an easterly direction where it joins Stony Creek at the town of Hooversville. The second unnamed tributary enters Stony Creek just north of Hooversville. The area has only one half acre in small ponds. Commonwealth records indicate 15 deep mines and one strip mine in this area. Field investigation locates 5 strip mines, 2 having flows, and 35 deep mine openings, 17 of which are flowing.

The following information gives the sum of the averages for Sampling Station SC1L1 (unnamed) and SC1L2 (Dixie Run), located on drawing 7119-6. The percentages that these stations contribute in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC1 on Stony Creek north of Hooversville is also included.

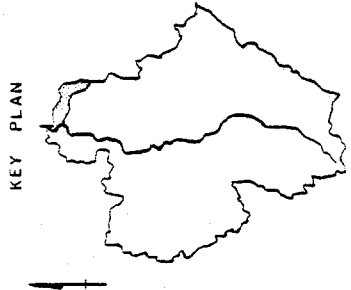
	<u>Averages</u>	<u>Percent of Total Watershed</u>
pH	4.5	
Net Cold Acidity	2,806.31 PPD	8.98%
Net Hot Acidity	3,966.75 PPD	3.66%
Ferrous Iron	13.25 PPD	1.73%
Total Iron	325.00 PPD	7.27%
Sulfate	15,240.00 PPD	7.91%
Hardness	23,240.00 PPD	11.29%
Flow	6,546,240 GPD	4.10%

General Discussion (contd.)

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



# MAP OF SUB-WATERSHED IL (DIXIE RUN)



## Deep Mines

The Commonwealth records indicate there are 15 deep mines in this sub-watershed. Our field investigations locate 35 deep mine openings of which 17 are flowing. Table 101 lists the abandoned deep mines within this subwatershed with the following information: the name of the mine or the operator if known, whether or not a mine map has been obtained, the acres that have been mined and which seam, the designation that we give to the openings, whether or not the openings have flows, the estimated elevation of the opening and the head in feet which is the difference in coal elevations on up-dip mines.

Table 102 gives the averages of the abandoned deep mine flows. Directly under the averages are the percentages of flow and pollution load that each contributes to the pollution load and flow of the sub-watershed as measured at Sampling Stations SC1L1 and SC1L2, Dixie Run. The averages taken at the mine openings are added together where more than one opening of a mine complex has a flow.

TABLE 101

Abandoned Deep Mines  
Sub-watershed 1L

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
M1L2	Knickerbocker #2	Yes	998	B	M1L2A	1800'	No	300'
M1L3	A.M. & K. Corp. & Solar #2	Yes	2827	B	M1L3A	1780'	Yes	480'
					M1L3B	1780'	No	
					M1L3C	1780'	Yes	
					M1L3D	1780'	Yes	
M1L4	Wilber Coal Mining Co.	No	-	B*	M1L4A	1800'	Yes	470'
					M1L4B	1800'	Yes	
<del>M1L5</del>	Wilber Coal Mining Co.	No	-	B*	M1L5A	1840'	Yes	430'
<del>M1L6</del>	Wilber Coal Mining Co.	No	-	B*	M1L6A	1900'	Yes	370'
M1L7	(See M1L2)	-	-	B	M1L7A	1890'	Yes	300'
M1L8	Baker - Whitely Coal Co.	No	-	B*	M1L8A	2000'	No	-
M1L9	Baker - Whitely Coal Co. (Elma #1 & #2)	Yes	1130	B	M1L9A	1910'	Yes	308'
					M1L9B	1910'	No	
M1L10	Baker - Whitely Coal Co.	No	-	B*	M1L10A	2020'	No	-
M1L11	Baker - Whitely Coal Co. (Elma #3)	Yes	894	C'	M1L11A	2140'	No	250'
<del>M1L12</del>	(See M1L9)			B	M1L12A	1960'	Yes	308'
M1L14	(See M1L11)			C'	M1L14A	2140'	Yes	250'
					M1L14B	2130'	Yes	

TABLE 101 (Contd.)

Abandoned Deep Mines  
Sub-watershed 1L

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
ØM1L15	George Hritz Mine	Yes	184	C'	M1L15A	2200'	No	75'
					M1L15B	2200'	No	
					M1L15C	2200'	No	
					M1L15D	2200'	Yes	
M1L17	Unknown	No	-	C'*	M1L17A	2060'	Yes	140'
M1L18	Unknown	No	-	C'*	M1L18A	2110'	No	75'
M1L20	Unknown	No	-	C'*	M1L20A	1940'	No	50'
M1L21	Unknown	No	-	E*	M1L21A	2180'	No	50'
M1L25	Unknown	No	-	B*	M1L25A	1750'	No	50'
					M1L25B	1750'	Yes	
M1L26	Unknown	No	-	B*	M1L26A	1750'	No	50'
M1L27	Unknown	No	-	B*	M1L27A	1750'	Yes	50'
M1L28	Unknown	No	-	B*	M1L28A	1700'	Yes	50'
					M1L28B	1700'	No	
M1L29	Unknown	No	-	B*	M1L29A	1725'	No	50'
					M1L29B	1725'	No	
≡M1L30	Unknown	No	-	B*	M1L30A	1750'	No	50'

\*Indicates assumed.

↗Possible connection with Strip Mine S1L22. ØPossible connection with Strip Mine S1L13.

→Possible connection with Strip Mine S1L24. ≡Possible connection with Strip Mine S1L31.

TABLE 102

Abandoned Deep Mine Average Water Quality Data  
Sub-watershed 1L

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
M1L3	4.0	815.34 29.1%	491.03 12.4%	1.40 10.6%	12.59 3.9%	2,650.44 17.4%	2,555.17 11%	1,630,080 24.9%
M1L4	4.0	14.36 .5%	40.99 1%	.03 .2%	.17 .1%	75.80 .5%	80.87 .4%	38,880 .6%
M1L5	4.2	2.97 .1%	5.61 .1%	.03 .2%	.14 -	25.52 .2%	39.63 .2%	20,160 .3%
M1L6	4.8	6.22 .2%	3.68 .1%	.09 .7%	.44 .1%	41.90 .3%	45.23 .2%	54,720 .8%
M1L7	3.5	534.00 19%	1,167.97 29.4%	2.28 17.2%	54.00 16.6%	2,594.00 17%	3,609.50 15.5%	561,600 8.6%
M1L9	6.2	.72 -	0 -	.89 6.7%	19.00 5.9%	6.41 -	6.52 -	5,760 .1%
M1L12	3.0	1,787.00 63.7%	1,266.67 31.9%	22.35 168.7%	267.00 82.2%	5,181.00 34%	2,947.50 12.7%	612,000 9.4%
M1L14	6.2	105.20 3.8%	0 -	.95 7.2%	4.73 1.5%	2,531.00 16.6%	2,256.00 9.7%	529,920 8.1%



TABLE 102 (contd.)

Abandoned Deep Mine Average Water Quality Data  
Sub-watershed 1L

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
M1L15	6.4	0	0	.03	.04	5.10	20.50	36,000
		-	-	.2%	-	-	.1%	.6%
M1L17	6.8	0	*	0	0	.20	.54	1,440
		-		-	-	-	-	-
M1L25	5.4	1.81	*	.09	.29	47.67	*	60,480
		.1%		.7%	.1%	.3%		.9%
M1L27	6.7	0	*	.02	.04	3.54	*	17,280
		-		.2%	-	-		.3%
M1L28	3.3	2.93	*	.92	1.16	9.96	*	4,320
		.1%		6.9%	.4%	.1%		.1%

\*Not analyzed.

## Strip Mines

The Commonwealth records indicate there is one strip mine in this area. Our field investigations locate 5 surface mines with 2 having flows or leaching areas. Table 103 lists the abandoned strip mines within this sub-watershed with the following information: the name of the mine or operator if known, the acres mined and which seam has been mined, whether or not there is a flow, and if it has a connection with a deep mine.

The total acreage of abandoned strip mines in sub-watershed 1L is 98.21 acres which is 7.08% of the land area.

Table 104 gives the averages 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 Stations SC1L1 & SC1L2, Dixie Run. Where a single surface mine has more than one flow, the averages of the flows are added together.

TABLE 103

Abandoned Surface Mines

Sub-watershed 1L

Mine Number	Name of Mine or Operator	Area Mined (Acres)	Seam Mined	Flowing	Connection w/Deep Mine
S1L13	Joe Constantino	34.88	C & B	Yes	M1L15
S1L22	Unknown	12.85	-	Yes	M1L5, M1L6
S1L23	Unknown	21.11	-	No	No
S1L24	Unknown	22.03	-	No	M1L12
S1L31	Unkown	7.34	-	No	M1L30

TABLE 104

Abandoned Surface Mine Average Water Quality Data  
Sub-watershed 1L

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
S1L13	6.9	0	*	1.02	1.66	351.84	*	938,880
		-		7.7%	.5%	2.3%		14.3%
S1L22	6.0	0	*	.23	1.40	12.15	*	8,640
		-		1.7%	.4%	.1%		.1%

\*Not analyzed.

## Recommendations

Table 105 gives the recommendation for each polluting deep and/or strip mine. Table 106 lists the sources abated, the amount of beneficiation and the cost associated with each plan.

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

The distance from Station SC1L2, Dixie Run, to the next polluting tributary down stream, SC1R1, is one mile and from there to the monitoring station, SC1, is .65 miles.

TABLE 105

Recommended Abatement Procedures - Cost Benefication

Sub-watershed 1L

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	M1L12	1 Seal	-	\$20,000	\$ 20,000	\$ 19	\$ 19	1,072.20	160.20	38.21	49.29
2	M1L7	1 Seal	10 Seals	20,000	220,000	63	687	320.40	32.40	11.42	9.97
3	M1L3	4 Seals	17 Seals 2 A. S.	80,000	436,000	164	891	489.20	7.55	17.43	2.32
4	M1L14	2 Seals	2 Seals 3 A.S.	40,000	104,000	634	1,648	63.12	2.84	2.25	.87
5	M1L4	2 Seals	-	50,000	50,000	5,800	5,800	8.62	.10	.31	.03
6	M1L6	1 Seal	-	25,000	25,000	6,702	6,702	3.73	.26	.13	.08
7	M1L5	1 Seal	-	25,000	25,000	14,045	14,045	1.78	.08	.06	.02
8	M1L28	2 Seals	-	50,000	50,000	28,409	28,409	1.76	.70	.06	.22
9	M1L25	2 Seals	-	50,000	50,000	45,872	45,872	1.09	.17	.04	.05
10	M1L9	2 Seals	2 Seals	40,000	80,000	93,023	186,047	.43	11.40	.02	3.51

Note: The potential costs above include the known costs.

TABLE 106

Beneficiation - Recommended Plans  
Sub-watershed 1L

Plan	Above Sources 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 10	1,963	69.95%	216	66.46%	\$400,000	\$1,060,000
B	1 thru 4	1,945	69.31%	203	62.46%	\$160,000	\$ 780,000
C	1 thru 3	1,882	67.06%	200	61.54%	\$120,000	\$ 676,000

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

SUB-WATERSHED 1R  
(UN-NAMED)

Sub-watershed 1R (unnamed)

General Discussion

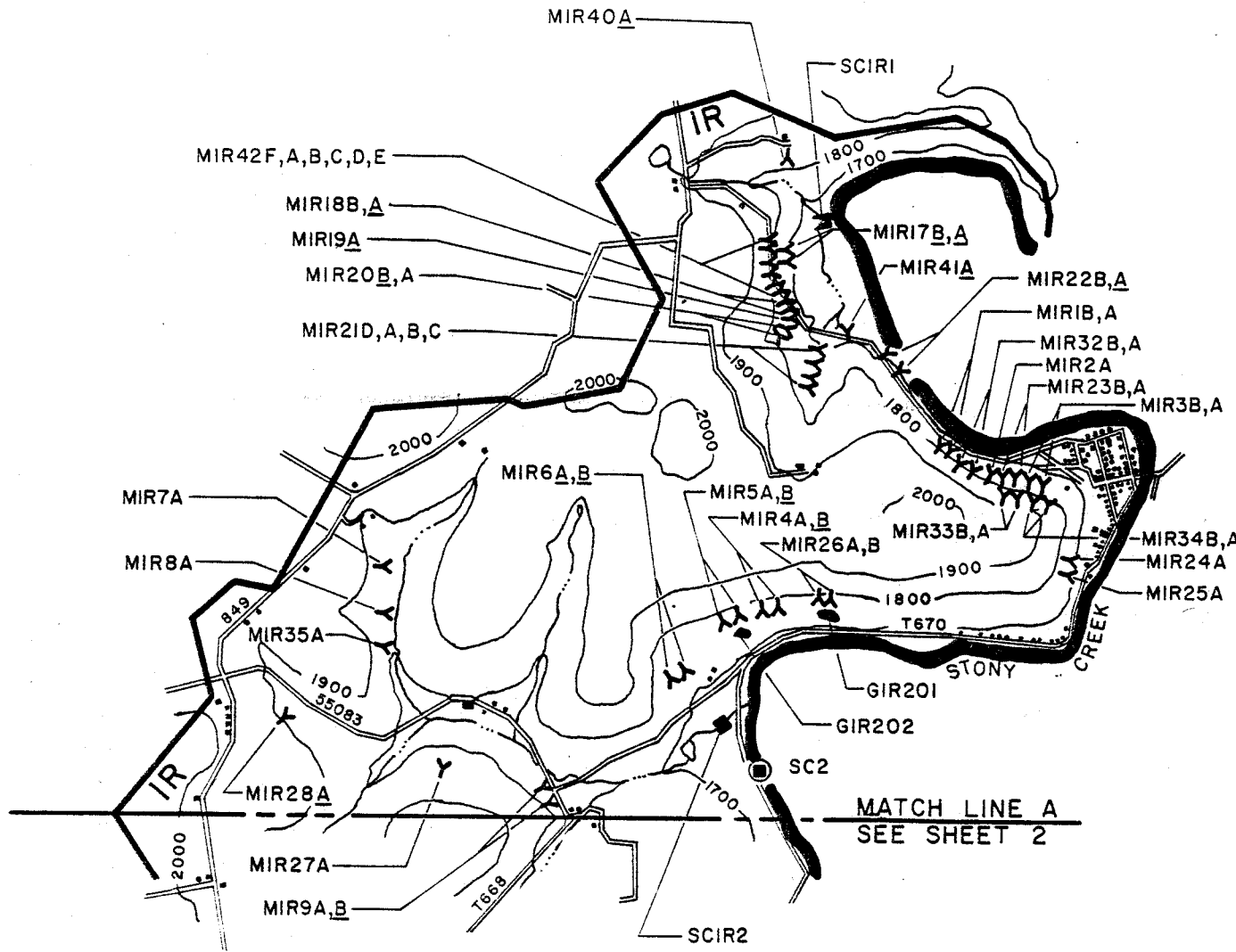
This sub-watershed encompasses 4.4 square miles or 2,828 acres of land area. This is approximately 3.2% of the total study area. There are three unnamed tributaries flowing in a westerly direction and emptying into Stony Creek. The subwatershed is drained by 6.4 miles of tributaries which is 2.7% of all tributaries within the watershed and has 1.7 acres in small lakes and ponds, .06% of this sub-watershed land area. Commonwealth records indicate there is one strip mine and 15 deep mines in this area. Our field investigations find 2 strip mines, one of which is flowing, and 72 deep mine openings of which 24 have flows.

The following information gives the summation of the averages of the three tributaries. The sampling stations, located at the mouth of the tributaries, are designated as SC1R1, SC1R2, and SC1R3 and are shown on drawing 7119-6. The percentage that these three stations contribute in pollution load and flow to the total pollution load as measured at Monitoring Station SC1 on Stony Creek is also included.

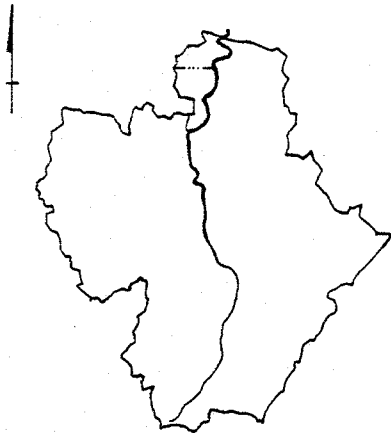
	<u>Averages</u>	<u>Percent of Total Watershed</u>
pH	6.1	
Net Cold Acidity	0 PPD	0%
Net Hot Acidity	0 PPD	0%
Ferrous Iron	3.88 PPD	.51%
Total Iron	10.80 PPD	.24%
Sulfate	739.70 PPD	.38%
Hardness	770.90 PPD	.37%
Flow	3,627,360 GPD	2.27%

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



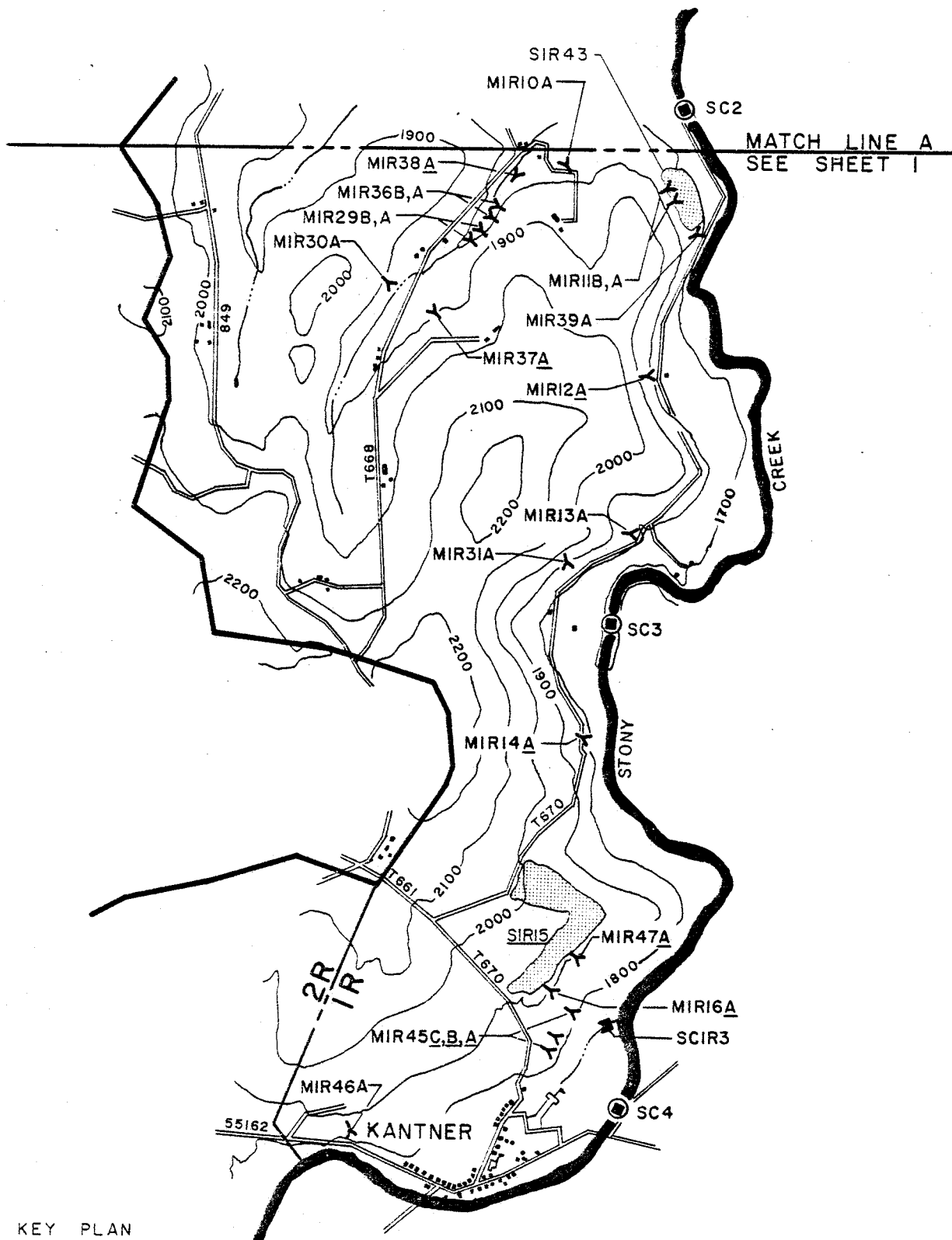


KEY PLAN

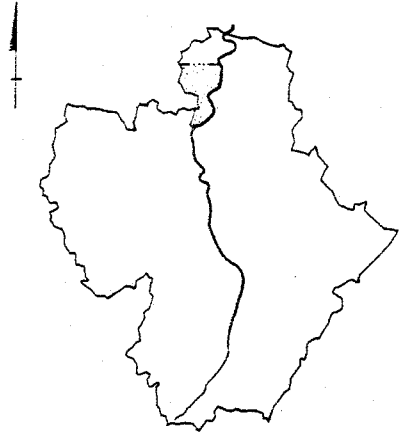


# MAP OF SUB-WATERSHED IR

(UN - NAMED)  
SHEET 1 of 2  
SCALE: 1" = 2000'



KEY PLAN



# MAP OF SUB-WATERSHED IR

(UN-NAMED)

SHEET 2 of 2

SCALE: 1"=2000'

## Deep Mines

The Commonwealth records indicate there are 15 deep mines in this sub-watershed. Our field investigations locate 72 deep mine openings of which 24 are flowing. Table 107 lists the abandoned deep mines within the sub-watershed with the name of the mine or operator if known, whether or not a mine map has been obtained, the acres that have been mined and which seam, the designation that we give to the openings, their elevation, and if the opening is flowing. If there is a flow, the head in feet is given which is the difference in coal elevations on up-dip mines.

Table 108 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 and flow of this sub-watershed. The averages, taken at the mine openings, are added together where more than one opening of a mine complex has a flow.

TABLE 107

Abandoned Deep Mines  
Sub-watershed 1R

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
M1R1	Federal Coal Co.	Yes	37.8	B	M1R1A	1780'	No	Down-dip
				B	M1R1B	1780'	No	
M1R2	(See M1R1)	-	-	B	M1R2A	1780'	No	"
M1R3	(See M1R1)	-	-	B	M1R3A	1780'	No	"
				B	M1R3B	1780'	No	
M1R4	Kaufman Bros.	No	-	C1*	M1R4A	1800'	No	"
				C1*	M1R4B	1800'	Yes	
M1R5	Toth Bros.	No	-	C1*	M1R5A	1800'	No	"
				C1*	M1R5B	1800'	Yes	
M1R6	Somerset C K Fuel Co.	No	-	C1*	M1R6A	1740'	Yes	"
				C1*	M1R6B	1740'	Yes	
M1R7	W. Shaffer	No	-	E*	M1R7A	1880'	No	"
M1R8	E. Koonty	No	-	E*	M1R8A	1850'	No	"
M1R9	Berkebile	No	-	C1*	M1R9A	1780'	No	"
				C1*	M1R9B	1780'	Yes	
M1R10	Metzger	No	-	C1*	M1R10A	1780'	No	"
M1R11	Joe Constantino	No	-	C1*	M1R11A	1760'	No	"
				C1*	M1R11B	1760'	No	

TABLE 107 (contd.)

Abandoned Deep Mines  
Sub-watershed 1R

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
M1R12	Ernest Armagost	No	-	B*	M1R12A	1850'	Yes	Down-dip
M1R13	F. Berkebile	No	-	C'*	M1R13A	1840'	No	"
M1R14	Unknown	No	-	C'*	M1R14A	1800'	Yes	"
M1R16	Berkebile	No	-	E*	M1R16A	1900'	Yes	"
M1R17	Unknown	No	-	C'*	M1R17A	1740'	Yes	"
M1R18	Unknown	No	-	C'*	M1R17B	1740'	Yes	"
M1R19	Unknown	No	-	E*	M1R18A	1760'	Yes	"
M1R20	Unknown	No	-	E*	M1R18B	1760'	No	"
M1R21	Unknown	No	-	E*	M1R19A	1780'	Yes	"
				E*	M1R20A	1780'	No	"
				E*	M1R20B	1780'	Yes	"
				C'*	M1R21A	1730'	No	"
				C'*	M1R21B	1740'	No	"
				C'*	M1R21C	1760'	No	"
				C'*	M1R21D	1720'	No	"
M1R22	Unknown	No	-	B*	M1R22A	1700'	Yes	"
				B*	M1R22B	1700'	No	"

TABLE 107 (contd.)

Abandoned Deep Mines  
Sub-watershed 1R

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
M1R23	(See M1R1)	-	-	B	M1R23A	1780'	No	Down-dip
M1R24	Unknown	No	-	B*	M1R23B	1780'	No	"
M1R25	Unknown	No	-	B*	M1R24A	1740'	No	"
M1R26	Unknown	No	-	C'*	M1R25A	1740'	No	"
M1R27	Unknown	No	-	C'*	M1R26A	1780'	No	"
M1R28	Unknown	No	-	E*	M1R26B	1780'	No	"
M1R29	Unknown	No	-	E*	M1R27A	1780'	No	"
M1R30	Unknown	No	-	E*	M1R28A	1890'	Yes	"
M1R31	Unknown	No	-	E*	M1R29A	1820'	No	"
M1R32	(See M1R1)	-	-	E*	M1R29B	1820'	No	"
M1R33	Unknown	No	-	E*	M1R30A	1900'	No	"
M1R34	Unknown	No	-	C'*	M1R31A	1900'	Yes	"
M1R35	Unknown	-	-	B	M1R32A	1780'	No	"
M1R36	Unknown	No	-	C'	M1R32B	1780'	No	"
M1R37	Unknown	No	-	C'*	M1R33A	1880'	No	"
M1R38	Unknown	No	-	C'*	M1R33B	1880'	No	"
M1R39	Unknown	No	-	C'*	M1R34A	1880'	No	"
M1R40	Unknown	No	-	C'*	M1R34B	1880'	No	"
M1R41	Unknown	No	-	E*	M1R35A	1850'	No	"

TABLE 107 (contd.)

Abandoned Deep Mines  
Sub-watershed 1R

Mine Number	Name of Mine or Operator	Mine Map Obtained	Area Mined (Acres)	Seam Mined	Mine Opening No.	Elev. of Opening	Flow	Head (Feet)
MLR36	Unknown	No	-	E*	MIR36A	1820'	No	Down-dip
MLR37	Unknown	No	-	E*	MIR36B	1820'	No	"
MLR38	Unknown	No	-	E*	MIR37A	1900'	Yes	"
MLR39	Unknown	No	-	C'*	MIR38A	1780'	Yes	"
MLR40	Unknown	No	-	C'*	MIR39A	1730'	No	"
MLR41	Unknown	No	-	E*	MIR40A	1830'	Yes	"
MLR42	Unknown	No	-	B*	MIR41A	1700'	Yes	"
				C'*	MIR42A	1800'	No	"
				C'*	MIR42B	1800'	No	"
				C'*	MIR42C	1800'	No	"
				C'*	MIR42D	1800'	No	"
				C'*	MIR42E	1800'	No	"
				C'*	MIR42F	1800'	No	"
MLR45	Unknown	No	-	C'*	MIR45A	1820'	Yes	"
				C'*	MIR45B	1820'	Yes	"
				C'*	MIR45C	1820'	Yes	"
MLR46	Unknown	No	-	E*	MIR46A	1820'	No	"
MLR47	Unknown	No	-	E*	MIR47A	1900'	Yes	"

\* Indicates assumed.

† Possible connection with Strip Mine SLR43.

TABLE 108

Abandoned Deep Mine Average Water Quality Data

Sub-watershed IR

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
MIR4	7.1	0	0	0	0	.58	1.49	2,880
		-	-	-	-	.1%	.2%	.1%
MIR5	6.1	.74	0	.03	.31	3.71	7.44	12,960
		-	-	.8%	2.9%	.5%	1%	.4%
MIR6	7.1	0	*	.05	2.27	62.67	114.61	66,240
		-	-	1.3%	21%	8.5%	14.9%	1.8%
MIR9	6.4	0	*	.01	.16	5.66	12.38	23,040
		-	-	.3%	1.5%	.8%	1.6%	.6%
MIR12	3.3	96.79	91.55	2.71	63.44	485.00	352.57	48,960
		-	-	69.9%	587.4%	65.6%	45.7%	1.4%
MIR14	3.5	39.10	149.04	.67	40.18	147.87	102.43	41,760
		-	-	17.3%	372%	19%	13.3%	1.2%
MIR16	7.0	0	*	0	.15	1.89	3.02	5,760
		-	-	-	1.4%	.3%	.4%	.2%



TABLE 108 (contd.)

Abandoned Deep Mine Average Water Quality Data  
Sub-watershed IR

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
MIR17	3.5	41.00	52.20	.74	7.92	80.92	79.88	25,920
		-	-	19.1%	73.3%	10.9%	10.4%	.7%
MIR18	3.7	4.15	4.05	.07	1.01	11.40	7.04	7,200
		-	-	1.8%	9.4%	1.6%	.9%	.2%
MIR19	3.2	1.88	2.90	0	.46	5.86	5.35	1,440
		-	-	-	4.3%	.8%	.7%	-
MIR20	3.1	2.61	4.09	.02	.35	5.37	4.97	2,880
		-	-	.5%	3.2%	.7%	.6%	.1%
MIR22	6.6	0	*	.02	.05	58.54	45.76	18,720
		-	-	.5%	.5%	7.9%	5.9%	.5%
MIR28	7.0	0	*	0	.12	1.41	5.13	8,640
		-	-	-	1.1%	.2%	.7%	.2%
MIR31	7.5	0	*	0	.03	2.90	12.11	2,880
		-	-	-	.3%	.4%	1.6%	.1%
MIR37	5.4	.08	.91	.01	.05	2.04	2.82	2,880
		-	-	.%	.5%	.3%	.4%	.1%

TABLE 108 (contd.)

Abandoned Deep Mine Average Water Quality Data

Sub-watershed IR

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
MIR38	6.8	0	*	.01 .3%	.05 .5%	5.19 .7%	5.18 .7%	18,720 .5%
MIR40	5.1	.76	1.74	.01 .3%	.33 3.1%	6.45 .9%	8.02 1%	5,760 .2%
MIR41	3.2	3.89	3.33	.48 12.4%	1.36 12.6%	16.13 2.18	30.05 3.9%	7,200 .2%
MIR45	6.4	0	*	.19 4.9%	.20 1.9%	35.51 4.8%	* *	54,720 1.5%
MIR47	5.9	0	*	.02 .5%	.02 .2%	7.40 1%	* *	28,800 .8%

\*Not analyzed.

## Strip Mines

The Commonwealth records indicate there is only one strip mine in this sub-watershed. Our field investigations locate two strip mines, one of which has a flow.

Table 109 lists the abandoned strip mines within the sub-watershed with the following information: the name of the mine or operator if known, the acres of land area mined and which seam was mined, the designation we give the mine, whether or not there is a flow, and if there is a connection with a deep mine.

The total acreage of abandoned strip mines in Subwatershed 1R is 30.29, which is 1.04% of the land area.

Table 110 gives the averages of the abandoned surface mine flow. Directly under the averages are the percentages of flow and pollution load that each contributes to the total pollution load and flow of this sub-watershed as measured at Sampling Stations SC1R1, SC1R2 and SC1R3. Where a single surface mine has more than one flow, the averages of the flows are added together.

Following Table 110 is the description of the one flowing strip mine along with abatement recommendations.

TABLE 109

Abandoned Surface Mines

Sub-watershed 1R

Mine Number	Name of Mine or Operator	Area		Flowing	Connection w/Deep Mine
		Mined (Acres)	Seam Mined		
S1R15	Smith Bros.	22.95	D	Yes	No
S1R43	Unknown	7.34	C'	No	M1R11

TABLE 110

Abandoned Surface Mine Average Water Quality Data  
Sub-watershed 1R

Mine No.	pH	Net Cold Acid ppd	Net Hot Acid ppd	Ferrous Iron ppd	Total Iron ppd	Sulfate ppd	Hardness ppd	Flow gpd
S1R15	5.0	1.03	*	.05	.09	10.01	*	33,120
		-		1.3%	.8%	1.4%		.9%

\*Not analyzed.

Strip Mine: S1R15

Area: 22.95 acres

Location: Between Stony Creek and T670

Status: Abandoned

Owned by: Smith Brothers

Seam mined: D

Connection with deep mine: None

Flowing: One leaching area

General Description:

Although there is thick vegetation throughout the area there is erosion on and seepage through spoil piles and along the 15-20' highwall.

Recommendation:

A ditch above and below the highwall leading to the natural drainage along T.R. T 670 toward Stony Creek.

Cost:

Ditch	\$5,000
Clearing and grubbing	<u>500</u>
Total	\$5,500

TABLE 111

Recommended Abatement Procedures - Cost Benefication

Sub-watershed IR

No of K Number	Recommended Abatement Known Sources	Total Costs		Cost \$/Pound Acid Removal		Total Acid Abate- ment ppd	Total Iron Abate- ment ppd	Percent of Total Sub-watershed Acid Iron
		Poten- tial Sources	Poten- tial Sources	Known Sources	Poten- tial Sources			
1	MIR12 1 Seal	-	\$25,000	\$ 431	\$ 431	58.07	38.06	- 352.41
2	MIR14 1 Seal	-	25,000	1,066	1,066	23.46	24.11	- 223.24
3	MIR17 2 Seals	-	50,000	2,033	2,033	24.60	4.75	- 43.98
4	SLR15 22.95 Acres	-	5,500	8,871	8,871	.62	.05	- .46
5	MIR41 1 Seal	-	25,000	10,730	10,730	2.33	.82	- 7.59
6	MIR18 2 Seals	-	50,000	20,081	20,081	2.49	.61	- 5.65
7	MIR19 1 Seal	-	25,000	22,124	22,124	1.13	.28	- 2.59
8	MIR20 2 Seals	-	50,000	31,848	31,848	1.57	.21	- 1.94
9	MIR40 1 Seal	-	25,000	54,348	54,348	.46	.20	- 1.85
10	MIR5 2 Seals	-	50,000	113,637	113,637	.44	.19	- 1.76
11	MIR37 1 Seal	-	25,000	500,000	500,000	.05	.03	- .28

Note: The potential costs above include known costs.

TABLE 112

Benefication - Recommended Plans  
Sub-watershed 1R

Plan	Above Sources Abated	ppd	Acid		ppd	Iron		Total Construction Costs	
			% of Total Sub-watershed	% of Total Sub-watershed		% of Total Sub-watershed	% of Total Sub-watershed	Flowing Sources	Potential Sources
A	1 thru 11	116	-	-	70	648.15%	\$355,500	\$355,500	\$355,500
B	1 thru 3	107	-	-	67	620.37%	100,000	100,000	100,000
C	1 and 2	82	-	-	63	583.33%	50,000	50,000	50,000

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