

SUB-WATERSHED 8L
(UN-NAMED)

Sub-watershed 8L (unnamed)

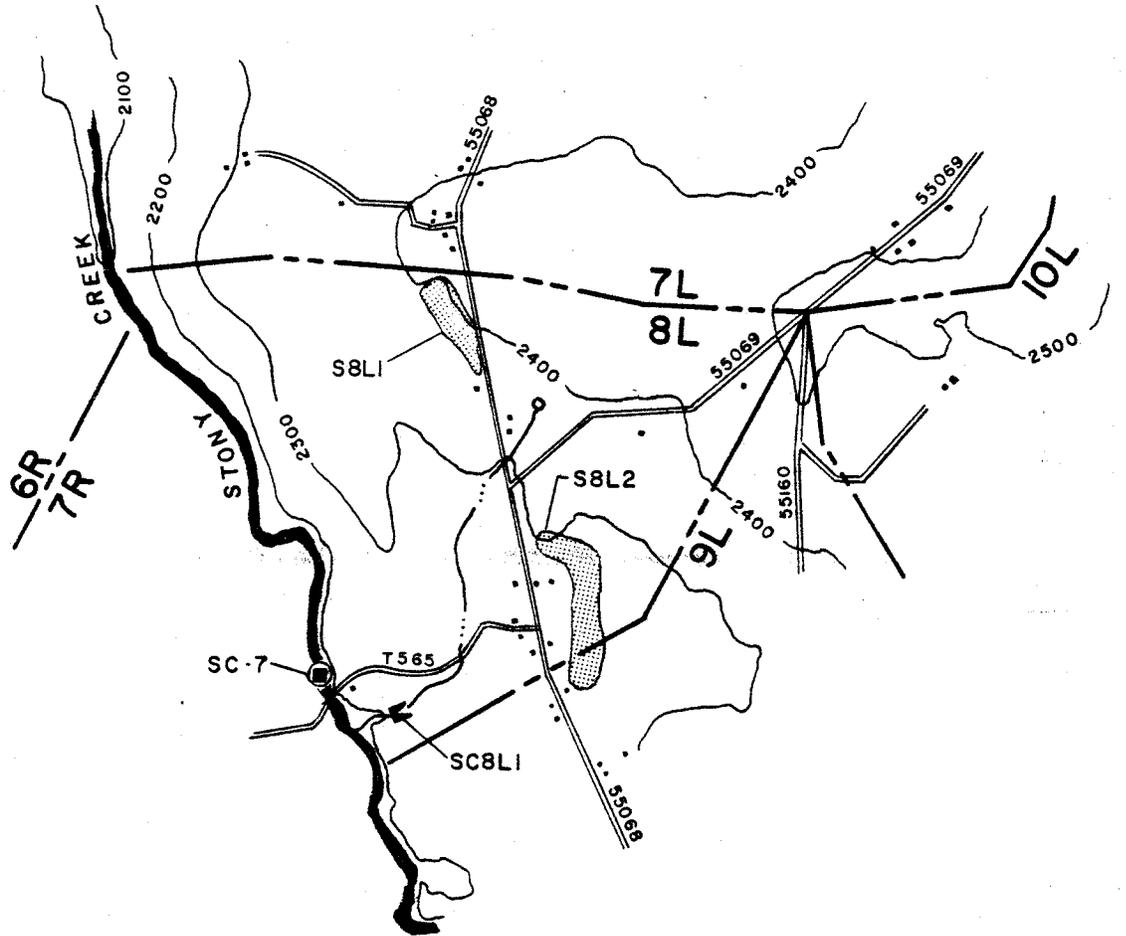
General Discussion

The sub-watershed encompasses .7 of a square mile or 463 acres of land area, approximately .52% of the total study area. It is drained by one mile of tributaries, and has no lakes or ponds of any size. Commonwealth records indicate one surface mine and one deep mine in this sub-watershed. Our field investigations locate 2 strip mines and no deep mines. There is no flow or leaching from the strip mines.

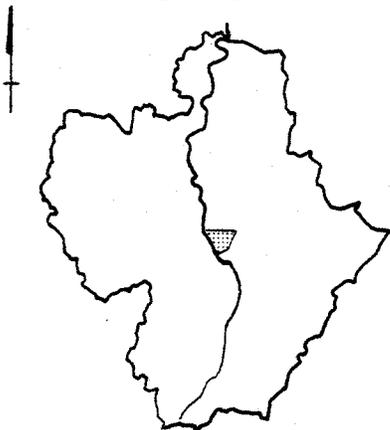
The following information gives the averages of the sampling station designated as SC8L1, located at the mouth of the unnamed tributary and shown on drawing 7119-6. The percentage that this station contributes in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC1 on Stony Creek is also included.

| | <u>Averages</u> | <u>Percent of Total Watershed</u> |
|------------------|-----------------|---------------------------------------|
| pH | 6.4 | |
| Net Cold Acidity | 0 PPD | 0% |
| Net Hot Acidity | 0 PPD | 0 % |
| Ferrous Iron | .55 PPD | .07% |
| Total Iron | 2.74 PPD | .06% |
| Sulfate | 69.80 PPD | .04% |
| Hardness | 98.70 PPD | .05% |
| Flow | 472,320 GPD | .30% |

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



KEY PLAN



MAP OF SUB-WATERSHED 8L

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

Strip Mines

The Commonwealth records indicate that there is 1 strip mine in this sub-watershed. Our field investigations locate 2 surface mines with no flows. Table 50 lists the abandoned strip mines within this sub-watershed with the following information: the name of the mine or operator if known, the area and seam mine, 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 8L is 19.27 acres. (4.16 of the sub-watershed area.)

TABLE 50
Abandoned Surface Mines
Sub-watershed 8L

| Mine Number | Name of Mine or Operator | Area Mined (Acres) | Seam Mined | Flowing | Connection w/Deep Mine |
|-------------|--------------------------|--------------------|------------|---------|------------------------|
| S8L1 | Unknown | 7.34 | C,E | No | No |
| S8L2 | Wm. E. Scurfield | 11.93 | C,D | No | No |

Recommendations

There are no recommendations for this area.

SUB-WATERSHED 6R
(BUCK RUN)

Sub-watershed 6R (Buck Run)

General Discussion

This sub-watershed encompasses 3.8 square miles of 2,415 acres of land area which is approximately 2.71% of the total study area. It is drained by 4.4 miles of tributaries and contains 68.6 acres of lakes and ponds (2.84% of the total sub-watershed area). Commonwealth records indicate 2 surface mines and 4 deep mines in this area. Our field investigations find 1 non-flowing surface mine and 3 non-flowing deep mines.

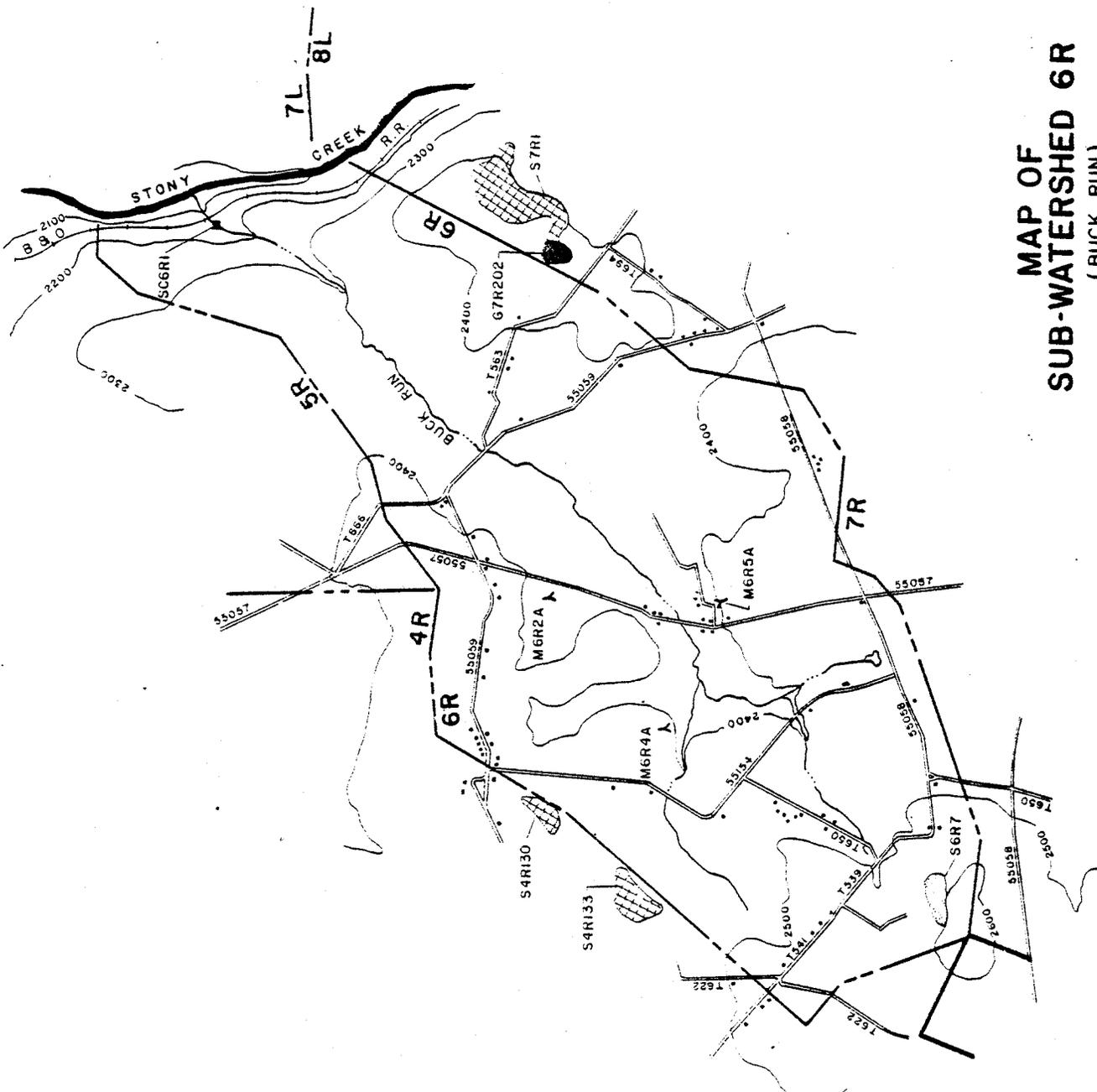
The following information gives the average of the sampling station designated as SC6R1, located at the mouth of Buck Run and shown on drawing 7119-6. The percentage that this station contributes in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC1 on Stony Creek is also included.

| | <u>Averages</u> | <u>Percent of Total Watershed</u> |
|------------------|-----------------|---------------------------------------|
| pH | 6.4 | |
| Net Cold Acidity | 0 PPD | 0% |
| Net Hot Acidity | 0 PPD | 0% |
| Ferrous Iron | 14.76 PPD | 1.92% |
| Total Iron | 19.50 PPD | .44% |
| Sulfate | 1,667.20 PPD | .87% |
| Hardness | 2,045.00 PPD | .99% |
| Flow | 7,241,760 GPD | 4.54% |

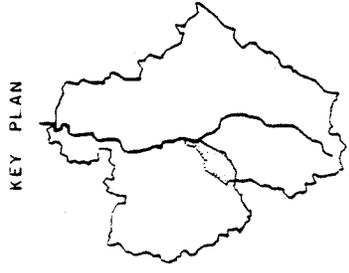
The following plate shows the locations of all deep mine openings and strip mines where they exist within this sub-watershed, as well as the locations of all sampling stations.

Deep Mines

The Commonwealth records indicate that there are 4 deep mines in this sub-watershed. Our field investigations locate 3 deep mine openings of which none are flowing. Table 51 lists the abandoned deep mines within this 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 the openings, openings with flows, and head in feet which is the difference in coal elevations on an up-dip mine.



**MAP OF
SUB-WATERSHED 6R
(BUCK RUN)**



KEY PLAN

TABLE 51

Abandoned Deep Mines
Sub-watershed 6R

| Mine Number | Name of Mine or Operator | Mine Map Obtained | Area Mined (Acres) | Seam Mined | Mine Opening No. | Elev. of Opening | Flow | Head (Feet) |
|-------------|--------------------------|-------------------|--------------------|------------|------------------|------------------|------|-------------|
| M6R2 | Unknown | No | - | C'* | M6R2A | 2380' | No | - |
| M6R4 | Unknown | No | - | C'* | M6R4A | 2430' | No | - |
| M6R5 | Unknown | No | - | C'* | M6R5A | 2410' | No | - |

*Indicates assumed.

Strip Mines

The Commonwealth records indicate that there are 2 strip mines in this sub-watershed. Our field investigations locate one surface mine, not flowing. Table 52 lists the abandoned strip mines 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 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 6R is 4.59 acres (.2% of the sub-watershed area).

TABLE 52
Abandoned Surface Mines
Sub-watershed 6R

| Mine Number | Name of Mine or Operator | Area Mined (Acres) | Seam Mined | Flowing | Connection w/Deep Mine |
|-------------|--------------------------|--------------------|------------|---------|------------------------|
| S6R7 | Unknown | 4.59 | E* | No | No |

Recommendation

There are no recommendation for this area.

*Indicates assumed

SUB-WATERSHED 5R

(UN-NAMED)

Sub-watershed 5R (unnamed)

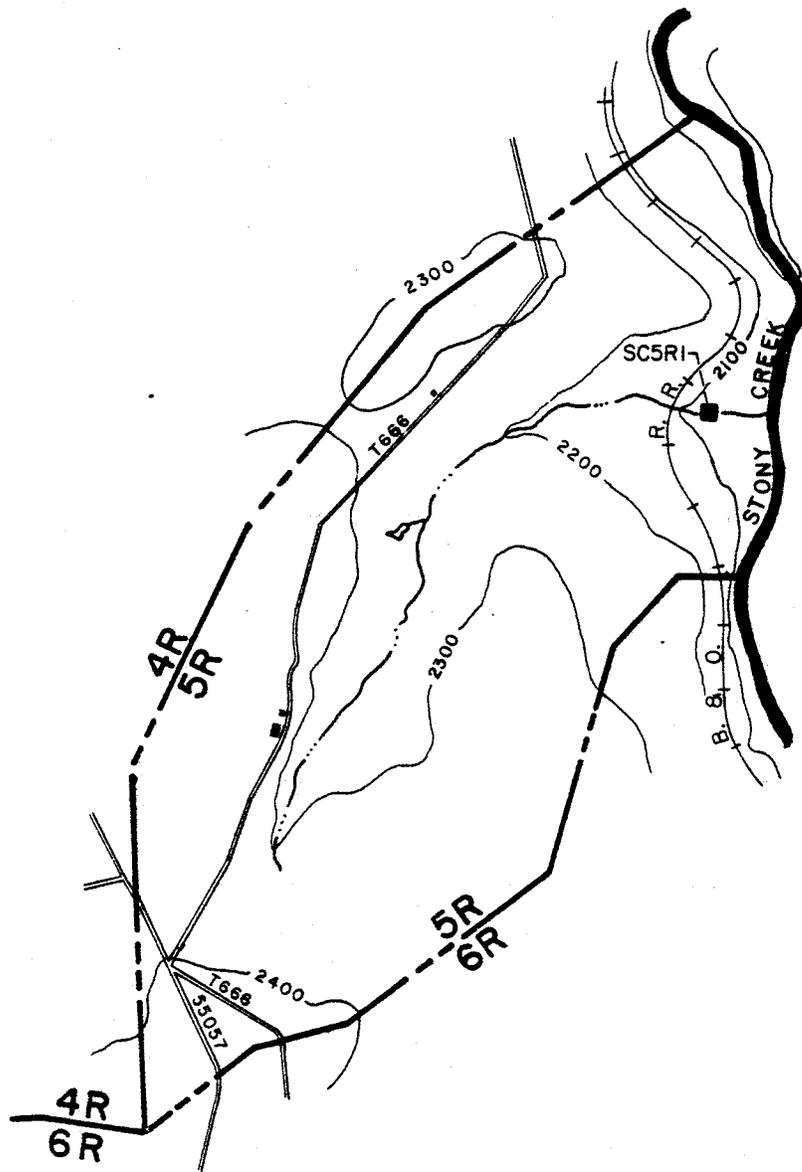
General Discussion

This sub-watershed encompasses 1.3 square miles or 883 acres of land area which is approximately .99% of the total study area. It is drained by 1.7 miles of tributaries (.72% of the total length of all watershed tributaries) and contains .5 acres of ponds and lakes (.06% of the total sub-watershed area). Commonwealth records indicate one surface mine and no deep mines in this area. Our field investigations find no mining activity of any kind in this sub-watershed. The source of pollution that is found at Sampling Station SC5R1 could be entering the stream from an underground, and therefore undetected source.

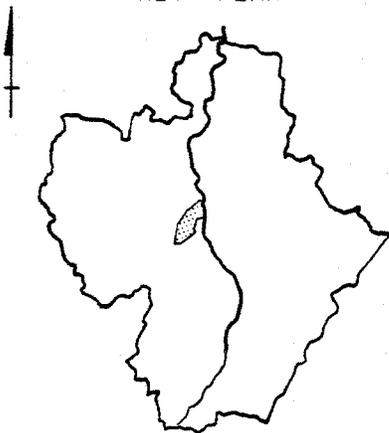
The following information gives the average of the sampling station designated as SC5R1, located at the mouth of this unnamed tributary and shown on drawing 7119-6. The percentage that this station contributes in pollution load and flow to the total pollution load and flow as measured at Monitoring Station SC-1 on Stony Creek is also included.

| | <u>Averages</u> | <u>Percent of Total Watershed</u> |
|------------------|-----------------|---------------------------------------|
| pH | 5.5 | |
| Net Cold Acidity | 23.20 PPD | .07% |
| Net Hot Acidity | 7.36 PPD | .01% |
| Ferrous Iron | 1.24 PPD | .16% |
| Total Iron | 5.33 PPD | .12% |
| Sulfate | 135.30 PPD | .07% |
| Hardness | 197.90 PPD | .10% |
| Flow | 934,560 GPD | .59% |

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



KEY PLAN



MAP OF SUB-WATERSHED 5R

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

SUB-WATERSHED 7L
(GROVE RUN)

Sub-watershed 7L (Grove Run)

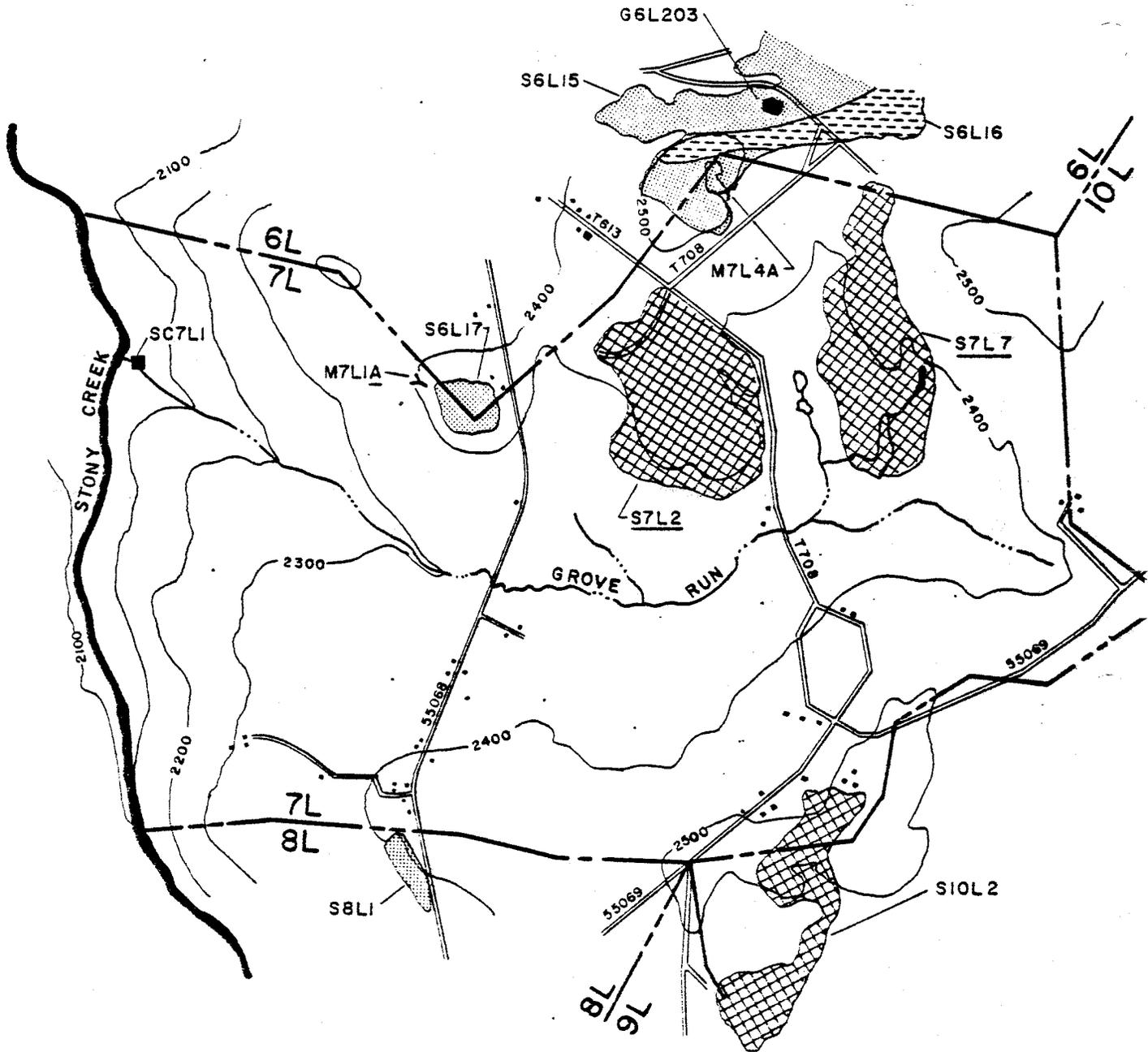
General Discussion

This sub-watershed encompasses 3.8 square miles or 2,415 acres of land area which is approximately 2.71% of the total study area. It is drained by 3.6 miles of tributaries (1.53% of the total length of all watershed tributaries) and contains 20.5 acres of lakes and ponds (.85% of the total sub-watershed land area). Commonwealth records indicate 4 surface and 3 deep mines in this area. Our field investigations locate 2 strip mines, both flowing, and 3 deep mines of which 1 has a flow.

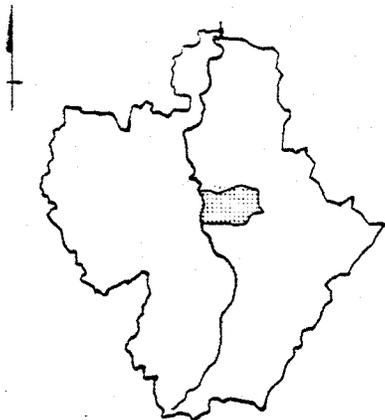
The following information gives the averages of the sampling station designated as SC7L1, located at the mouth of Grove Run and shown-on drawing 7119-6. The percentage that this station contributes in pollution load and flow to the total pollution load and flow as measured at SC1 on Stony Creek, is also included.

| | <u>Averages</u> | <u>Percent of Total Watershed</u> |
|------------------|-----------------|---------------------------------------|
| pH | 4.3 | |
| Net Cold Acidity | 696.10 PPD | 2.23% |
| Net Hot Acidity | 454.69 PPD | .42% |
| Ferrous Iron | 4.59 PPD | .60% |
| Total Iron | 16.16 PPD | .36% |
| Sulfate | 6,645.00 PPD | 3.45% |
| Hardness | 9,938 PPD | 4.83% |
| Flow | 4,829,760 GPD | 3.03% |

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 location of all sampling stations.



KEY PLAN



MAP OF SUB-WATERSHED 7L

(GROVE RUN)

SCALE: 1" = 2000'

Deep Mines

The Commonwealth records indicate that there are 3 deep mines in this sub-watershed. Our field investigations locate 3 deep mine openings of which 1 is flowing. Table 53 lists the abandoned deep mines within the sub-watershed with the following information: name of the mine or operator if known, available mine maps, acres and seam mined, mine opening designation, openings with flows, estimated elevation of the mine openings, and head in feet which is the difference in coal elevations on an up-dip mine.

Table 54 gives the averages of the abandoned deep mine flows. Directly under the averages are the percentages of flows and pollution loads that each contributes to the pollution load of this sub-watershed as measured at Station SC7L1 (Grove Run). The averages, taken at the mine openings, are added together where more than one opening of a mine complex has a flow.

TABLE 53

Abandoned Deep Mines
Sub-watershed 7L

| Mine Number | Name of Mine or Operator | Mine Map Obtained | Area Mined (Acres) | Seam Mined | Mine Opening No. | Elev. of Opening | Flow | Head (Feet) |
|-------------|--------------------------|-------------------|--------------------|------------|------------------|------------------|------|-------------|
| M7L1 | Russel M. Pile | No | - | B | M7L1A | 2410' | Yes | Down Dip |
| M7L3 | Svonavec C. C. | No | - | - | M7L3A | - | No | - |
| *M7L4 | Marcus E. Stahl | No | - | C' | M7L4A | 2500' | No | - |

*Possible connection with Strip Mine S6L15.

TABLE 54

Abandoned Deep Mine Average Water Quality Data
Sub-watershed 7L

| Mine No. | pH | Net Cold Acid ppd | Net Hot Acid ppd | Ferrous Iron ppd | Total Iron ppd | Sulfate ppd | Hardness ppd | Flow gpd |
|----------|-----|----------------------|---------------------|---------------------|-------------------|----------------|-----------------|-------------|
| M7L1 | 3.0 | 2.32 | 6.49 | .08 | 1.08 | 9.54 | 9.24 | 1,440 |
| | | .3% | 1.3% | 1.7% | 6.7% | .1% | .1% | - |

Strip Mines

The Commonwealth records indicate that there are 4 strip mines in this sub-watershed. Our field investigations locate 2 surface mines with both flowing. Table 55 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 mine, 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 7L is 176.26 acres (7.30% of this sub-watershed area).

Table 56 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 this sub-watershed as measured at Sampling Station SC7L1.

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

Following Table 56 are the descriptions of the flowing strip mines along with abatement recommendations.

TABLE 55

Abandoned Surface Mines

Sub-watershed 7L

| Mine Number | Name of Mine or Operator | Area Mined (Acres) | Seam Mined | Flowing | Connection w/Deep Mine |
|-------------|--------------------------|--------------------|------------|---------|------------------------|
| S7L2 | Unknown | 93.64 | C | Yes | No |
| S7L7 | Svonavec Coal Co. | 82.62 | D,C,B | Yes | No |

TABLE 56

Abandoned Surface Mine Average Water Quality Data

Sub-watershed 7L

| Mine No. | pH | Net Cold Acid ppd | Net Hot Acid ppd | Ferrous Iron ppd | Total Iron ppd | Sulfate ppd | Hardness ppd | Flow gpd |
|----------|-----|-------------------|------------------|------------------|----------------|-------------|--------------|----------|
| S7L2 | 5.8 | 0 | * | .25 | .52 | 404.61 | * | 40,320 |
| | | - | | 5.5% | 3.2% | 6.1% | | .8% |
| S7L7 | 6.8 | 0 | * | 5.42 | 41.58 | 1,251.67 | * | 351,360 |
| | | - | | 118.1% | 257.3% | 18.8% | | 7.3% |

*Not analyzed.

Strip Mine: S7L2

Area: 93.64 acres

Location: West of T. R. T 708

Status: Reclaimed

Owned by: Unknown

Seam mined: C

Connection with deep mine: None

Flowing: Six leaching areas

General Description:

Grading has been done on the strip with good grass cover. Some erosion exists.

Recommendation:

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

Strip Mine: S7L7

Area: 82.62 acres

Location: East of T. R. T 508

Status: Reclaimed

Owned by: Svonavec Coal Company

Seams mined: B, C, and D

Connection with deep mine: Unknown

Flowing: Two leaching areas

General Description:

There is active deep mine activity in the area creating the source of the water in the settling ponds. The pond looks good and the strip has been graded. No vegetation exists on the strip, however.

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.

Recommendations

Table 57 lists the recommendations for the polluting deep and strip mine, along with the costs associated with each recommendation.

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

Table 58 lists the sources abated, the amount of benefication and the cost associated with each plan.

The distance from Station SC7L1 to the next polluting tributary downstream, SC6L1 is .78 miles. This is the minimum distance on Stony Creek that would benefit from Grove Run becoming a clean stream.

TABLE 57

Recommended Abatement Procedures - Cost Benefication

Sub-watershed 7L

| M P S X Number | Recommended Abatement | | Total Costs | | Cost \$/Pound Acid Removal | | Total Acid Abate-ment | Total Iron Abate-ment | Percent of Total Sub-watershed | |
|----------------------------|-----------------------|---------------------|---------------|---------------------|----------------------------|---------------------|-----------------------|-----------------------|--------------------------------|-------|
| | Known Sources | Poten- tial Sources | Known Sources | Poten- tial Sources | Known Sources | Poten- tial Sources | ppd | ppd | Acid | Iron |
| 1 M7L1 | 1 Seal | - | \$25,000 | \$25,000 | \$17,986 | \$17,986 | 1.39 | .65 | .20% | 4.02% |

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TABLE 58

Benefication - Recommended Plans
Sub-watershed 7L

| 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 | 1.39 | .20% | .65 | 4.02% | \$25,000 | \$25,000 |

Due to the fact that this one polluting deep mine does not contribute even one per cent of the pollution load of this sub-watershed there is no recom. hdatation.