

UNPOLLUTED STREAMS

STREAMS NOT POLLUTED BY ACID MINE DRAINAGE INDEX

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UNPOLLUTED STREAMS
STREAMS NOT POLLUTED BY ACID MINE DRAINAGE

Summary of Water Quality

The majority of the streams not polluted by acid mine drainage in the East Branch of the Clarion River drainage basin have marginal alkalinities. The only exception are those streams in the southeastern section of the drainage basin beginning with Straight Creek. Even in these streams however, only Crooked Creek has a significant alkalinity throughout the year. The alkalinity of these streams range mostly from L to L0 mg/L and have pH ranges between 5.0 and 6.5.

Straight Creek and South Fork Straight Creek, which have relatively low alkalinities, flow into the East Branch Reservoir, however the other alkaline streams enter East Branch Clarion River below the dam.

Straight Creek, South Fork Straight Creek, Middle Fork and Crooked Creek in Elk County and Sevenmile Run in McKean County are all stocked with trout by the Pennsylvania Fish Commission. Trout, as well as other fish, were reported in all streams not polluted by acid mine drainage.

Sevenmile Run

Sevenmile Run has a drainage area of approximately 5, 185 acres. Sampling Station 5923 was established near the mouth, at the location of the U. S. Geological Survey stream gage, at which point the drainage area is about 5, 096 acres. Twelve months of testing of water samples obtained at this station indicate the following minimum and maximum values of tested parameters.

	<u>Minimum</u>	<u>Maximum</u>
pH	4.80	6.45
Total Acidity (mg/l)	0.5	5.0
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	0.0	5.0
Sulfate (mg/l)	3.	14.
Total Iron (mg/l)	0.02	0.12
Flow (cfs)	0.78	62.00

Complete test results of samples obtained at Station 5923 are included in Appendix B of this report.

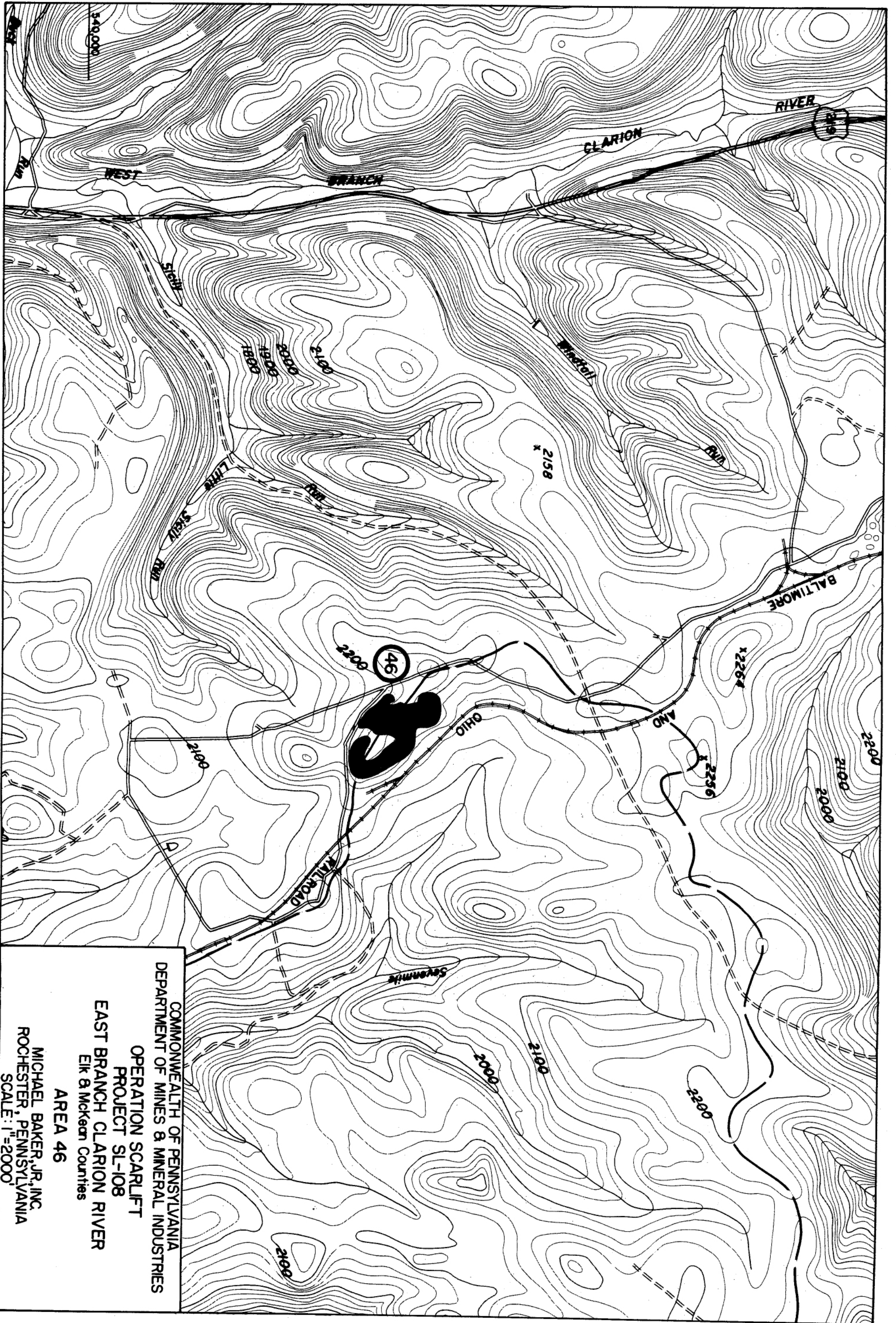
An active clay mining operation is located in the northwest headwaters area of Sevenmile Run, The clay pit is on the drainage divide between the West Branch Clarion River and the East Branch Clarion River and, at present, the stripping operation covers approximately 55 acres. This clay pit is referred to on the maps contained herein as Area 46. The clay pit is presently operated by Kness Brothers and employs only a few men. A thin coal seam is associated with the clay in isolated locations which could be a Lower Kittanning "rider" coal, however, it is possible that it is a Mercer coal bed. When coal is encountered during the clay stripping operations, it is stockpiled within the pit and then sold or given away. There is no evidence of any acid mine drainage pollution from this stripping. Two (2) shallow ponds of water within the pit were sampled on March 20, L969 and the water quality test results were as follows:

Fivemile Run

The drainage area of Fivemile Run is approximately 4, 189 acres including Cathrine Swamp, located in the headwaters, which has a drainage area of about 1, 793 acres, Stream sampling Station 5924 was established just upstream of the culvert under Legislative Route 42013 which is about one half mile

	<u>Sample 1</u>	<u>Sample 2</u>
pH	4.95	4.55
Total Acidity (mg/l)	3.5	9.0
Free Acidity (mg/l)	0.0	1.0
Sulfates (mg/l)	6.	20.
Total Iron (mg/l)	0.60	1.04

above the mouth of the stream. At the sampling station the drainage area is approximately 4, 073 acres. Station 5924 was sampled 22 times between November 20, 1968 and October 23, 1969 and the test results indicated the following minimum and maximum values.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF MINES & MINERAL INDUSTRIES
OPERATION SCARLIFT
PROJECT SL-108
EAST BRANCH CLARION RIVER
Elk & McKean Counties
AREA 46
MICHAEL BAKER, JR., INC.
ROCHESTER, PENNSYLVANIA
SCALE: 1"=2000'

	<u>Minimum</u>	<u>Maximum</u>
ph	4.60	6.30
Total Acidity (mg/l)	0.5	7.0
Free Acidity (mg/l)	0.0	1.0
Alkalinity (mg/l)	0.0	4.0
Sulfate (mg/l)	3.	13.
Total Iron (mg/l)	0.01	0.17
Flow (cfs)	0.56	44.60

Complete test results of Station 5924 are included in Appendix B of this report.

The Pennsylvania Department of Health's sketch map showing strip-mines and deep mines in the East Branch Clarion River Watershed indicates a deep mine in the Fivemile Run Sub-basin. This mine, designated as Area 44 on the included maps, is located about 200 feet east of Legislative Route 42013 and approximately 0.7 miles north of the point where Fivemile Run crosses Legislative Route 42013. The mine heading is caved and the Pennsylvania Department of Health visited the location in 1953 and 1966 and reported no discharge from the mine. During this investigation, the mine location was visited on several occasions and there was no evidence of a discharge from the mine.

Unnamed Tributary of Sevenmile Run

This tributary is located downstream of Fivemile Run and discharges into the East Branch Reservoir during periods of normal pool elevation. The drainage area is approximately 311 acres and a sampling station (Station 5978) was established at the mouth of the stream. This station was sampled on February 26, 1969 and test results indicated a pH of 5.70, total acidity of 15.0 mg/l, free acidity of 0.0 mg/l, alkalinity of 1.0 mg/l, sulfates of 7 mg/l and total iron of 0.04 mg/l.

Sugar Run

Sugar Run has a drainage area of about 480 acres and Station 5925 was established near the mouth of the stream, for testing purposes, at which point the drainage area is approximately 473 acres. This station was sampled seven times between December 20, 1968 and June 11, 1969 and the test results indicated the following minimum and maximum values.

	<u>Minimum</u>	<u>Maximum</u>
pH	5.20	6.40
Total Acidity (mg/l)	1.5	3.0
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	0.2	1.2
Sulfate (mg/l)	3.	6.
Total Iron (mg/l)	0.02	0.03
Flow (cfs)	0.22	5.01

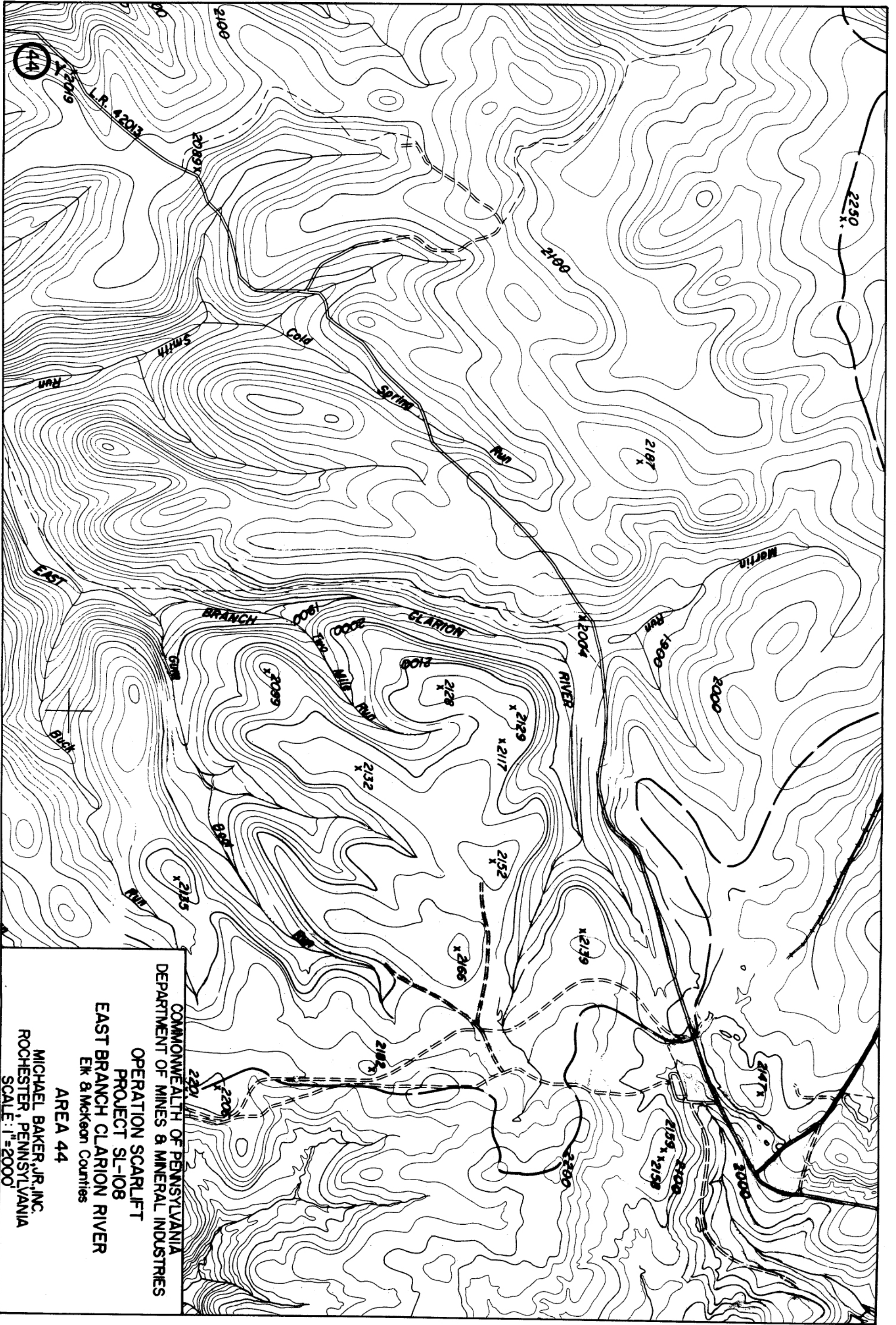
Martin Run

The drainage area of Martin Run is approximately 1,320 acres. Station 5932 was established near the mouth of the stream, just downstream of the culvert under Legislative Route 42013, at a point where the drainage area is approximately 1,300 acres. This station was sampled 18 times between November 29, 1968 and October 23, 1969 and indicated the following minimum and maximum test values. Complete test results of samples obtained at Station 5932 are included in Appendix B of this report

Buck Run

	<u>Minimum</u>	<u>Maximum</u>
pH	4.40	5.65
Total Acidity (mg/l)	2.0	6.0
Free Acidity (mg/l)	0.0	0.5
Alkalinity (mg/l)	0.0	1.5
Sulfate (mg/l)	3.	14.
Total Iron (mg/l)	0.08	1.08
Flow (cfs)	0.24	13.78

The drainage area of Buck Run is approximately 730 acres. Sampling Station 5945 was located at the mouth of the stream and sampled six times between February 5, 1969 and June 11, 1969 with test results indicating the following minimum and maximum values.



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 EAST BRANCH CLARION RIVER
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 AREA 44
 MICHAEL BAKER, JR., INC.
 ROCHESTER, PENNSYLVANIA
 SCALE: 1"=2000'

	<u>Minimum</u>	<u>Maximum</u>
pH	4.50	5.30
Total Acidity (mg/l)	1.5	5.5
Free Acidity (mg/l)	0.0	0.5
Alkalinity (mg/l)	0.0	0.5
Sulfate (mg/l)	3.	6.
Total Iron (mg/l)	0.01	0.04
Flow (cfs)	0.31	7.08

County Line Run

The drainage area of County Line Run is about 4,025 acres. Station 5946 was established near the mouth of the stream where the drainage area is approximately 3,981 acres. This station was sampled five times during the period February 5, 1969 through June 11, 1969 and minimum and maximum test results were as follows:

	<u>Minimum</u>	<u>Maximum</u>
ph	5.00	6.30
Total Acidity (mg/l)	1.0	4.0
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	0.0	1.0
Sulfate (mg/l)	4.	5.
Total Iron (mg/l)	0.03	0.05
Flow (cfs)	1.56	35.15

Lukes Run

Lukes Run has a drainage area of some 860 acres. Station 5947 was located near the mouth of the stream and tested on two different occasions. The results of these water quality tests were as follows:

April 3, 1969 - pH 4.65, sulfates 5 mg/l, total iron 0.01 mg/l and free acidity of 0.5 mg/l. There was an abnormally high flow on this day and the low pH was probably the result of the flushing of organic acids from the sub-basin.

October 23, 1969 - pH 5.15, sulfates 9 mg/l,
total iron 0.03 mg/l and
no free acidity.

Straight Creek

Straight Creek has a drainage area of about 6, 775 acres, Sampling Station 5948 was located about one mile upstream of the point where the stream enters into East Branch Reservoir. The drainage area at the sampling point is approximately 3, 804 acres, This station was sampled twice and following are the test results.

	<u>July 22, 1969</u>	<u>October 23, 1969</u>
pH	6.40	5.45
Total Acidity (mg/l)	0.0	2.0
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	0.5	2.5
Sulfate (mg/l)	4.	3.
Total Iron (mg/l)	0.05	0.04
Flow (cfs)	1.36	0.62

South Fork Straight Creek

This stream has a drainage area of approximately 5, 721 acres. Station 5982 was located near the mouth of the stream at a point where the drainage area was about 5, 650 acres. The station was sampled twice indicating the following results.

	<u>July 22, 1969</u>	<u>October 23, 1969</u>
pH	6.35	6.60
Total Acidity (mg/l)	0.0	0.5
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	4.5	4.5
Sulfate (mg/l)	7.	7.
Total Iron (mg/l)	0.07	0.08
Flow (cfs)	1.28	0.58

Middle Fork

Middle Fork has a drainage area of approximately 4,065 acres. Station 5949 was established at the mouth of the stream and sampled four times between January 24, 1969 and September 6, 1969. Test results of the water quality tests indicated the following minimum and maximum values.

Crooked Creek

	<u>Minimum</u>	<u>Maximum</u>
pH	6.00	6.90
Total Acidity (mg/l)	0.2	1.0
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	2.0	6.5
Sulfate (mg/l)	0.	11.
Total Iron (mg/l)	0.00	0.07
Flow (cfs)	1.35	25.41

Crooked Creek has a drainage area of about 6,320 acres, Sampling Station 5951 was established near the mouth of the stream just upstream of the bridge on Legislative Route 24021. The drainage area at the point of sampling was approximately 6,240 acres. Samples were obtained at this station four times between January 24, 1969 and September 6, 1969. Results of these tests indicate Crooked Creek to be the only stream in the East Branch Clarion River Watershed that has a significant alkalinity throughout the year. Minimum and maximum test results were as follows:

	<u>Minimum</u>	<u>Maximum</u>
pH	6.30	7.25
Total Acidity (mg/l)	0.0	0.5
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	4.5	12.5
Sulfate (mg/l)	0.	10.
Total Iron (mg/l)	0.00	0.08
Flow (cfs)	2.08	39.18

Dutch Creek

The drainage area of Dutch Creek is about 373 acres, Station 5975 was established just downstream of the culvert under Legislative Route 24021 and was sampled three times between March 7, 1969 and September 6, 1969. The drainage area at the sampling point was 308 acres and the water quality test results of these samples were as follows:

Unnamed Tributary of East Branch Clarion River

This tributary is located below Dutch Creek and has a drainage area of

	<u>March 7, 1969</u>	<u>June 13, 1969</u>	<u>Sept. 6, 1969</u>
pH	6.15	6.40	7.15
Total Acidity (mg/l)	1.0	0.5	0.0
Free Acidity (mg/l)	0.0	0.0	0.0
Alkalinity (mg/l)	2.5	3.5	11.0
Sulfate (mg/l)	9.	0.	9.
Total Iron (mg/l)	0.04	0.00	0.05
Flow (cfs)	0.18	0.12	0.17

about 502 acres. Station 5952 was established just downstream of the culvert under Legislative Route 24021 at a point having a drainage area of some 421 acres. Samples were obtained at Station 5952 four times during the period January 24, 1969 and September 9, 1969 and test results indicated the following minimum and maximum values.

	<u>Minimum</u>	<u>Maximum</u>
pH	4.70	6.70
Total Acidity (mg/l)	0.5	6.0
Free Acidity (mg/l)	0.0	0.5
Alkalinity (mg/l)	0.0	6.5
Sulfate (mg/l)	0.	12.
Total Iron (mg/l)	0.00	0.03
Flow	0.17	3.17

Indian Run

The drainage area of Indian Run is about 1, 863 acres and Sampling Station 5953 was established at the mouth of the stream, just upstream of the culvert under Legislative Route 24021. This station was sampled four times between January 24, 1969 and September 6, 1969 and water quality tests indicated the following minimum and maximum values.

	<u>Minimum</u>	<u>Maximum</u>
pH	6.05	6.65
Total Acidity (mg/l)	0.0	1.0
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	2.0	10.5
Sulfate (mg/l)	0.	13.
Total Iron (mg/l)	0.00	0.04
Flow (cfs)	0.68	12.83

Unnamed Tributary of East Branch Clarion River

This tributary is located below Johnson Run and has a drainage area of approximately 904 acres. Station 5981 was located just downstream of the culvert under the embankment of the Baltimore and Ohio Railroad. At this point the sampling station was near the mouth of the stream and below the bifurcation of the stream and the drainage area is approximately 857 acres. A sample was taken at this point on March 7, 1969 and the water quality test results indicated that the pH was 5.50, sulfate was 11 mg/ l, total iron was 0.03 mg/ l and there was no free acidity.

Unnamed Tributary of East Branch Clarion River

This tributary is east and south of Johnson Run and has a drainage area of approximately 404 acres. Station 5950 was located just upstream of the culvert under Township Road 358 and at this point samples a drainage area of about 379 acres. Legislative Route 24013, the southward extension of Pumpkin Hill Road (Township Road 363), is just west of the stream for much of the length. Station 5950 was sampled four times between January 24, 1969 and September 6, 1969 and water quality test results indicated the following minimum and maximum values.

	<u>Minimum</u>	<u>Maximum</u>
pH	5.70	7.15
Total Acidity (mg/l)	0.0	1.5
Free Acidity (mg/l)	0.0	0.0
Alkalinity (mg/l)	2.0	8.0
Sulfate (mg/l)	0.	15.
Total Iron (mg/l)	0.00	0.09
Flow (cfs)	0.15	2.86

