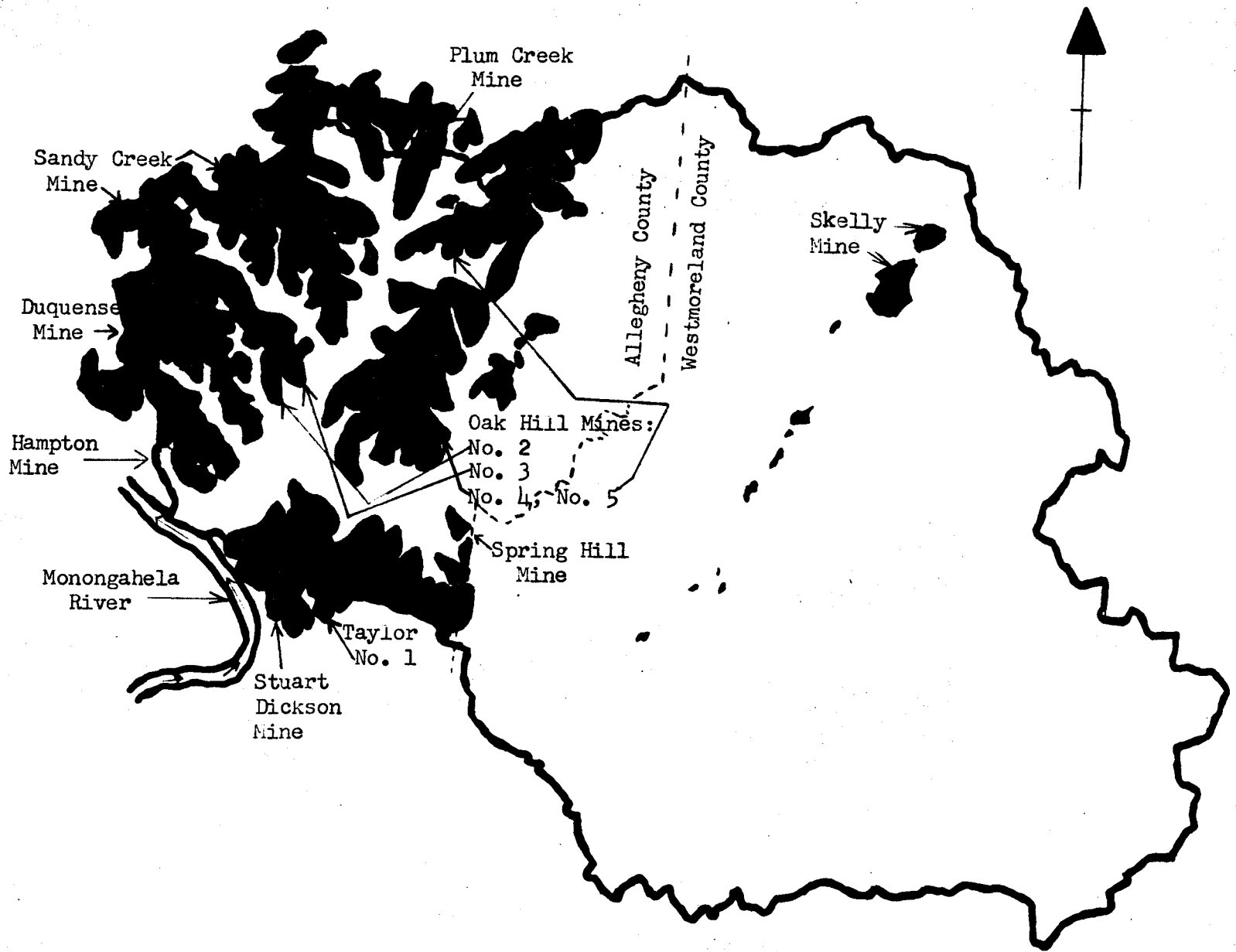


Analysis Section



MINED AREAS CONSIDERED IN THIS STUDY
(PITTSBURGH COAL SEAM)

stuart dickson & taylor mines complex

BACKGROUND

This complex of many mines of which the Stuart Dickson and Taylor Mines were the largest operations was mined between 1875 to 1925. Little is known of the original workings except for the tipple location above the Monongahela River, other major entries, and the main haulageways of the Stuart Dickson mine.

Mine fires were a hazard here and closed several of the mines as well as destroying many hilltop homes. Major affected areas are located in West Wilmerding and adjacent to Wilmerding Borough.

Stuart Dickson mined most of the "core" areas in this locale while virtually every nearby homeowner had his "dog hole" for home heating.

Although the exact location is not known, a major haulageway existed on a line with Route 30. Considering the dip of the coal beds, this main haulageway could account for the massive acid mine discharges on Coal Run (No.2) that account for approximately 60-70 percent of the drainage from this mine complex.

All harmful discharges are located on the northern slope of this complex which is 50 percent in the Turtle Creek watershed. (There are none of significant affect south of Route 30.)

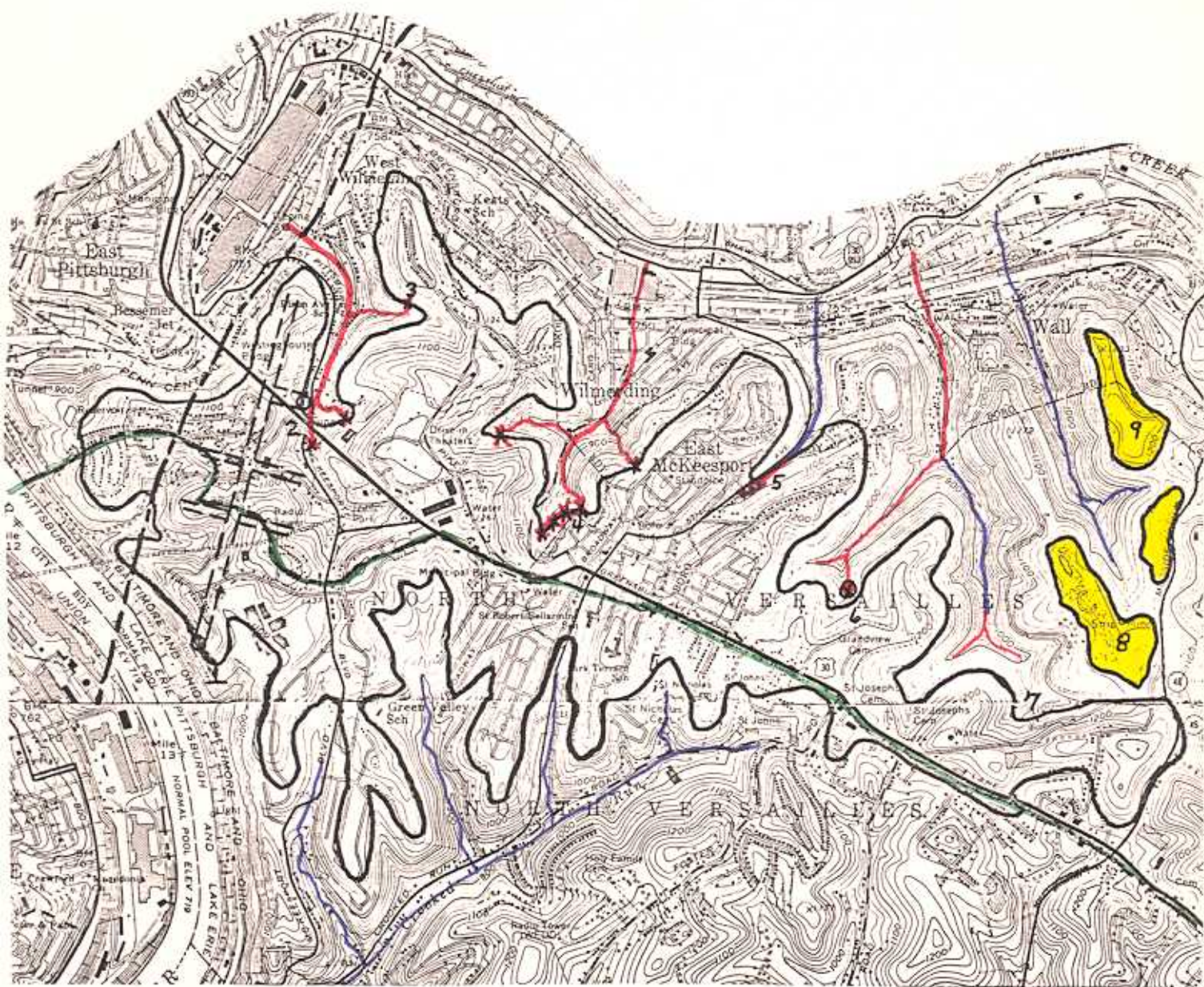
MAPS AVAILABLE

None. There are limited mine maps on coal reserves in the upper Freeport seam (unmined) in the possession of Westinghouse Electric Corporation. They are of no consequence to this study.

MUNICIPALITIES INVOLVED

Wilmerding, East McKeesport, Wall, North Versailles.

STUART-DICKSON AND TAYLOR MINES COMPLEX



Legend

- Main Entry Pit Mouth
- × Mine Discharge
- Strip Mined Area
- Acid Flow
- Neutral/Alkaline Flow
- Watershed (Study) Boundary
- Pittsburgh Coal Outcrop
- Entryway

Scale 1:18 000
Turtle Creek Watershed

MAP COMMENTARY

No. 1 This location was the main entry to the old Stuart Dickson Mine. It was also the main tipple for conveyance of coal to railroad cars and barges. Other pit mouths from which coal was removed were located along Coal Run at the present site of Westinghouse Electric's oil storage tank, near the Wilmerding football field and in Wall Borough.

No. 2 Two massive discharges are located where Route 30 passes over the new Tri-Boro Expressway. Road construction broke into a large underground reservoir which is the source for both discharges. Two pipes of 8 and 18 inches located adjacent to the underpass carry water from the (now sealed) workings to Coal Run.

No. 3 A small outfall is located high on a hillside above Dixon Avenue. Drainage is usually less than 10,000 gallons per day.

No. 4 Many "bleeder" holes perforate the outcropping in this area and allow mine drainage to flow into this (unnamed) stream which passes through Wilmerding. Two small acid affected streams enter the main watercourse near the ballfield. Mine fires were extensive in this area and have destroyed any retaining affect the outcrop line may have had.

No. 5 Bleeder holes are located behind a number of homes along Route 48. The problem is not serious except locally and most of the acidity of the stream is neutralized before it conflucences with Turtle Creek.

No. 6 The main drainage hole of the old Taylor Mine is located on a small farm just over the hill from Route 30.

No. 7 Small drain points of minor concern are located at the outcrop line.

No. 8 and 9 These areas were stripped and partially reclaimed. No further reclamation is needed and mine drainage is no problem.

ABATEMENT CONCLUSIONS

Because of the lack of deep mine maps and the mine fires that ravaged this area, prescribing abatement procedures is a hazardous task for this complex.

Nothing can be done for the No. 4 discharges because mine fires have destroyed the crop line and any attempts at grouting would be wasted. Pumping a lime slurry or mine ash into these workings is conceivable as a method of slowing flows.

No. 6, the second largest discharge from this complex, should be treated by limestone dams that allow a trickling filter action. Over a mile of undisturbed forest land is owned by the old mining concern and there is much room for an experimental action of this type.

Point No. 4 produces over 60% of the mine acid from this complex. There is no method of sealing this discharge without presenting a situation that conceivably is far worst than that existing now. Development and the Tri-Boro Expressway have removed whole sections of the crop line which would be susceptible to seepages.

A treatment plant is the only alternative, and there is little room in the vicinity.

oak hill no 4 mine complex

BACKGROUND

This complex of mines which includes Oak Hill No. 4 as the most prominent of the several mines that worked the area is very old. Much of the coal had been removed by the turn of the century.

Oak Hill No. 4 was owned and operated by the New York and Cleveland Gas Coal Company who also claimed most of the adjacent coal found in discontinuous sections under adjacent hilltops.

The main body of coal lying under the Turtle Creek-Monroeville Road (now known as Northern Pike Boulevard) allowed for a well developed system of entryways which have collected and channeled mine water to a relative few discharge points.

Located on Lynn Avenue in Turtle Creek Borough, the present major outfalls are the original drain holes of the Oak Hill No. 4 mine still functioning today as intended.

Two major considerations should be known about this mine complex. First, urban development has obscured much of the coal outcrop line and has resulted in mine drainage being collected underground and being transported long distances in storm sewers before being discharged to area streams. This has made it difficult to locate where the coal outcrop line has been broached allowing mine drainage.

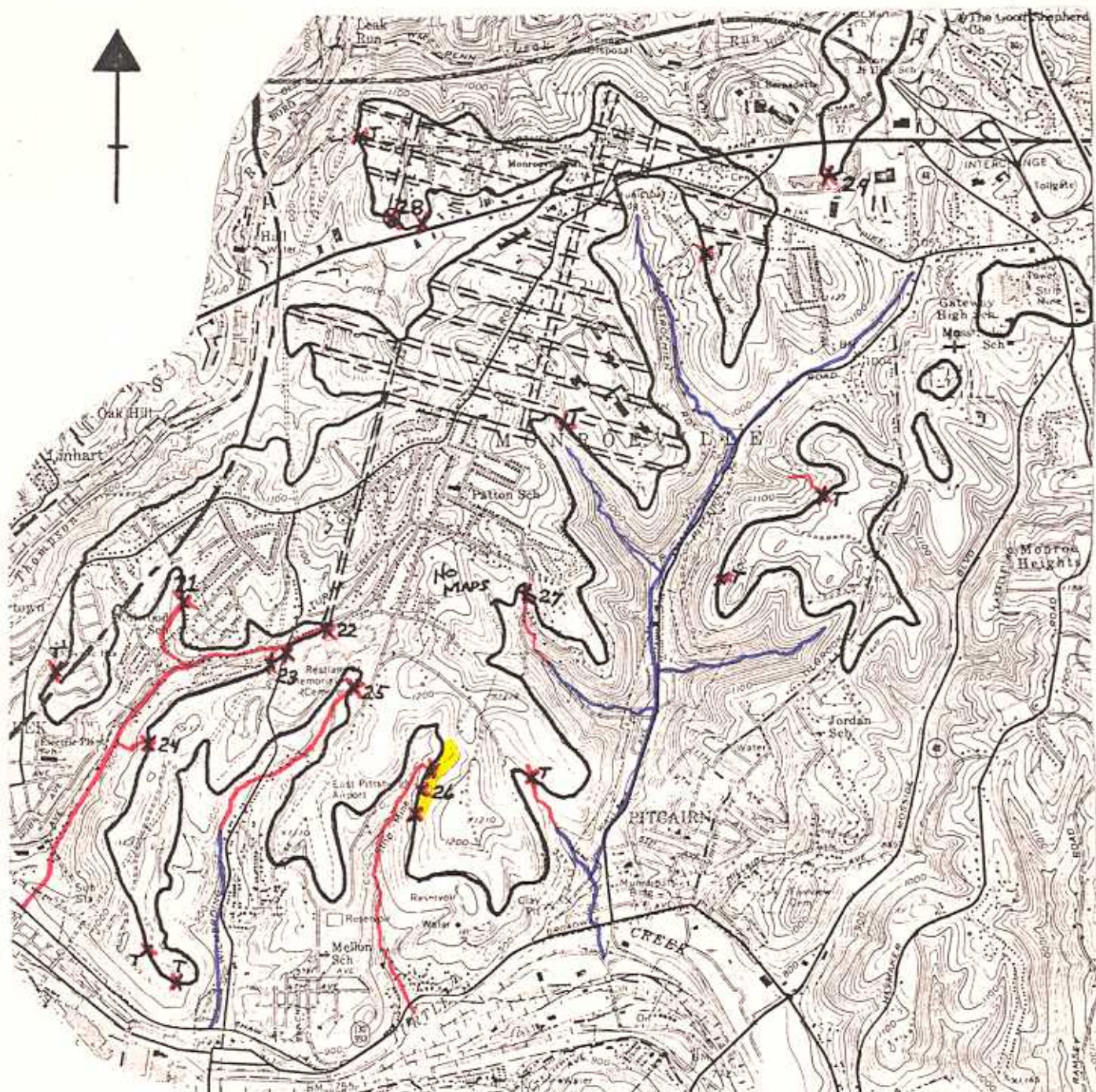
Secondly, whole communities once used the underground passages for sewage disposal. Although all of the area is now served by municipal sewerage, there is much evidence that some homeowners are still passing storm waters and sewage into the old mines. This source may well constitute a large percentage of the water for the mine drainage located.

MAPS AVAILABLE

Mining maps of the old New York and Cleveland Gas Coal Company exist for the northern half of the mines under consideration. They appear to be of good quality despite the fact that they were compiled between 1892 and 1895.

No maps are available for the southern half of the complex.

OAK HILL NO. 4 COMPLEX



Legend

- o Main Entry Pit Mouth
- X Mine Discharge
- T Acid Discharge Less Than 10,000 GPD
- Strip Mined Area
- Acid Flow
- Neutral/Alkaline Flow
- Watershed (Study) Boundary
- Pittsburgh Coal Outcrop
- Entryway

Scale 1:18 000
Turtle Creek Watershed

MUNICIPALITIES INVOLVED

Turtle Creek Borough, Monroeville Borough, Pitcairn Borough.

MAP COMMENTARY

No. 21 This major discharge point is located adjacent to the Wilmerding Road just north of the intersection with the Monroeville-Turtle Creek Road. Nothing can be seen of the old entry, but property owners state that the mine water is collected underground at an old pit mouth and conveyed down to the main stream (Lynn Avenue Run) by storm sewers.

No. 22 This discharge empties underground into Lynn Avenue Run. It is located adjacent to the Monroeville-Turtle Creek Road in the backyard of a property where Lynn Avenue Run is covered.

No. 23 These two discharge points are the original main drainage holes of the old Oak Hill No. 4 mine. Concrete lined, they are functioning effectively today and, along with the outfalls at Nos. 21 and 22 constitute approximately 60 percent of the acid mine discharge emitting from this mine complex. All flow into Lynn Avenue Run.

No. 24 This is a significant outfall high on a hill above Lynn Avenue Run.

No. 25 A small discharge located on the Restland Memorial Cemetery property has been channeled around a small lake of good water quality and empties into a small nearby stream. Although this stream is affected for nearly 3/4 of a mile in distance, the stream recovers to almost a neutral flow before entering Turtle Creek.

No. 26 The Chambers Landfill operation has cut away a 200 yard section of the outcrop line on their property and acid mine drainage is entering a nearby stream. The stream has an acid flow its entire length to Turtle Creek.

No. 27 This outfall point is the primary source of mine drainage entering Sugar Camp Run, a tributary to Dirty Camp Run. It flows only intermittently.

No. 28 Located above the Monroeville Mall on a road cut for Route 22, this discharge is the primary acid drainage source strongly affecting a stream adjacent to the Mall (see information stream sample point No. 3).

No. 29 A discharge from under the premises of the Miracle Mile Shopping Plaza affects a local stream for a distance of perhaps 300 yards.

ABATEMENT CONCLUSIONS

Only Nos. 21,22,23,26 and 28 are of significant importance to be addressed for correction.

Sealing of points 21,22 and 23 with surface seals could well eliminate these discharges which contribute most of the stream pollution from tins complex.

They have flowed only intermittently in the past ten years; there was a seven year hiatus until 1970 when acid mine drainage again flowed. This would indicate that there is less likelihood of a large pressurehead buildup which could cause a blowout. Tied to an effort to remove illegal drain taps into the deep mine, this alternative has an excellent prospect of success.

Stripping and backfilling on the Chambers Landfill property (26) could slow or eliminate this seep area.

Numbers 27 and 28 would best be dealt with by injection of lime slurry or fly ash to slow these seepage areas.

hampton & duquesne mines complex

BACKGROUND

This interesting complex of mines is shaped like the fingers of a hand, caused by the eroding away of the Pittsburgh seam in stream valleys leaving intact only sections of coal under high ridges.

The mines that were operated here were the Hampton mines owned by the Hampton Coal Company, and the Duquesne mines owned by the New York and Cleveland Gas Coal Company.

Little is known of the Hampton mines except that their main entryways ran northwest to southeast, usually under the crestline of the ridges (thickest overburden). It was found that the acid discharge points of importance were located at the tips of these "fingers" of coal. Very few discharge points of concern were found except at the old pit mouths which obviously also served as mine water drain points.

Surprisingly, no sewage was found in the outfalls from these very old mines despite the fact that many early residents piped their sewage into the mines. The sewerage authorities operating in the area apparently were careful to see that all home sewer lines were properly tapped into their mains.

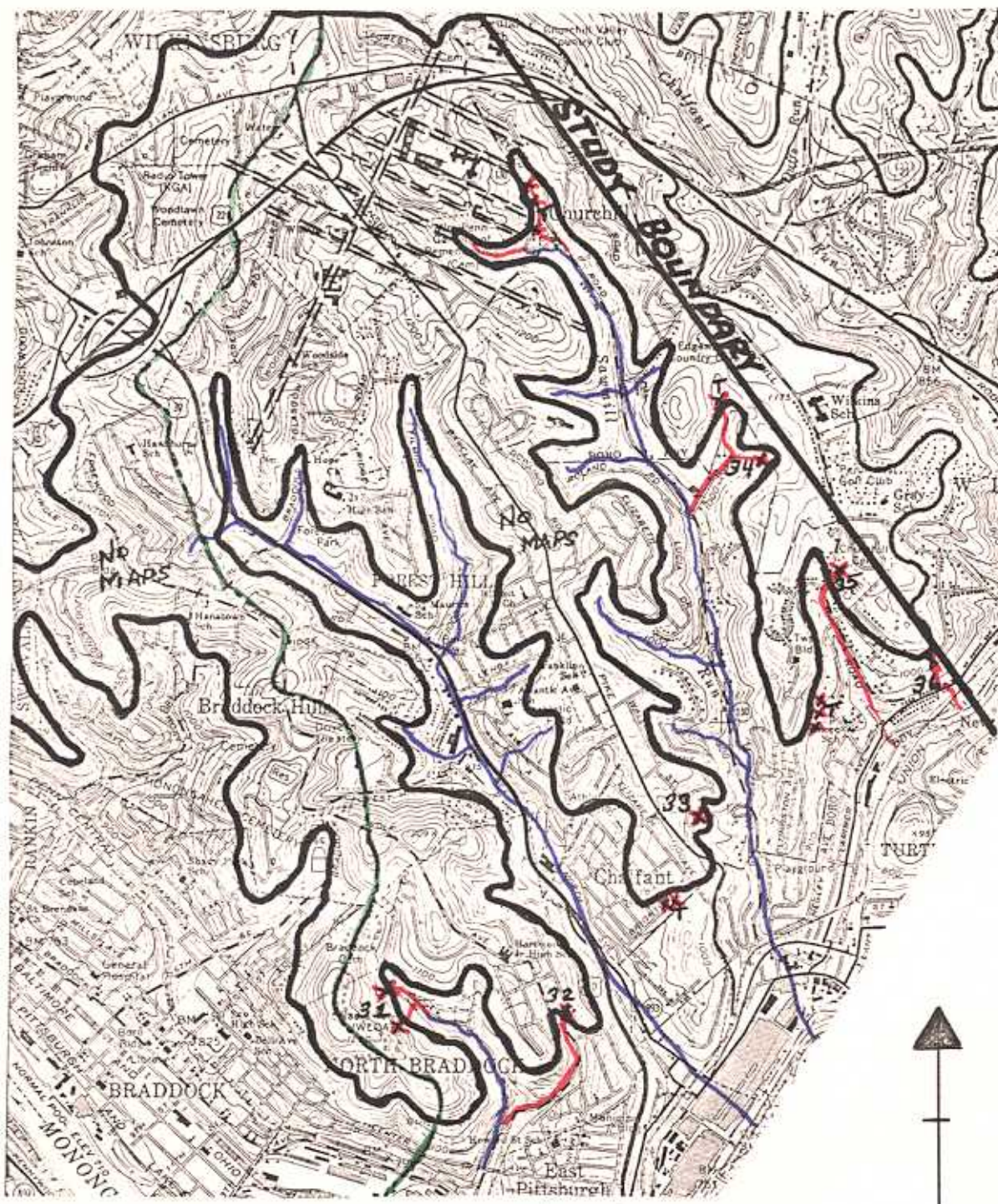
An interesting fact of this mine complex, which may be the oldest in the area, is that the mine water discharges are rather high in pH at 4.8 to 5.0. Only one, located near Linhart has a low reading at the pit mouth (below 4.0).

MAPS AVAILABLE

Only a small portion of this mine complex has available deep mine maps. These are in the present ownership of Consolidation Coal Company and show portions of the old Duquesne mine.

There are no available maps of any area mined by the Hampton Coal Company and it is doubtful that these maps are still in existence.

HAMPTON AND DUQUESNE MINES COMPLEX



Legend

- Main Entry Pit Mouth
- × Mine Discharge
- T Acid Discharge Less Than 10,000 GPD
- Strip Mined Area
- Acid Flow
- Neutral/Alkaline Flow
- Watershed (Study) Boundary
- Pittsburgh Coal Outcrop
- Entryway

Scale: 1:18 000
Turtle Creek Watershed

MUNICIPALITIES INVOLVED

Braddock Hills Borough, North Braddock Borough, East Pittsburgh Borough, Chalfant Borough, Forest Hills Borough, Churchill Borough, Wilkinsburg Borough, Wilkins Township.

MAP COMMENTARY

No. 31 Two discharges of minor significance are found just below the slag dump operated by Thompson Works of U.S. Steel Corporation. The slag, which is chemically basic, helps to neutralize the adjacent stream during rainfall periods.

No. 32 This major outfall drains most of the mine water from this section of the Hampton mine. Located just above 1700 Wolf Avenue, the acid mine drainage from this old pit mouth has a pH of 5.0 and, because of its nearness to the Monongahela River, affects little area in the watershed.

No. 33 There are two outfalls that drain this section of the Hampton mine located just above 428 Klines Street. There is very little iron in this water and the pH is rather high. Although the discharge is rather large in gallons per day, it seems to have little deleterious affect on surrounding community life.

No. 34 A moderately sized acid mine outfall is found near the Brair Ridge housing development. It has only a local affect on the adjacent stream.

No. 35 This outfall next to Churchill Road is causing the adjacent stream to remain acidic its entire length.

No. 36 This massive discharge emitting from an old pit mouth cascades down a steep sloped hill to Thompson Run. It is probably the largest single source of mine drainage located during this survey. With a low pH (3.5-4.0) and a flow that approximates one million GPD, this discharge has a significant affect on its receiving stream Thompson Run.

ABATEMENT CONCLUSIONS

Consideration should be given to abating discharges 32,33 and 36. Discharges 34 and 35 might be slowed by injection of a lime slurry or fly ash, if local conditions should warrant this at some future time.

Discharges 32, 33 and 36 are all large outfalls. No. 32 and 33 are in congested urban areas and mine seals could present problems to nearby homeowners. Also, they are low in iron and acid content and do not appear to be causing any inconvenience to residents. Action is not warranted at this time.

Outfall No. 36 is one of the largest located and is in an open area where sealing and grouting could be accomplished. This is a high priority outfall contributing much pollution.

sandy creek & plum creek mines complex

BACKGROUND

This mine complex is a myriad of sections of coal that remained under the highest hills and the main watershed boundary of Turtle Creek. On a map it is a confusing jigsaw puzzle of coal spurs and outcrop lines that defy verbal description.

The Sandy Creek, Plum Creek and Oak Hill No. 5 mines were the primary workings that deep mined this area. Tramways connected the spurs of coal and together with the deep mine entries formed a vast rail haulage system connecting the many discontinuous sections of coal.

Because of the nature of the original coal in place, there are few large collecting areas for mine waters and, therefore, few large acid mine outfalls in this area.

Numerous small discharges are in evidence, but the limited number of gallons per day discharged by each allows neutralization to quickly occur. Most of the streams in the area, with the exception of "Boundary Run", are alkaline.

Only in the vicinity of Boyce Park involving the Plum Creek and Oak Hill No. 5 mines are there destructive acid mine outfalls.

This region was mined through the 1930's primarily by mines originally owned by the New York and Cleveland Gas Coal Company.

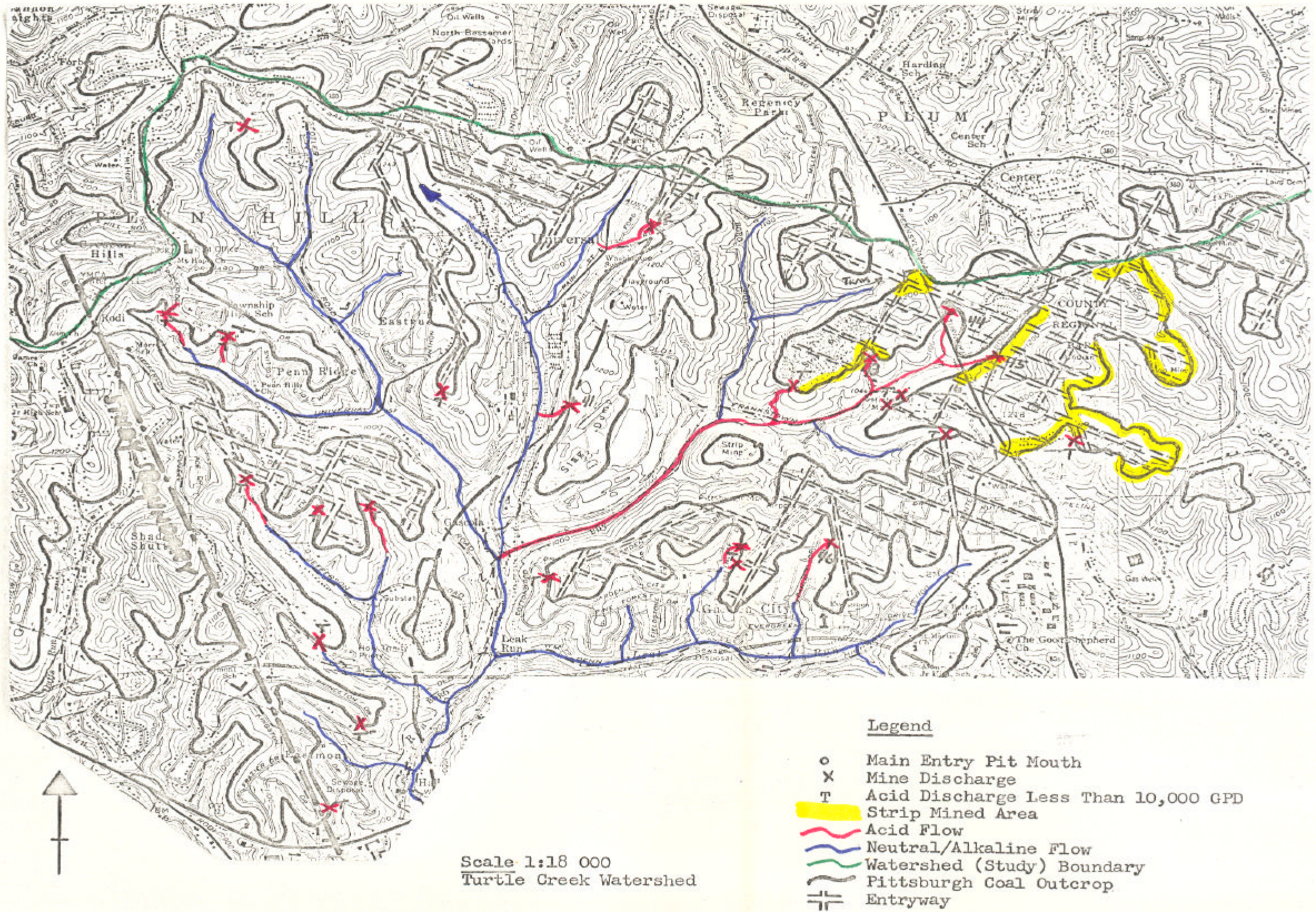
MAPS AVAILABLE

The most recently mined of the four mine complexes considered to this point, maps and documentation is nearly complete on deep mining of this area.

Mining maps are on file at Consolidation Coal Company for all of the mined areas of Oak Hill No. 5, most of the Plum Creek Mine and approximately 50 percent of the Sandy Creek Mine.

A search (beyond the scope of this study) would probably locate all of the remaining deep mining information.

SANDY CREEK AND PLUM CREEK MINES COMPLEX



MUNICIPALITIES INVOLVED

Penn Hills Borough, Plum Borough, Monroeville Borough, Washington Township, Wilkins Township.

MAP COMMENTARY

No. 41 A large discharge is located right at the crossing of the Duquesne Syncline strike line and the coal outcropping. This discharge which can easily be seen from the Thompson Run Road provides the major outfall from this section of mined coal.

No. 42 An old drain hole is located behind a garage at the corner of Antico Place and Ford Avenue. This is a small outfall that affects stream life in the immediate area only.

No. 43 At the edge of a strip mined and deep mined area, a number of acid mine drainage seeps pollute a small tributary to Boundary Run.

No. 44 A large discharge is located at the main pit mouth to the old Plum Creek mine. This outfall is located beside the Pennsylvania Turnpike in a farmer's barnyard. It is one of the two major acid mine drainage points affecting Boundary Run.

No. 45 Located on Boyce Run Park land, this massive discharge is one of the largest located during this study. Approximate flows are about one million GPD. The source area for the water flowing from this outfall has already been studied by General Analytics Engineers in a report titled "Mine Drainage Abatement Survey (for) Piersons Run Watershed".

No. 46 This outfall is obscured by home development. Storm sewers carry the acid mine drainage several blocks from the originating point. The effects of this discharge on stream life is negligible by the time this tributary enters Leaks Run.

ABATEMENT CONCLUSIONS

Outfall 41 is composed of a number of major seeps in the crop line. Fly ash and lime slurry pumped at the strike line of the Duquesne Syncline above this point could slow this discharge.

No. 44 is a first priority discharge that should react favorable to a mine seal. Water is flowing from the old combination pit mouth and drainage entry unhindered. The area is primarily in farm land and any complications caused by sealing this outfall could easily be dealt with.

No. 45 is a major outfall whose source of water is located in Boyce Park. Following the recommendations of the General Analytics, Inc. study for Piersons Run Watershed should slow some of the flow from this first priority discharge.

A treatment plant is out of the question because of disfigurement to the park land. Probably the best alternative left is to inject a lime slurry or fly ash as a sealing agent to minimize flows.

westmoreland county problems

BACKGROUND

In Westmoreland County and excluding the Irwin Syncline mines (which are not in the scope of this study), watershed mining problems are associated with isolated sections of Pittsburgh coal that was not eroded away (under the highest hills) adjacent to the syncline outcropping.

They present a relatively minor problem as far as land reclamation and the generation of acid mine drainage is concerned, with one exception. Perhaps ten of these locations are worthy of consideration.

South of Export are located seven of these isolated hilltop sections of coal. None of the original coal remains today. During World War II, the need for coal made economical the removal of the overburden that was nowhere more than 120 feet thick. All coal that remained at that time was removed.

Reclamation of the land was haphazard. One site was bulldozed into a landing strip for light aircraft. Another has been reclaimed through a land-fill operation; and urban development has led to the reclamation of a third.

The remaining strip sites pose no safety hazard and the small amounts of acid drainage leaching from these areas is minor. There are no large areas which show themselves as requiring reclamation.

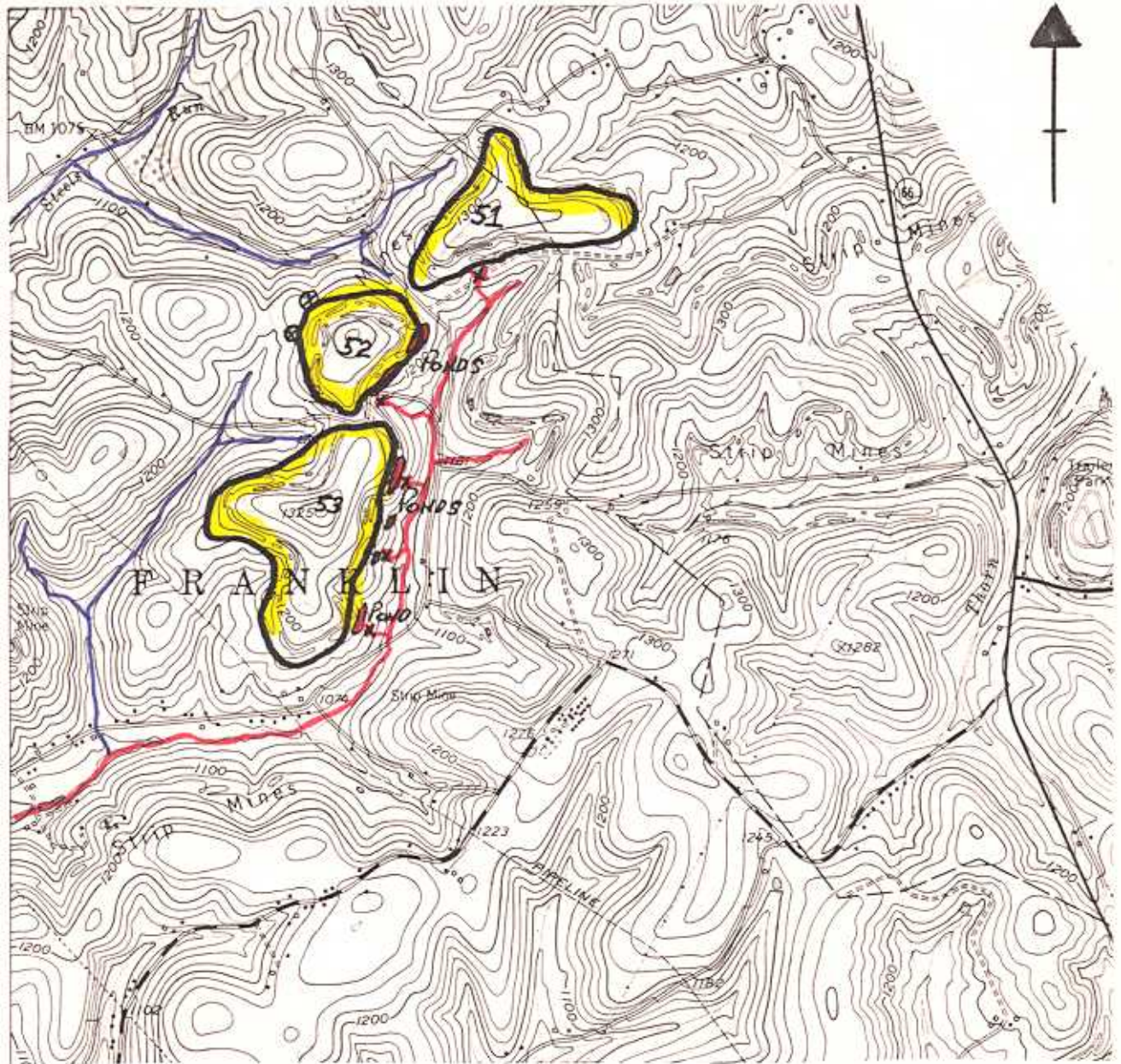
However, north of Export there is a combination of unreclaimed strip and deep mining which is causing large amounts of acid mine drainage to enter Steels Run.

The Skelly Mine operated in the three large isolated sections of coal which are of concern. Tramways connected the three sections and all were considered a part of the same mine. During the war years, strip mining removed the outcrop line with no reclamation attempted. Today this area is a massive generator of acid mine drainage.

MAPS AVAILABLE

None

WESTMORELAND COUNTY STRIP AND DEEP MINE PROBLEMS



Legend

- o Main Entry Pit Mouth
- x Mine Discharge
- T Acid Discharge Less Than 10,000 GPD
- Strip Mined Area
- Acid Flow
- Neutral/Alkaline Flow
- Watershed (Study) Boundary
- Pittsburgh Coal Outcrop
- Entryway

Scale 1:24 000
Turtle Creek Watershed

MUNICIPALITIES INVOLVED

Franklin Township

MAP COMMENTARY

No. 51 Portions of this northern most of the three areas is an active strip mine operated by Mr. Frank Kolwaski. He has removed the western half of the hillside in efforts to obtain the remaining coal.

Reclamation of this area has already resulted in a decrease of perhaps 40 percent of the acid flows (observed during the summer of 1972) exiting from the deep June.

The remainder of the area is in the ownership of a Mr. Karp and includes an area of approximately 13.6 acres which is unreclaimed strip mine causing water to enter the old Skelly deep mine workings.

No. 52 An extremely serious problem exists here. The entire hill is ringed with unreclaimed strip mines.

Entranceways of the old Skelly Mine can be seen on the western edges of this area where the coal is higher than in the east. Obviously, all water entering the unreclaimed strip area on the west is flowing through the workings of the old Skelly Mine and exiting as mine acid drainage.

The property is in the ownership of Mr. Frank Kowalski and he has reported that the area will be stripped at some future time. Overburden has a maximum thickness of 80-90 feet.

Approximately 18.2 acres of unreclaimed strip mines exist at this location.

No. 53 This section is perhaps the worst generator of acid mine drainage, for its size, in the watershed. It is because of its development.

Rainwater is funneled into the workings of the Skelly Mine by unreclaimed strip mines that ring the area to the north, east and west. (There has been some reclamation to the south.)

The western edge of this area shows three major discharge points-- one, the old pit mouth of the Skelly Mine.

Drainage is everywhere poor in this stripped area and there is little chance for pure water to escape without having to leach through old strip debris and the deep mine. Large amounts of mine acid are generated because of this action.

It is reported that the area is in the ownership of Mr. William Benson, Delmont, Pennsylvania.

Approximately 31.8 acres of unreclaimed strip mines are still in evidence.

ABATEMENT CONCLUSIONS

Every effort should be made to abate these first priority discharges (51,52,53) by having these areas completely stripped and properly reclaimed. This could eliminate most of the acid mine drainage entering Steels Run.

Until this area is stripped, rechanneling should take place to allow surface waters to flow freely away from the stripped areas.