

IV. MINING HISTORY

There is only a minimal amount of reliable information available concerning early deep mine operations. Much of the data contained in this report was obtained through discussions with and information provided by mining inspectors from the Pennsylvania Department of Environmental Resources, a mining engineer associated with the early Connell deep mine operations, and from local residents.

Extensive deep mining was initiated prior to 1900 and continued until the late 1940's. During this period coal was extracted primarily from the B and C Veins, with very little mining done for coal in the A vein.

In the eastern portion of the Bernice Basin, where the more extensive information is available, essentially (3) coal companies operated during the peak years of deep mine coal production. These included the Connell Anthracite Mining Company, O'Boyle-Foy Anthracite Coal Company, and the Northern Anthracite or Murray Coal Company. Of these, the Connell Anthracite Mining Company was the largest and the one in which the most descriptive information is presently available. As previously denoted, these three (3) coal operations will be designated as the Connell Deep Mine Complex. The Connell Anthracite Mining Company itself, operated from before 1900 to about 1947 and at its peak produced approximately 360,000 tons of coal per year. Practically all of this coal was transported by railroad to Buffalo, New York, and to various points in Canada.

For extracting of the coal, most of the deep mine operations utilized slope or drift openings near the coal croplines. The coals were mined down dip toward the center of the basin. The Connell Anthracite Mining Company utilized drifts primarily on the northern face of the basin during the course of their operation.

A major area of concentration in this study is centered around two (2) tunnels constructed by the Connell Anthracite Mining Company for drainage purposes. These tunnels act to drain the entire Connell Deep Mine Complex.

The tunnel with the larger discharge is approximately 2500 feet long and drains the B vein workings of the Connell, O'Boyle-Foy, and Northern Anthracite Coal Companies. For ease of identification, this tunnel will be designated as the B Tunnel. The tunnel with the smaller discharge drains the C vein workings of the Connell Anthracite Mining Company and is approximately 1,760 Feet long. The location and extent of these tunnels can be seen on the Composite Map, Plate I.

In 1933, the Works Progress Administration established a mine sealing program for acid mine drainage abatement with Pennsylvania receiving about one fourth of the total funds. The air-trap seal, designed to exclude air from entering the mine, but also permitting the normal flow of water to be discharged, was used with limited effectiveness. (Foremen, 1974). It was

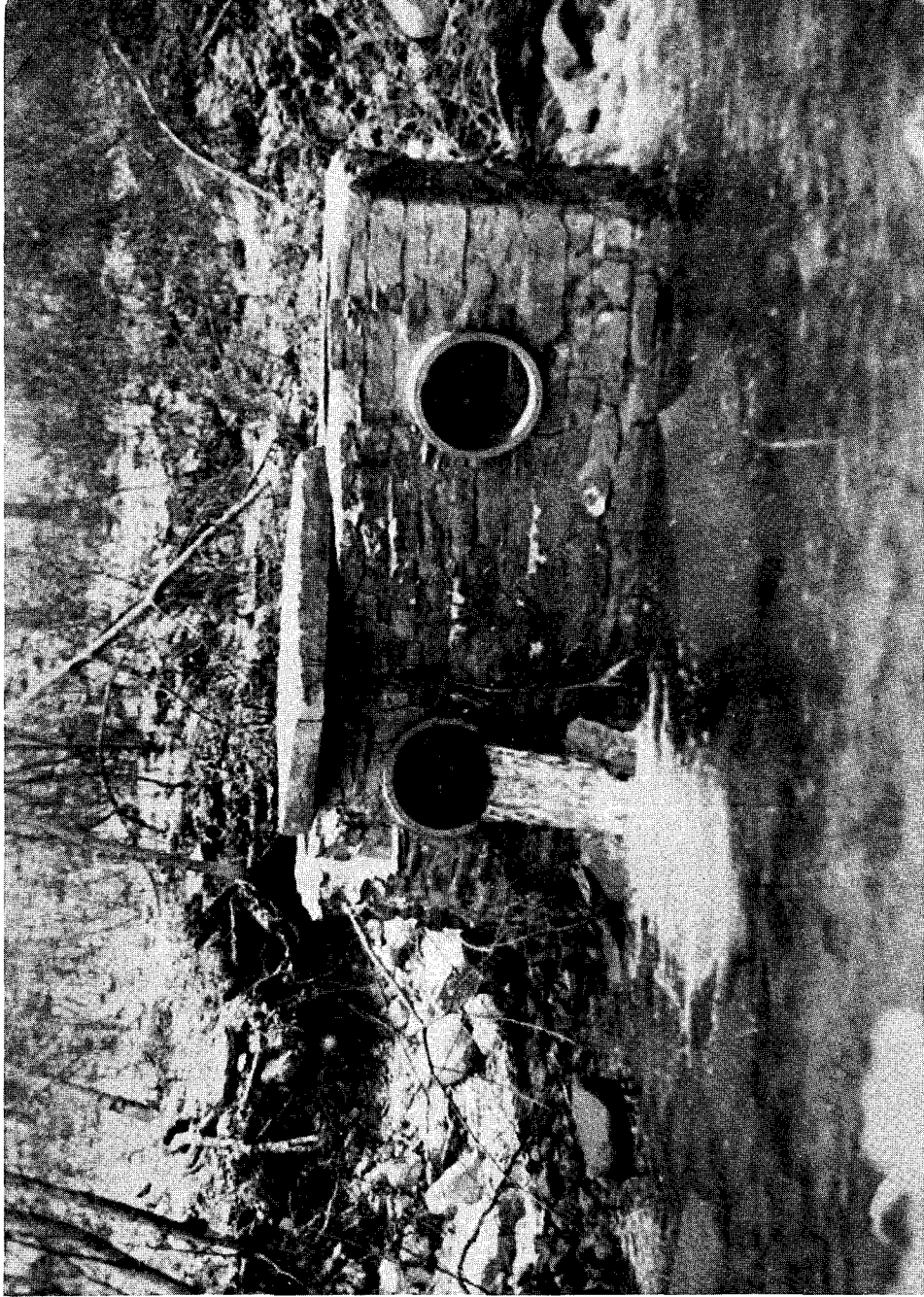
found that these air seals did not adequately seal off the air from reaching the underground workings. Furthermore, when debris was allowed to block the flow of water, the hydraulic head exceeded the allowable for the seal, resulting in failure of the seal. (Foreman, 1974).

In the late 1930's an attempt was made to air seal both the B and C Tunnels. Although little information is available concerning the construction of the seals, it appears that this undertaking was included with the Works Progress Administration as outlined above. As was typical of those air seals, and as this study will point out, their effectiveness for abating the pollution potential was dubious. It is also evident that the B Connell Tunnel has been subject to extreme hydraulic conditions, causing failure of the pipe connecting to the air seal itself. Figure 5 shows a front view of the air seal for the B Connell Tunnel. This picture was taken during a period of extreme low flow and little discharge is observable.

Historically, one reliable source of data for water quality of the Connell Tunnels involves field work and sample analysis as listed on Field Engineer's Report for Mine Drainage Permit Applications. Although this data was not done on a periodic basis, and flow measurements were not included, they do provide a consistent indicator of the degree of water degradation over an extended period of time. As will be evident later in this report, the data as listed in Table I is consistent with the chemical analysis performed for this study.

TABLE I
B CONNELL TUNNEL

DATE SAMPLE COLLECTED	PH	ACIDITY (PPM)		TOTAL IRON (PPM)	SULFATES (PPM)
		BPB	PHT		
9/1/54	3.3	30	102	2.2	220
9/10/58	3.5	18	64	1.0	165
2/9/61	3.6	16	56	1.0	109
5/27/66	3.6	20	60	9.0	172



AIR TRAP SEAL "B" VEIN TUNNEL

FIGURE 5

C CONNELL TUNNEL

DATE SAMPLE COLLECTED	PH	ACIDITY (PPM)		TOTAL IRON (PPM)	SULFATES (PPM)
		BPB	PHT		
9/1/54	3.3	28	96	2.0	190
9/10/58	3.4	24	72	1.6	140
2/9/61	3.4	20	76	1.6	104
5/27/66	3.4	24	84	2.8	179

Although, the Bernice Basin and the mining activity that has been associated with it entails more than the Connell Deep Mine Complex, it has been generally accepted that the two (2) Connell discharge tunnels have had the most detrimental effects on the Loyalsock Creek watershed. Accordingly, a study by the Federal Water Pollution Control Administration, entitled "Water Quality and Pollution Control Study" for the Chesapeake Bay - Susquehanna and Delaware River Basins, July 1967, defines the acid mine drainage problem with recommendations as follows:

Although Loyalsock Creek is an alkaline stream at its mouth and bears no significant evidence of mine drainage indicators throughout most of its length, it does receive mine drainage from abandoned mines in an isolated semi anthracite deposit near the headwaters.

Two drainage tunnels near the Village of Lopez discharge mine drainage with a net acidity concentration of approximately 60 mg/l. The addition of this slightly acid discharge to the stream, which has a naturally low residual alkalinity, causes degradation for approximately eight (8) miles downstream.

One method of abating polluting discharges in this Sub-Basin would be to remove all of the remaining coal in the Sub-Basin, using surface mining methods. Restoration of the stripped area would probably abate the polluting discharges.

Because of the relatively small mine drainage loading and the great effect on stream quality, considerable benefit could be attained by relatively low cost abatement measures. This area should have a high priority for future abatement work.

Aside from the Connell Deep Mine Complex in the immediate vicinity of the Bernice-Mildred area, other coal companies had various operations of short duration. Approximately 4000 feet west of the Bernice Fault and close to the present stripping operations, the Gutten Coal Company

operated in the late 1800's and early 1900's, and again in the 1940's. Unfortunately, there are no mining maps or other data available to indicate the limits of the deep mining and which coals were extracted.

A review of the Pennsylvania Department of Environmental Resources records for surface mining and mine drainage applications indicates, for the past 25 years there have been numerous small scale and short term mining operations in the Basin. These records show mainly strip mining was involved although some deep mining was apparently undertaken in various pockets in the Basin. Today there remains substantial evidence of the strip mines associated with this period. In particular, those areas which were affected prior to the present land reclamation regulations, are of primary concern in this study. Some of the operators involved with these strip and deep mines include

- (1) Ratchford & Son
- (2) Edwin Booth - (E & B Coal Sales)
- (3) John Fiorini
- (4) Claudio Ricci
- (5) James & Albert Oliver
- (6) William Monahan-(Bernice White Ash Coal Co.)
- (7) Pastusic Brothers
- (8) Bliss Brothers

Within the past five years several operators have been active in strip mining on a relatively large scale, but have ceased operations and completed backfilling requirements. These include the Bliss Brothers Coal Company, SBP Coal Company, and Locey Coal Company.

At the time of the writing of this report there were only two active strip mine operators in the Basin--Leroy Excavating and East Allen Coal Co. Both of these are located in the northeasterly section of the basin in the former Northern Anthracite area near Murray. Production from these strippings reaches about 300 tons per day, and 250 tons per day respectively.

Practically, the entire discussion concerning previous mining in the study area has been centered around the Bernice Basin--an area roughly extending from Ringdale to Lopez along the Loyalsock Creek. A review of the mining history of the study area would not be complete without some discourse relative to the extreme easterly and extreme westerly portions of the watershed. Near the headwaters of the Loyalsock Creek in Wyoming County, known as

the Dutch Mountain, some localized deep mining was undertaken. Field investigations in conjunction with State Mining Inspectors in order to establish the exact location of this site proved inconclusive. It would appear if acid mine drainage were a product of any these workings, it would affect the Mehoopany Creek Watershed and not be within the scope of this investigation.

At the extreme westerly end of the basin, in the mountainous area south of Forksville, mining existed in the 1930's. Scar Run, a tributary to Loyalsock Creek, was subject to heavy siltation and acid mine drainage. However, in the 1950's efforts were made to restore the land to its original topography, including reforestation. Consequently, there is only minor evidence of the mining from that period. At the time of the writing of this report, there were tentative plans to initiate strip mining in this area again. Leroy Excavating, with operations near Bernice as outlined previously, will be utilizing these coal reserves.