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NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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AND/OR COMMON	oal and Coke Compa	ny Historic Dist	rict	
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CONDITION

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CHECK ONE

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X_ORIGINAL SITE

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DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Elkins Coal and Coke Company Historic District encompasses 36.005 acres and consists of 140 beehive coke ovens; two pieces of vintage coking equipment; a small office building; the edifice that formerly housed the plant's steam generators; a shop building; and several lesser structures of uncertain vintage. Most of these structures and sites date back to the complex's heyday between 1906 and 1919, and all are still utilized in coking activities at the site.

The processes utilized in coking at Bretz today were evolved long before the Elkins Coal and Coke Company began erecting this facility in 1906. They were developed for the most part in England. For several years after Abraham Darby had established the feasibility of coke, it was produced by burning coal in open air mounds much like those used to convert wood to charcoal. Because this method proved wasteful, some enterprising cokemakers began to construct rectangular stone enclosures with open tops and apertures at the sides for air. Around 1763 British cokemakers began capping these ovens with dome tops shaped somewhat like beehives, thus giving them their name. Beehive ovens usually were constructed adjacent to coal mines; were built into hillsides in single rows or else constructed in double rows; were fed by special cars mounted on tracks above them; and were located close to major rail lines. In planning its layout at Bretz the Elkins firm followed these standard practices virtually to the letter.

I. Beehive Coke Ovens. These 140 ovens are the last survivors of some 400 Elkins Coal and Coke ovens erected here early in the 20th century. They are built into the hillside directly below the dirt road leading into the complex, face southwestward toward the tracks of the B & O Railroad, and are divided into two batteries arranged in continuous single rows. They rest on raised earth platforms or wharfs. Their retaining walls are constructed entirely of hand-cut stone except at their round-arched door openings where the intense heat and the need to quench the coke with water requires fire brick. The ovens, which have a diameter of approximately 12 feet and are 7 feet high, are constructed entirely of fire brick set in clay mortar. The dome shape of the top serves not only to make the structure more rigid but focuses heat more directly on the burning coal.

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 7 PAGE one

The ovens are charged from the top by electric-powered hopper cars, known variously as "larry cars" or "lorries," which run along small tracks directly above the charging holes. After being initially charged the ovens may be ignited with wood, oil, or coal, but if they are in continuous operation, they will be hot enough to ignite the coal spontaneously. The most critical phase in the entire process is regulating the air supplied to the oven. In this respect beehive coking is almost a handicraft industry because the human eye is the only real measuring device. Air supply is controlled by temporarily bricking the door opening with a combination of fire brick, mud, cement, and newspapers while leaving a small space at the top for air. The individual in charge closely observes the flames coming from the charging port and adjusts the air supply as necessary.

After the coal has been converted into coke, the fire bricks are removed from the doorway, and the coke is thoroughly soaked with water from a hose. By this time railroad cars have been brought up the rail spur running a few feet south of the ovens, and the coke loading machine put into place. Almost immediately the hot coke, constantly being sprayed with water to prevent ignition, is loaded, and the entire process started anew.

Because of the intense heat generated during the coking process, these ovens constantly require repair, and probably few if any of the original fire brick are still in use. At the time of the AASLH representative's visit, the ovens were just being put back into operation after a hiatus caused by the recent coal strike and wintertime damage to the ovens. Currently the ovens are being utilized for the production of sized, high-carbon, low-sulfur foundry and chemical coke. The present owner intends to keep the ovens in good repair and operate them as long as they are profitable. The ovens are unique in that they have been in operation over 70 years and are probably the Nation's last operating beehives.

II. Vintage Coking Equipment.

Hopper Car. This vehicle, used to charge the ovens and known variously as a "larry car" or "lorry," was installed here by Elkins Coal and Coke in 1913. Constructed of steel and somewhat (continued)

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 7 PAGE two

resembling the bed of a dump truck, the device runs on tracks atop the ovens, is powered by a d.c. electric motor, and operates on much the same principle as a trolley car. Although it has been rebuilt on numerous occasions, its original motor is still intact.

Coke Loader. This device, utilized to remove coke from the ovens and load it into railroad cars, was built in Covington, Va., and also brought here by Elkins in 1913. Its most noticeable feature is a long shaft with linear gear teeth along its length. It is powered by a d.c. electric motor. The shaft's head, which looks much like a hoe, rakes coke out of the ovens onto a conveyor running parallel to them. This conveyor transports the coke to a second conveyor which is perpendicular to the first and which lifts the coke above the rail cars and moves it through a system of screens before discharging it below. Despite its age, the loader appears to be in good condition.

III. Office Building. This westward-facing, one story edifice is situated on the hill above the coke ovens and only a few feet east of the old Steam Generator Building. The structure consists of a rectangular-shaped main block constructed of red brick and a cinder-block wing connected to its east end. The brick portion probably dates back to 1906 if not earlier, while the cinder-block addition appears to be of more recent vintage. Windows are of the multipaned wood sash variety and are set in rectangular surrounds. Windows in the older portion originally were set in arched surrounds, but in recent years these have been blocked up. The building is capped with an asbestosshingle-covered gable roof, and the corbeling along the main block's roofline is still visible.

Inside, the structure contains the offices of Mercury Coal and Coke Company. A few years ago the interior was gutted by fire, and the owner completely remodeled it, thus obliterating any original interior features. The edifice's overall condition appears to be good, and it is well-maintained.

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CONTINUATION SHEETElkins Coal ITEM NUMBER 7 PAGE three

- IV. Steam Generator Building. This 1 1/2-story, barnlike, red brick edifice is located a few feet west of the Office. Constructed around 1906, it originally housed the steam generators which furnished the power for the coking complex until late 1919. Its exterior walls are plain except for the brick pilasters on its north and south sides. Windows are generally of the multipaned wood sash variety and are set in arched surrounds. The structure is capped with a low-pitched, asbestos-shingle-covered gable roof. All of the original equipment has been removed, and the structure is presently used for storage. Its overall condition is good.
- V. Shop Building. This long one-story edifice, located east of the Office and the Steam Generator Building, houses the equipment that Mercury Coal and Coke utilizes to repair and maintain the ovens and equipment. Probably erected before World War I, the Shop is constructed of red brick and capped with a low-pitched asbestos-shingle-covered gable roof which features skylights. Exterior ornamentation is minimal, and with the exception of the south end, the multipaned steel sash windows which once graced it have been removed and their rectangular surrounds filled with cinder blocks. The structure's overall condition appears to be good.
- VI. Other Structures. Included within the boundary of the historic district are several edifices and objects of more recent vintage. They do not contribute to the district's national significance, but neither do they significantly detract from its early 20th century appearance. Included in this category is the steel tipple which feeds coal into the hopper car; the metalclad buildings housing the machinery used to clean and prepare the coal before it goes to the tipple; and several storage sheds scattered over the premises.

Boundary Justification. The boundary described below coincides with Mercury Coal and Coke's legal property boundary and contains 36.005 acres. Except for the "other structures" noted above, the described boundary includes only historically significant structures and objects.

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 7 PAGE four

*Boundary Description. As indicated in red on the accompanying maps [(1) U.S.G.S. 7.5' Series, W. Va., Masontown Quad., 1960, photorevised 1976; (2) AASLH Sketch Map, 1978], and quoted from the deeds to the property, which consists of three adjacent tracts:

Tract 1: Beginning at a stake, S. 57° 54' W. 188.67 feet to a stake; thence N. 20° 15' W. 117.81 feet to a stake; thence N. 2° 57' W. 312.70 feet to a stake; thence N. 79° 48' W. 167 feet to a point in Deckers Creek; thence along said Deckers Creek, S. 8° 18' E. 112 feet to a point in said creek; thence S. 62° 29' W. 80 feet to a stake near Baltimore and Ohio Railroad right of way; thence S. 3° 10' E. 430 feet to a point along Deckers Creek; thence along said creek, S. 66° 2' E. 270 feet; thence S. 21° 45' W. 258 feet; thence S. 30° 36' E. 174.17 feet to a point in said Deckers Creek; thence leaving said creek, N. 57° 59' E. 549 feet to a stake; thence N. 29° 5' E. 248.62 feet to a stake, corner near office building; thence N. 66° 47' W. 193.15 feet to a stake; thence N. 84° 28' W. 93.25 feet to a stake; thence N. 47° 29' W. 194.98 feet to the place of beginning, containing 9.108 acres, more or less.

Tract 2: Beginning at the southeast corner of the Ruane tract of 9.108 acres; thence 8° 50' E. 98 feet to a point; thence N. 66° 47' W. 168 feet to a point; thence S. 23° 13' W. 96 feet to said Ruane tract; thence S. 66° 47' E. 193.15 feet to the place of beginning, containing 0.407 acres, more or less.

[Tract 3:] Beginning at a stake S. 69° 17' E. 1003.50 feet to a stake; thence S. 18° 00' W. 326.00 feet to a stake; thence S. 34° 07' E. 809.00 feet to a stake; thence S. 72° 15' E. 176.00 feet to a stake; thence N. 88° 53' E. 373.00 feet to a stake; thence S. 35° 20' E. 263.00 feet to a stake; thence N. 82° 46' W. 214.50 feet to a stake; thence S. 89° 25' W. 211.00 feet to a stake; thence S. 86° 24' W. 1062.50 feet to a stake; thence in a northernly direction with and along the right-of-way of the Baltimore and Ohio Railroad approximately 748.00 feet to a point in Deckers Creek, thence leaving said creek S. 57° 59' W. 549.00 feet to a stake; thence S. 29° 05' W. 248.62 feet to a stake; thence S. 66° 47' E. 193.15 feet to a stake; thence S. 84° 28' E. 117.81 feet to a stake; thence S. 2° 57' E. 312.70 feet to the place of beginning, containing 26.59 acres, more or less.

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^{*}The boundary description quoted above is taken directly from deeds recorded in the Preston County Courthouse in Kingwood, W. Va., describing the property of the Mercury Coal and Coke Company. Because this particular property has not been mapped, the U.S.G.S. and sketch maps indicate only approximate boundaries.

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1500-1599	AGRICULTURE	ECONOMICS	LITERATURE	SCULPTURE
_1600-1699	ARCHITECTURE	EDUCATION	MILITARY	_SOCIAL/HUMANITARIAN
1700-1799	ART	X ENGINEERING	MUSIC	THEATER
1800-1899	COMMERCE	EXPLORATION/SETTLEMENT	PHILOSOPHY	_TRANSPORTATION
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STATEMENT OF SIGNIFICANCE

According to pioneer industrial historian Victor S. Clark, "the expansion which . . . made the United States the largest producer of iron and steel in the world" in the late 19th and early 20th centuries should be attributed to the widespread adoption of blast furnace coke produced by coking operations like that of the Elkins Coal and Coke Company at Bretz, W. Va. 1 Although coke had been used in England since the mid-18th century, it did not come into use in the United States until the 1830's because of the abundant supply of wood for making charcoal. Even then coke did not gain widespread use until after the Civil War because of the preference for anthracite fuel and the poor coking qualities of most available soft coals. By the mid-1860's, however, the increased demand for railroad iron, the widespread adoption of the Bessemer process for making steel, and the availability of low-priced, high-quality coking coal all combined, says economic historian Peter Temin, to cause coke "to be used as a blast-furnace fuel with rapidly increasing volume."2

For many years most of the coke utilized in American blast furnaces was produced in beehive ovens like those operating today at the old Elkins Coal and Coke Company facility in Bretz, W. Va. In fact, according to steel industry expert Douglas A. Fisher, "from 1871 to 1919 . . . about 88 per cent of all iron produced in the United States was made with beehive coke as a fuel." In the post-World War I era, however, the beehives rapidly lost ground to by-product ovens which could recover gas and other valuable compounds. As a result, most beehive operations like the Elkins Plant were either shut down permanently or operated only during periods of peak steel production.

Victor S. Clark, History of Manufactures in the United States, 1860-1893 Volume II (New York, 1949), 250.

Peter Temin, Iron and Steel in Nineteenth-Century America: An Economic Inquiry (Cambridge, 1964), 77.

³Douglas A. Fisher, The Epic of Steel (New York, 1963), 110.

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 8 PAGE one

The old Elkins Coal and Coke facility, now owned by Mercury Coal and Coke, is believed to be the Nation's last operating beehive coking works. It still produces coke by methods similar to those utilized at the turn of the century.

The Elkins Company historic district encompasses 36.005 acres and consists of 140 beehive coke ovens; several pieces of equipment related to the coking process; a small brick office building; a 1 1/2-story edifice that originally housed the plant's steam generators; a one-story shop building; and several lesser edifices of uncertain vintage. Most of these structures and objects date back to the complex's heyday between 1906 and 1919, and all are still utilized in coking activities at the site.

History

"Coke," says historian Muriel E. Sheppard, "is coal from which the volatile matter—the tar, oils, and gas—has been burned out, leaving mainly fixed carbon," and the "coke—making process is designed to drive off the volatile matter from the coal without letting combustion go far enough to burn the carbon." The origins of this process predate by many years the establishment of the Elkins Coal and Coke Company at Bretz early in the 20th century. Since the dawning of the iron age, man has needed sources of nearly pure carbon which, when properly heated, would take the oxygen out of iron ore and convert it into metal. For centuries charcoal served this purpose well, but by the early years of the 18th century, a shortage of wood for charcoal making in most industrial countries had inspired a search for a suitable substitute.

Abraham Darby, an English ironmaster, is generally credited with being the first man to produce coke successfully sometime around 1711. By the 1750's coke had won widespread acceptance (continued)

4Muriel E. Sheppard, Cloud By Day: The Story of Coal and Coke and People (Chapel Hill, 1947), 22.

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 8 PAGE two

in England, and by the end of the century it had almost entirely replaced charcoal. Although coke-making technology became widely known and adopted in much of Europe around this same time, Americans largely ignored it because of the large stands of timber available for conversion into charcoal. By the 1820's and 1830's, however, the East, the principal seat of the American iron industry, encountered a severe wood shortage which forced manufacturers to experiment with anthracite coal and coke as substitutes.

In 1837 small quantities of coke-smelted iron were successfully produced at both the Oliphant furnace near Uniontown, Pa., and the Lonaconing furnace in Frostburg, Md. Despite this breakthrough, anthracite, considered by many to be a natural coke, won acceptance as the principal furnace fuel because its deposits were concentrated in eastern Pennsylvania and were therefore readily available, while most accessible soft coal for coking was of poor quality. As a result, anthracite rapidly displaced charcoal as the principal iron furnace fuel in the 1840's and 1850's, and coke came in a poor third to these two fuels. By 1860 approximately 57 percent of the Nation's pig iron was made with anthracite; 30 percent with charcoal; and only 13 percent with coke.

During the Civil War years the percentage of coke-produced iron steadily increased until by 1865 it totaled 20 percent. At this juncture, the increased demand for railroad iron, the widespread adoption of the Bessemer process for steelmaking, and the availability of low-priced, high quality coking coal like that found around Connellsville, Pa., combined to cause coke, according to Temin, "to be used as a blast-furnace fuel with rapidly increasing volume." By 1869 coke furnaces had surpassed charcoal ones in their output of pig iron and had begun to close the gap on the anthracite furnaces as well. "In the next decade, coke became the king of the blast furnace fuels," says Fisher, "and in 1883 the production of 2,689,650 tons of coke pig iron for the first time exceeded the combined yield of 571,726 tons of charcoal iron and 1,885,596 tons of anthracite iron." (continued)

⁵Temin, Iron and Steel in Nineteenth-Century America, 77. 6Fisher, The Epic of Steel, 109-10.

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 8 PAGE three

In the late 19th and early 20th centuries, the widespread adoption of cheap and plentiful coke made possible the expansion of the Nation's iron and steel industry into the world's largest. To feed the country's hungry blast furnaces numerous coke plants, like the one operating today at Bretz, were established wherever a suitable supply of high quality coal lay near a railroad line that could transport the product to market. The Bretz facility owes its origins largely to the entrepreneurial activities of Stephen B. Elkins, who had begun to acquire large coal tracts in the area in the 1890's and who in 1902 purchased the uncompleted Morgantown & Kingwood Railroad to fully exploit them. In 1906 his Elkins Coal and Coke Company acquired the town of Bretz and an adjacent coal mine from the West Virginia Coal Company and began to construct a bank of 400 coke ovens.

Elkins' Bretz plant went into full production in 1907, shortly after the Morgantown & Kingwood Railroad was completed to a point on the B & O. This new route gave the Elkins Coal and Coke Company an eastward connection to its chief customer the huge steel plant and shipyard of the Maryland Steel Company at Sparrows' Point, and between 1907 and 1918 huge quantities of coke were shipped from Bretz to this facility. In 1914 Charles M. Schwab's Bethlehem Steel Corporation purchased the Sparrows' Point Complex and 4 years later acquired the Elkins properties as well.

Like most of the coking plants constructed in 19th-and-early-20th-century America, the Elkins operation at Bretz utilized the beehive oven to produce coke. In fact, according to Fisher, "from 1871 to 1919 . . . about 88 per cent of all iron produced in the United States was made with beehive coke as a fuel." After World War I, however, the beehives were quickly displaced by more efficient by-product ovens which could recover gas and other valuable chemicals. Early in 1920 Bethlehem Steel shut down the Bretz ovens and moved its coking operations to a modern by-product facility in Baltimore.

⁷<u>Ibid.</u>, 110.

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CONTINUATION SHEET Elkins Coal ITEM NUMBER 8 PAGE four

After Bethlehem left Bretz, the property passed through a number of hands over the years, and the coke ovens operated only intermittently, mostly during periods of peak steel production. By the end of 1920 Joseph Miller had purchased the town, mine, and coking plant. He retained them until 1927 when he sold them to the Gibraltar Fuel Company which closed the mine in 1929. Little is known about operations at Bretz from then until 1953 when the Mercury Coal and Coke Company purchased the property at a county bankruptcy sale. At that time, new coal handling equipment was installed, the ovens refurbished, and the facility put back into operation. Since that date the Bretz coking plant has been operated on a nearly full-time basis.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

(See continuation sheet.)

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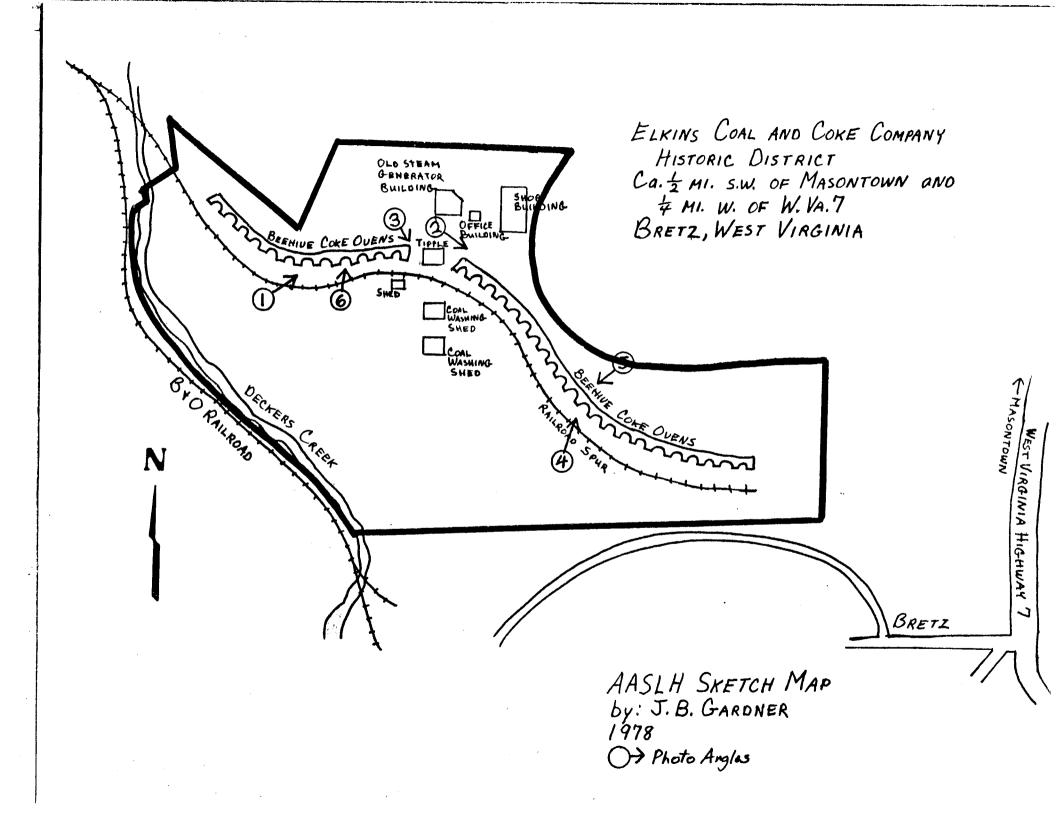
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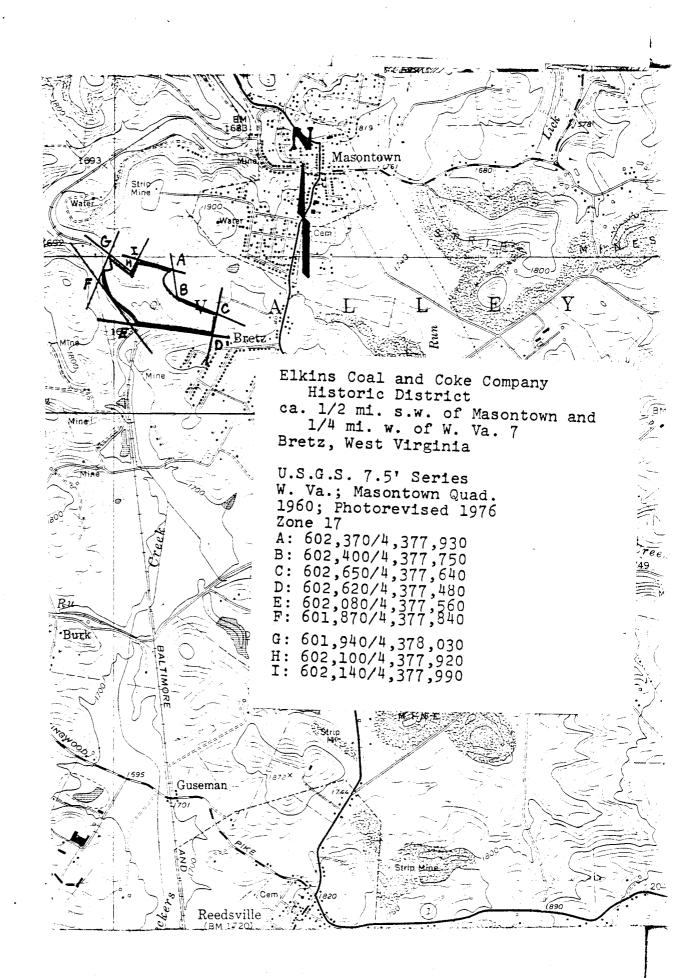
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