

Marvine Colliery, Dorr Thickner Plant No. 1 HAER No. PA-183-D
W side of Boulevard Ave.,
between E Parker St. and I Rt. 380
Scranton
Lackawanna County
Pennsylvania

HAER
PA
35-SCRAN,
6D-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
MID-ATLANTIC REGION, NATIONAL PARK SERVICE
DEPARTMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HISTORIC AMERICAN ENGINEERING RECORD

HAER
PA
35-SCRAN,
16D-

Marvine Colliery, Dorr Thickener Plant No. 1

HAER No. PA-183-D

- Location:** Located at the southeast portion of the Marvine Colliery East Site, south of the shed and garage area between the west side of Boulevard Avenue and the east bank of the Lackawanna River, between East Parker Street at the south and Interstate Route 380 at the north
Scranton, Lackawanna County, Pennsylvania
- UTM: Z18 E446094 N4587242
Quad: Scranton
- Dates of Construction:** Circa 1918
- Present Owner:** Louis and Dominick DeNaples
F & L Realty
- Present Occupant:** Vacant
- Present Use:** None
- Significance:** Marvine Colliery is important to local history for its relationship to the development of the Anthracite Mining Industry in northeast Pennsylvania, "The Anthracite Capital of the World" 1890-1930. The Marvine Collier Dorr Thickener No. 1 is important to the history of the anthracite mining industry, as this type of thickener apparatus was rare in anthracite mining operations. Research indicates that this particular Dorr separator was the first of its kind to be constructed and used in Delaware and Hudson Coal Company operations. The Marvine Colliery Dorr Separator No. 1 is the only surviving example of Dorr separator silo architecture in Lackawanna County, Pennsylvania.
- Project Information:** This documentation was undertaken in April 1990, in accordance with a resolution by the board of commissioners of Lackawanna County, Pennsylvania, as a mitigative measure prior to partial demolition of the Marvine Colliery to make way for construction of the Lackawanna County Recycling Center on the site.

Dorothy Allen Silva
Architectural Historian
1288 Layton Road
Clarks Summit, Pennsylvania 18411

LOCATION

The Dorr Thickener Plant No. 1 is situated at the southeastern portion of Marvine Colliery No. 2, to the east of the Lackawanna River, in a direct line south of the shed and garage structures. It is in a southeast direction from Boiler House No. 2.

HISTORY OF EQUIPMENT AND OPERATIONS

A 1932 Hudson Coal Company publication, *The Story of Anthracite*, states that in 1918 the company's president, L. F. Loree, adopted the Dorr Thickener and Classifier, an apparatus which had been invented to recover non-ferrous metals from silt, to the recovery of anthracite silt. Three Dorr Thickeners were erected at the Marvine Colliery in 1918, located at the extreme southeast portion of the east site.

The processing of coal in the breakers included the constant addition of large quantities of water (see HAER No. PA-183-C, Breaker House No. 2). As the coal was broken into smaller pieces, run through chutes, sized, and separated from rock, very fine particles of anthracite were carried away by the water. The purpose of the Dorr Thickener was to recover the finest particles of coal which were marketed as "Anthrafine" to various manufacturing concerns. Waste water, with the fine coal particles which had passed through 3/32-inch screens, was carried from the breaker through a sluice. It was then piped south to the Dorr Thickener plant.

Each thickener consisted of a concrete cylindrical structure resembling a silo. The water and fine coal particles were piped into the top of a thickener which contained a central vertical shaft with radiating steel arms. The shaft revolved at a high rate of speed; centrifugal force caused the water to move toward the periphery of the tank; and the coal particles, being heavier, would remain near the center. Gravel was placed in the bottom quarter of the silo, as ballast.

The particulate coal, with a certain amount of water, was drawn out of the center of the thickener and conveyed to a vibrating sloped "table" which was faced with a series of longitudinal cleats less than one-inch high. As the water, coal particles, and rock particles flowed over the table, the lighter coal particles were washed sideways over the cleats into a trough which ran the length of the table. The rock particles, being heavier, were caught by the cleats, carried to the bottom of the table to a second trough, and conveyed to a waste pile.

DESCRIPTION OF ARCHITECTURE AND STRUCTURAL SYSTEM

A field examination of the Dorr Thickener silos has found that they are constructed of curved concrete panels 2 feet 6 inches long by 1 foot and 1/2 inches wide. The panels fit together in a tongue and groove manner with no mortar and are held in place around the silo's 65-foot circumference by bands of 1/2-inch-thick steel cable spaced one foot apart the height of the silo. The ends of each cable are secured by passing through a device composed of a small steel cylinder with a "nut" at its end which could be tightened to keep the cables taut. The silos are each over 42 feet high.

The piping which brought the water and particulate coal to the silos is still in place, running from an area approximately 200 feet southeast of the breaker, south along Mike's Scrapyard property line fence, to the area at the northernmost silo where it arrives at a height of 16 feet. The pipe then meets an "L" and ascends vertically to the top of the silos and branches off to the center of each silo.

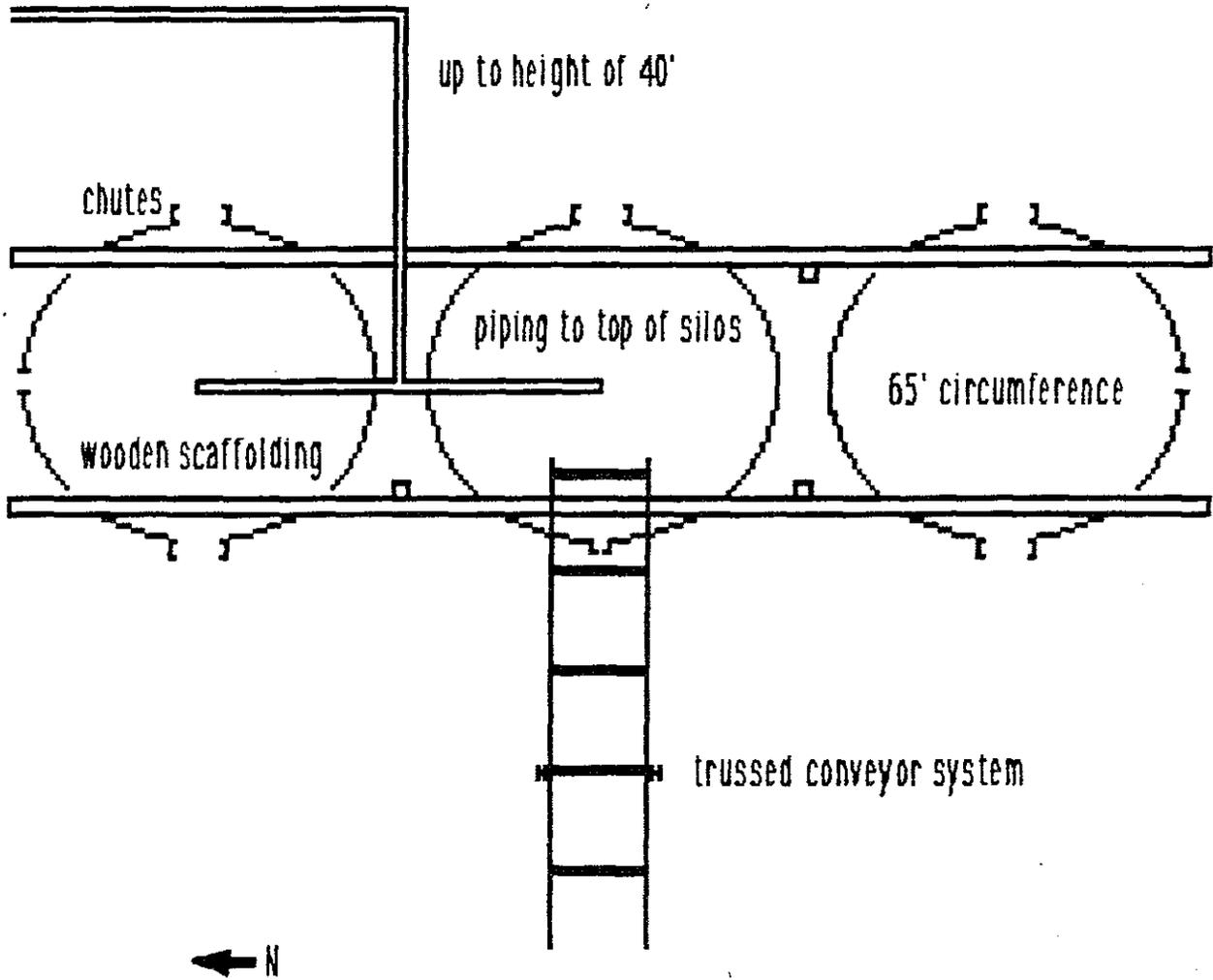
A wooden and steel "L" beam scaffold held the piping and pumping apparatus and allowed workers access to the machinery. The wood at some time in the past had burned and remains in charred condition. Metal chutes exit openings in the east and west facades of each silo at a top height of 16 feet. The south facade of the southernmost silo and the north facade of the northernmost silo have 3-foot-square framed openings at a height of 19 feet.

All Dorr Thickener apparatus has been removed from the interiors of the silos. The northernmost silo is complete intact and plumb. The southernmost silo is intact except for an opening which had been knocked in the concrete approximately 6 feet high by 3 feet wide. The middle silo is in extremely poor condition. The concrete panels at the lower 1/4 of the structure's east facade are out of place; the base has shifted west to east, and the structure leans precariously, at approximately a 12 degree angle from the perpendicular, toward the east.

In circa 1930, a new Dorr Thickener plant (no longer extant) was constructed on the site in an area just west-northwest from Breaker No. 2. It is not known at what date the first Dorr Thickener ceased operations. The silos may have been used for a different purpose toward the Marvine Colliery's later years of operation. A conveyor line, located west of the middle silo and leading up to its top, does not seem to have been equipment used as part of the Dorr Thickener process, water and silt arrived at the silos' tops through pipes. However, this conveyor may have been part of the separating table apparatus described above (no historical photographs of the Dorr Thickener plant was located during the present research to indicate exact placement of original equipment).

A steel structure with 3-inch "L" uprights and 2-inch "L" diagonal struts bears the conveyor which is composed of 10x5-inch "I" beams and a wooden plank floor. The conveyor extends from a rectangular, concrete-lined opening in the ground, approximately 100 feet west of the silos, to the top of the middle silo. The steel structure is intact, but most of the wood plank flooring is missing.

overhead piping from breaker



PLAN OF DORR THICKENER PLANT