Story of VonStorch Breaker

By Edward Hopkins

The VonStorch Breaker was the main preparation plant of the Penn Anthracite Collieries Company and was located on Nay Aug Avenue off Green Ridge Street in North Scranton at a point directly opposite Putnam Street. This breaker prepared for market the mine-run coal from the following mine operations: Capouse Shaft, Capouse Slope, VonStorch Slope, Harry Taylor Slope, Johnson Shaft, Johnson Slope, Ontario Tunnel, Sturges Shaft, Blue Ridge Tunnel, Raymond Shaft, and Hackley Slope. All the coal from these operations with the exception of VonStorch Slope was loaded into railroad cars and transported to the breaker for processing.

The breaker was built in the period 1926-27 and was as modern and efficient in preparing coal as was possible, utilizing the modern techniques in the cleaning equipment to produce a "slate free" commercial product. In the careful handling of coal in the preparation process it came close to being the most nearly perfect breaker ever built in the anthracite field. Inclined chutes for the movement of coal were eliminated wherever possible. Coal movement was on a horizontal plane by use of shaker chutes. The only exception to this practice was the use of four short chutes to deliver the coal from the feed shakers to the separating or cleaning units. At the head of the breaker was installed the largest rotary mine car dump in the anthracite field, capable of dumping the contents of six mine cars at one time.

The general plan in the layout of the breaker was to eliminate as far as possible the excessive breakage of coal. The use of loading pockets for egg, stove and chestnut sizes was done away with for the reason that loading coal from pockets resulted in breakage, due to faulty telegraph chutes which became so from wear and tear plus the abrasional frictional effect on coal forcing its way through loading gates, all of which combined to produce breakage and culm that had to be removed through lip screens installed at the loading gate and returned to the breaker.

In lieu of pockets, therefore, the VonStorch Breaker loaded the prepared sizes (egg, stove and chestnut) from the final sizing shakers directly into the railroad car by means of conveyor belt boom loaders which insured a cleanly loaded car free from breakage and dirt. In efficient preparation practice the policy was always to attempt to obtain the highest possible yield of the so-called higher priced coals from the run of mine product, and efficient roll practice and breakage elimination played a large role in seeking such ends.

The main breaker contained four 13-foot diameter Chance Cones, together with eight sets of shaker screens to dewater the cleaned coal and salvage the sand for further use. At this point it is necessary to describe just how a Chance Cone operated. It employed the sand flotation system for separating impurities from coal.

A mixture of fine white silica sand having a specific gravity of approximately 2.64 is mixed with water in such a

ratio that when introduced into the cone is kept in such a state of agitation as to produce a fluid mass of such density as to float out the coal and allow all impurities to sink. To accomplish this purpose we endeavored to keep the gravity ranging from 1.68 to 1.72. Such a mixture gave us a maximum recovery of coal with a minimum amount of combustible material in the rejected refuse. As to keeping the fluid mass at a constant specific gravity it will be necessary to go into a little more detail for further enlightenment.

1st. All water and sand constantly overflowing from the cone are recovered and sent to a main conical shaped sand sump. The breaker had two such sumps, one for each two cones. Sand and water entering the sand sump were released well down in the sump through an enclosed stack. In this manner, when the water level rose to the top of the sump it overflowed a circular launder, thus allowing pure water free from sand solids to be eliminated. At the bottom of the sand sump two openings on either side delivered the sand and water solution to two electric pumps, which in turn pumped 2500 gallons per minute back to the cone. Such a mixture which entered the cone at its top perimeter did much to sustain agitation.

2nd. An agitator shaft revolving 16 RPM and having three sets of cross arms extended down into the cone and revolved in the direction of the overflow. The cross arms tended to break up the feed material from forming islands in the fluid mass, accelerated the movement of material to the overflow, and at the same time provided more agitation.

3rd. To prevent sand from banking up along the sloping sides of the cone there were three sets of openings fitted with a short nipple and an elbow on the inner side of the cone, which acted as sprays forcing sand away from the sides. Such openings were provided at stated distances around the cone. The top set was installed at a point center to the top third of the sloping surface, the second set center to the middle third, etc.

It can be readily seen that the combination of points 1, 2 and 3 all working together provided the agitation necessary. The cone operator through long experience could tell at a glance when additional sand should be flushed into the system to replace sand loss.

The four large 13-foot cones in the main breaker handled egg, stove, chestnut, pea and #1 buckwheat sizes. The remaining product that passed through four sets of feed shakers through a 5/16" round mesh was conveyed to the annex, which housed four 7-foot cones and four sets of sizing shakers, all of which prepared rice, barley and #4 buckwheat.

The Chance sand flotation system of cleaning coal at the time was the last word in preparation efficiency. The loss of pure coal in the domestic sizes very seldom exceeded 1%, while the steam sized refuse as regards loss of coal compared favorably with the larger refuse.

The VonStorch Breaker was a credit to the industry and endeared itself to many who were connected with its operation or were users of its product. The slogan "More Heat Less Ash"

was a popular one while the breaker was in operation through the years.

As one who was present at its birth from the drawing-board stage to its completion and operation and finally to its shut-down and dismantlement in 1948, I speak with authority, as I had the responsibility for its efficient operation.

The evidence of this is to be seen by all in the huge accumulation of breaker refuse dumps. The original refuse dump at the breaker site fills all the space between Nay Aug Avenue and the main line of the D & H Railroad. Later other space had to be found to deposit the refuse. The large deposits at the site of the Leggett's Creek Breaker, also at the site of the old Johnson Breaker in Dickson City and later covering a large area behind the Eureka Printing Company between the D & H Railroad and Dickson Avenue, all attest to the fact that not much usable tonnage was thrown away. It is safe to assume that these piles collectively contain approximately 15 million tons of refuse. My only hope is that they may never break out in actual combustion and start burning as is now the case at Marvine and Baker, for I did all I could to keep them free from combustible material.

It is my wish that this treatise on VonStorch Breaker may be preserved with the movie film of the breaker for the benefit of those who may come after us.