

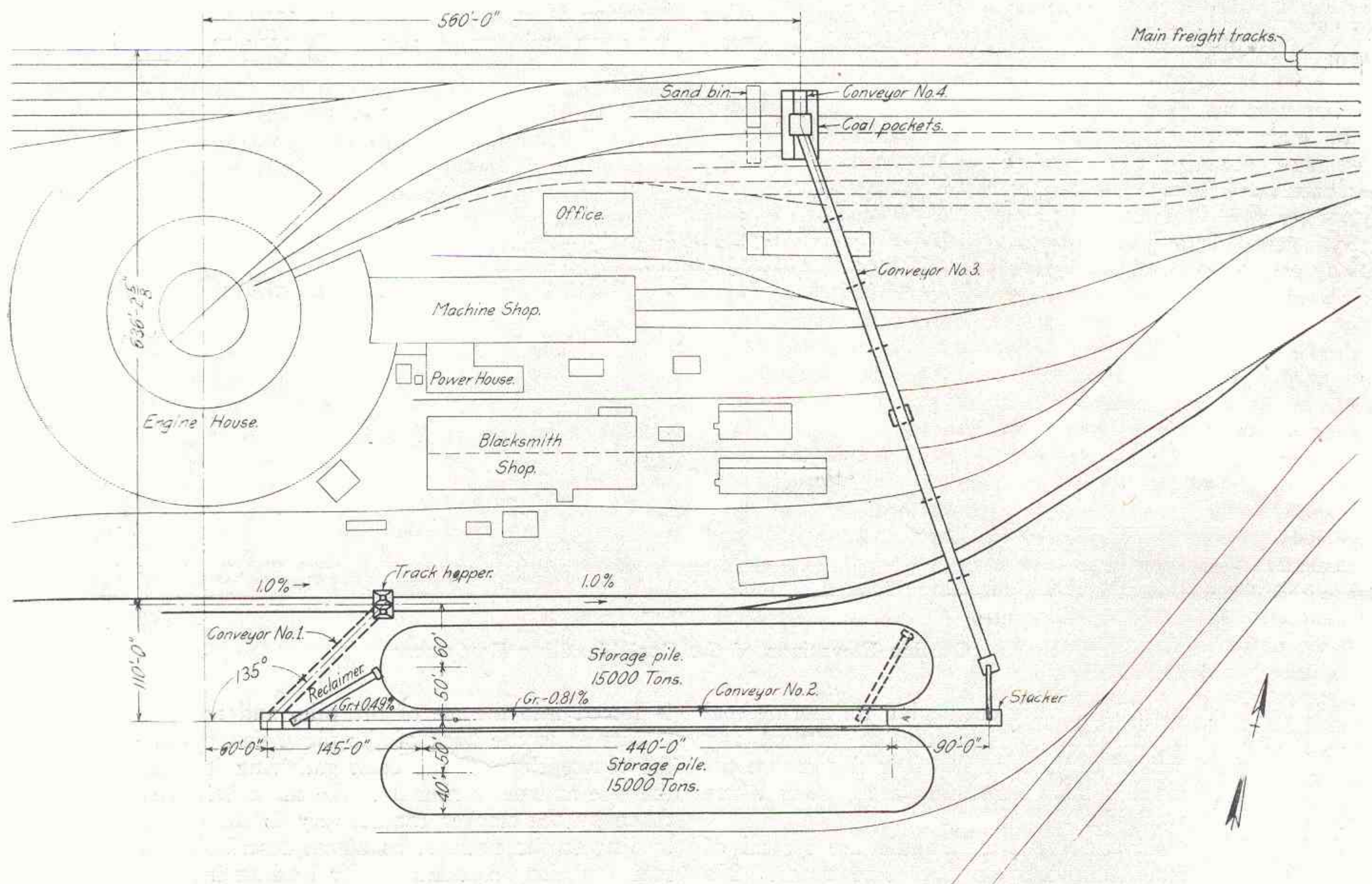
A New Design for Engine Coaling Facilities

Important Economies Effected in Track Capacity and Car Supply at Several Points on the Erie

THE ERIE is now engaged in an extensive program of reconstruction of engine coaling facilities at various terminals along its lines. These projects are a part of the general improvements undertaken this year to avoid the transportation difficulties experienced last winter to which inadequate facilities for coaling engines contributed to a great extent.

In accordance with the practice on most American railroads the existing facilities for coaling engines on this road were in general of the trestle type, designed to meet the daily requirements only, which at certain of the more im-

portant terminals reached 1,000 tons a day. Under the conditions obtaining last winter it was impossible. There were delays at the mines and transportation delays resulting from the severe weather as well as those due to the lack of sufficient men to get the coal out of the cars on arrival at the terminals. As a consequence the road was confronted with a serious fuel shortage which in extreme cases resulted in the necessity of running engines out of terminals light to meet the coal out on the line, leading to increased operating expenses and the loss of valuable time. At certain terminals efforts were made to relieve the situation by pro-



Layout of the East Buffalo Engine Terminal Showing the Location of the New Coaling Plant

portant terminals reached 1,000 tons a day. Approximately 25 cars are necessary to carry this amount of coal. With no storage available a sufficient number of cars must be kept under load at some point in easy reach of each terminal that the daily supply may be delivered to the locomotives. This means the tying up of cars needed for other service as well as the unnecessary occupancy of trackage and results in the necessity for embargoes until the coal is moved and the tracks made available for other shipments.

The successful operation of plants of this type is therefore entirely dependent on the maintaining of an uninterrupted flow of coal from the mines to the terminals in sufficient quantity to meet the daily requirements. Even in normal times this is a difficult matter, requiring organized

viding ground storage to supplement the trestles. This plan involved the use of a locomotive crane at the storage pile to load the coal and was unsatisfactory as cars and engines were necessary to transport the coal each day back to the engine coaling chute of only small capacity, thus affording no relief from the congestion of tracks or the shortage of cars.

Lack of Space Complicated the Plans for Improvement

On the Erie as on many of the older roads, the chief industrial and other growth of the cities and villages through which the lines pass has generally been in the territory immediately adjacent to the railways. This has resulted in the restriction of space available for expansion and has made

the improvement of terminals a difficult matter. This has been particularly true of engine coaling facilities involving storage in close proximity to the coaling pockets.

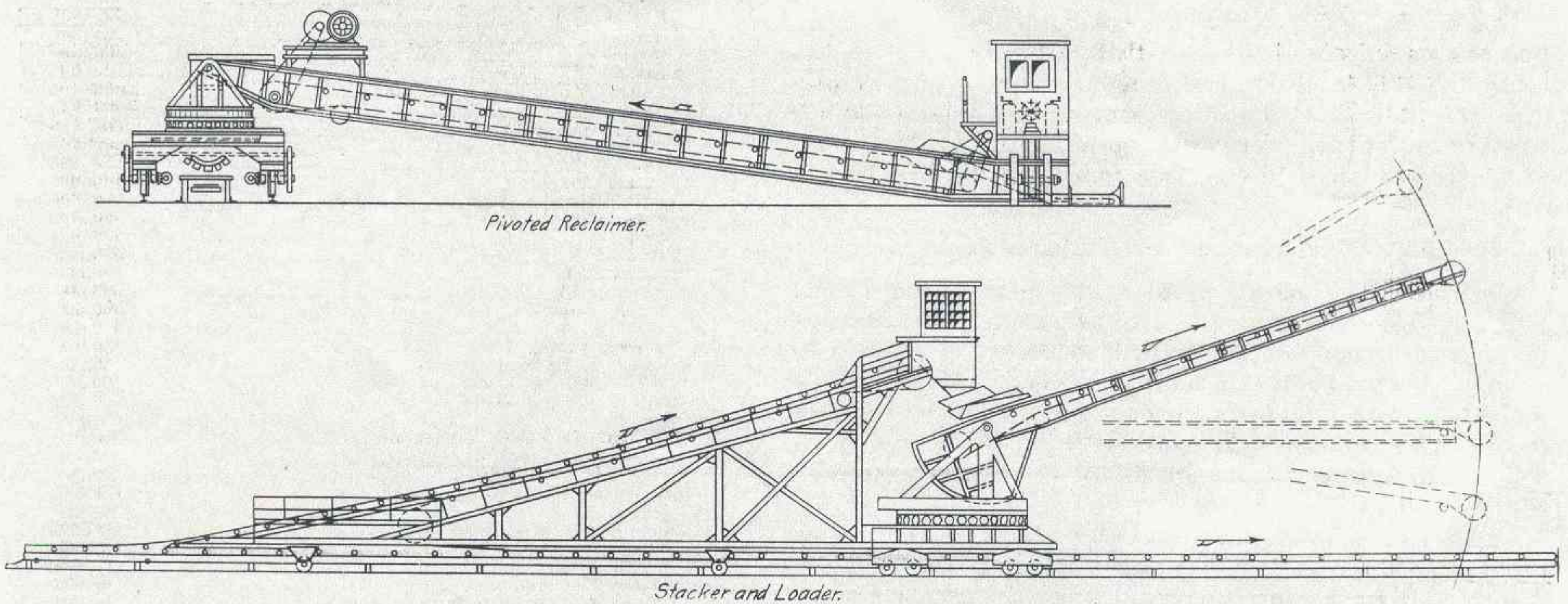
To meet this situation it seemed advisable to store the coal so that cars could be unloaded promptly at any season and to so place these storages that the coal could be loaded out into engines without further use of cars. With this in view a plan has recently been worked out by the International Conveyor Corporation of New York to utilize the Stuart system of coal storage to satisfy these requirements; it applies equally as well in congested locations as in the more open areas. In this plan the elements of storage and engine supply are co-ordinated without the necessity of storage tracks or the use of cars and motive power after the coal has once reached the terminal. The plan effects an important conservation of car supply and is of advantage as well to the trackage capacity in the terminals.

Of the several plants of this type which the Erie is placing on its lines the one at East Buffalo, N. Y., is the most important and is typical of what is being done at other points. In this terminal the congestion is particularly severe;

The plan provides for receiving the cars and placing them in the loaded yard to be dumped at the convenience of the operator. The cars are then dropped down by gravity and the coal dumped into the hoppers, after which they continue down grade into the empty yard. From the hoppers the coal is picked up by a belt conveyor and discharged through a transfer chute to the main belt which extends the entire length of the storage area. From the main conveyor the coal may be delivered to the storage or directly to the engine coaling pockets.

The delivery from the main belt is accomplished by means of a stacker which is reeved through the main conveyor. This machine has a horizontal movement the entire length of the storage and is equipped with a boom conveyor that rotates through 180 deg. for delivering the coal to storage on both sides of the main belt. For delivery to the engine coaling pockets the stacker deposits the coal on a third conveyor which passes over the yard tracks.

A self-contained pivotable reclaimer is used when it is desired to furnish coal to the pockets from storage. This machine is equipped with a movable arm which carries a conveyor and scraper plow. To reclaim the coal the plow



Outline Elevations of the Coal Handling Equipment

still it has been possible to work out a plan for storing coal and getting it to the point of consumption without any further consideration of car movement. For this reason the East Buffalo terminal is more interesting than others where more room was available.

The conditions surrounding East Buffalo are typical of those at many other terminals on the older roads. No ground space is available directly at the point of consumption and the storage has been provided adjacent to the yard at a point considerably removed from the locomotive coaling pockets with facilities that enable the continuous movement of the coal to the storage or to the pockets without any handling other than the first handling at the storage point.

As may be seen on the map of the terminal, this plant consists of two tracks placed on 13 ft. centers, providing for loaded and empty cars, a track hopper, a system of conveyors, stackers and reclaimers and storage space 80 ft. by 440 ft. on both sides of the main belt, providing room for 30,000 tons of coal. The two tracks serving the plant are laid on a 1 per cent descending grade in the direction of car movement. The track capacity ahead of the hoppers is used for loads and beyond for empties, equal capacity being provided for each.

is forced into the toe of the pile, and the conveyor, which is carried to the back of the plow, destroys the stability of the repose slope of the coal, gathering it from the base of the pile and delivering it to the main belt from which it is taken by the stacker for delivery to the overhead conveyor leading to the pockets, as above described. If desired the coal can also be reclaimed for loading into cars.

In addition to the conservation of car supply and the virtual increase of track capacity another feature provided for in this method is the prevention of fire from spontaneous combustion. When signs of overheating occur the plant may be placed in operation and the coal taken up by the reclaiming and stacking machines and delivered to another point in the pile. It has been found that turning the coal over and exposing it to the air is the best fire preventative. With this method coals which are more highly combustible than it has been possible to utilize in the past because of the likelihood of spontaneous combustion can be stored for engine supply.

The plant is electrically operated and the stacking in and reclaiming of coal requires but two men. The capacity of the stacking in operation is from 300 tons to 400 tons per hour and the reclaiming from 250 tons to 300 tons per hour.