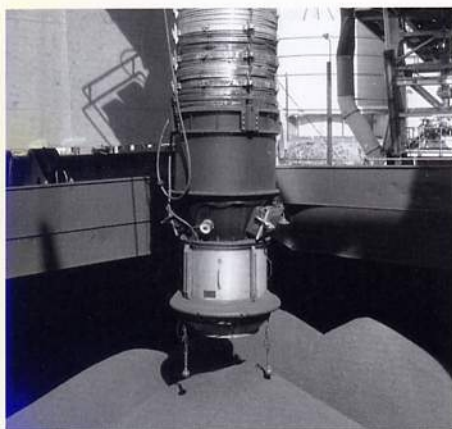


Question: What do you get when you drop a load of calcined coke 65 feet straight down?

ALL CHOKED UP ABOUT QUALITY

Answer: Coke size degradation.

That stands to reason. But the real question is, why would anyone do such a thing? The answer to that one is that, until about a year ago, it was unavoidable. When ARCO loaded its calcined coke onto deep-water vessels at its Longview, Washington, export terminal, the coke would free-fall through a chute from the top of the ship-loading arm to the bottom of the cargo hold, a distance of about 65 vertical feet.



New Chokefeeder (left) gently loads calcined coke into ship's cargo hold. Right, Bill McGowan, ARCO's operations supervisor of Petroleum Coke Sales.



Bill McGowan, ARCO's operations supervisor of Petroleum Coke Sales, claps his hands together hard to illustrate the impact of the coke on the floor of the ship's hold or on the pile of coke already loaded. "The greater the distance you drop that product," he explains, "the higher the velocity it has coming down, the greater the impact it has when it lands, and the more coke size degradation and dust you're going to have.

"Our customers," McGowan points out, "want coke size degradation minimized." ARCO realized that minimizing size degradation during shiploading would require somehow minimizing the free-fall distance of the product. And this was exactly what we did. Our engineers got together with a manufacturer to develop a unique apparatus for loading coke onto vessels at high rates of speed while significantly reducing product degradation caused by impact. What emerged was a customized loading arm called the Chokefeeder. It was installed at Longview in September of 1989 and has been reduc-

ing coke size degradation ever since.

Go with the Flow

In operation, the Chokefeeder resembles a giant multisectioned caterpillar, vertically contracting and expanding as product flows through it into the ship's hold. Bill McGowan describes it as "a loading arm that allows you to choke off the product coming down." Hence its name, Chokefeeder. The choking mechanism is a retractable loading chute that regulates the flow of calcined coke into the ship's hold. The coke forms a solid column inside the chute. But instead of falling straight down, the coke level is maintained at the top of the chute by modulating vanes located at the chute's bottom.

"It's got sensors all the way down," McGowan explains. "Depending on the flow rate, the vanes open and close, modulating the amount of product coming down through the chute at any one time." The result is that the coke eases down through the chute at a relatively low velocity and is gently released into the cargo hold. "So you don't have a drop of 60-some feet. You've got a regulated flow of product and the greatest distance you ever have into the ship's hold is about 10 feet?"

Shorter free-fall, less coke size degradation. In other words, loading ARCO coke on a ship need no longer be a degrading experience.

Taking the Long View

A further enhancement to ARCO's Longview facility will be the installation of an automatic sampling and splitting system later this year. It's the state-of-the-art in sampling and splitting, and it offers clear benefits. "Automating our sampling and splitting system," explains Bill McGowan, "will allow us to obtain more representative calcined coke samples in a safer and more timely manner."

It's one more reason ARCO's coke customers can count on receiving a consistent quality product. "We're always looking for ways to improve the quality of our coke," McGowan concludes.