

## **Testing, The Right Thing to Do**

By T.L. Garrett

Everyone wants cleaner air, but sometimes we suspend our common sense in our quest to obtain it. A case in point is the preference currently given to natural gas drayage trucks. On the surface it appears this is a natural solution of replacing the petroleum based fuels. And we've all grown up with the mantra of "clean burning natural gas" - to the point where we fail to question the premise. But maybe we should.

If you take the time to look at the most recent certification data of the California Air Resources Board (CARB), the first thing you notice is that there is only one natural gas engine available in the heavy duty category, and while that engine does have lower oxides of nitrogen (NOx) emissions it has higher emissions of particulates, non-methane hydrocarbons, and carbon monoxide when compared with the same diesel engine by the same manufacturer. While this is contrary to the accepted notion that natural gas is cleaner than diesel, it is not inconsistent with the limited test data over the years. The most recent head-to-head comparison of diesel technology to natural gas was done back in 2005 for terminal yard tractors. The basic question addressed was: does natural gas run cleaner when compared to diesel using a test cycle that is indicative of how the equipment actually operates? Using certification values as the metric, the results showed that diesel engines performed as expected but the natural gas engines emitted twice the NOx emissions (3.8 g/hp-hr) as their certification value (1.8 g/hp-hr) and significantly more than the diesel tractor (2.4 g/hp-hr). Since that time both the natural gas and diesel engines have continued to improve but no additional testing has been done.

More recently the Ports of Los Angeles and Long Beach, along with the South Coast Air Quality Management District, have invested or committed millions of dollars to preferentially support the purchase of natural gas drayage trucks over diesel trucks that, as noted above, are cleaner for three out of four of the pollutants listed on CARB's certification documents. Combined with the fact that natural gas trucks cost almost double what a new diesel truck costs results in paying twice as much to get the same air quality benefits. This doesn't even consider the additional costs of fueling infrastructure, maintenance, durability, or even availability. But no matter how you do the math, the simple fact is that the new diesel trucks provide almost double the air quality improvement for the same amount of money. It just seems that if the goal is to clean up air pollution the strategy should be to get the maximum benefits for the lowest cost in the least amount of time.

Worse, there has never been any testing that actually shows that natural gas trucks operating as drayage trucks are as clean as or cleaner than diesel trucks operating in this duty cycle. Drayage trucks don't operate like long haul trucks that the certification testing is designed to emulate. Just like with the yard tractors, there are reasons to believe that the natural gas engines will not perform as well in the stop, start, and idle, world of drayage. It would be prudent, from a public policy perspective, to test the natural gas trucks directly against diesel trucks using a more representative test cycle before investing massive amounts of public dollars. In these times when resources are stretched to the limit but the need to provide the public health benefits have not changed, I would hope that the organizations responsible for giving preference to natural gas would be able to justify that choice. Saying it, no matter how many times the mantra is repeated, just doesn't make it so.