Contractor innovation slashes pollutants from 2-stroke diesel engines on drilling rigs, buses

Clean Cam Technology Systems has developed a cutting-edge engine rebuild technology for 2-stroke diesel engines that reduces emissions well below levels stipulated by pollution-conscious California regulators for non-road engines such as those on well-servicing and drilling rigs. The rebuilt engines have clean-air implications not only for the California drilling industry, but other non-road stationary source applications nationwide and, in combination with a Johnson Matthey catalytic converter, even mass transit, CCTS officials say. The horsepower range in these categories of engines goes from 76 hp all the way up to as much as 1,100 hp.

The new system is largely the brainchild of CCTS and Gary Drilling Co President Ed Green and Head Mechanic Mike Alford. Noted Ed’s son Gary Green, Secretary/Treasurer of Gary Drilling and CCTS, the system’s NOX emissions approaches that of clean-burning natural gas. Clean Cam Technology Systems is the name Gary Drilling will use to market the new technology.

Test results for other pollutants are even more impressive (see figures). Emissions of hydrocarbons and particulate matter already surpass levels for new engines set by the U.S. Environmental Protection Agency and the California Air Resources Board on 3 families of Detroit Diesel engines—the V92, L71 and V71 series. CO emissions have also been slashed, compared to new-engine standards.

“The rebuild technology gives operators of diesel engines a cost-effective alternative to new engine purchasing, while meeting new engine emissions standards with an older, existing engine,” Gary Green explained.

“We kind of get a kick out of the idea that we’re a lot of rough-necks out of the field, and we’re coming up with ideas to cut pollution,” he quipped.

Tests run at a state-of-the-art certified lab in San Antonio, Texas, showed that all emissions on the CCTS modified engines fall comfortably below the 2001 EPA/CARB standards, including a modified Detroit Diesel Electronic Control (DDEC) engine. Further encouraging results were obtained using low-sulfur fuel. In California, however, as CCTS Regulatory Affairs Manager Terry Ellis pointed out, use of special low-aromatic, low-sulfur diesel is required. Using CARB diesel fuel will lower NOX by another 7% and particulate matter by 25%, he said.

DUAL EMISSIONS CLEANUP

This dual cleanup of both NOX and particulate matter is a unique feature of the CCTS system, Mr Ellis said. Normally, he explained, reducing emissions of one of these increases the presence of the other. This is because reducing PM means burn-
states have adopted or are looking at various versions of California’s flexible portable equipment program.

He credits the state agency with helping local air districts understand the benefits of this engine rebuild, as well as drilling and well-servicing operations. “CARB has done a great job helping us educate the air districts,” Mr Ellis said.

**IMPROVISATIONAL MASTER**

The driving force behind CCTS has long been Ed Green’s ability to improvise mechanically. Thanks to Ed Green’s ingenuity and grit, the company has engines running today that were drilling wells when Gary Drilling launched in 1954, Mr Ellis said.

“We are ever so humble to think that our little family-owned drilling company is making such a significant impact on air quality in California, the United States and quite possibly, the world,” Ed Green said.

The CCTS website is 222.cctskit.com. Their phone is 805-589-0111.