

## **Collective Efforts: Diesel Retrofits at the Cleveland~Cuyahoga County Port Authority**

Visitors to the Port of Cleveland can enjoy cleaner air thanks to reductions in diesel emissions brought about by retrofitting the Port's big machines with diesel oxidation catalysts (DOCs). Three cranes, six light-duty forklifts and 17 heavy-duty forklifts – all less than 10 years old – received the DOCs which are expected to reduce vehicle hydrocarbon emissions by 50%; carbon monoxide emissions by 40% and particulate matter emissions by 20%.

A collaboration of partners came together to identify and implement emission reduction solutions to help Northeast Ohio reach attainment of the US EPA National Ambient Air Quality Standards (NAAQS) for ozone and fine particulate matter. Partners included the Cleveland~Cuyahoga County Port Authority, Federal Marine Terminals, Caterpillar, and the US EPA-Midwest Clean Diesel Initiative. The retrofit coincided with Ohio Senator George Voinovich's introduction of the Diesel Emission Reduction Act.

In early 2005, the Cleveland~Cuyahoga County Port Authority participated in a regional air quality planning effort to identify emission reduction strategies that could assist the region in reaching attainment. The Port, along with the Lake Carriers Association, assisted the regional process by actively participating and providing sector assessments of the region's emissions inventory as determined by US EPA.

Caterpillar and other diesel engine manufacturers, through a consent decree with US EPA, were required to reduce emissions from existing in-use diesel engines. As a result of that consent decree and as part of its support of the Diesel Emissions Reduction Act and emission retrofits, Caterpillar, with the support of local Caterpillar Dealer Ohio Cat, retrofitted the Port's cargo handling equipment. The estimated cost of for the DOC and installation was \$1000-1500 per machine; for a total project cost of \$26,000-\$39,000

Federal Marine Terminals (FMT), which owns the cranes and forklifts, and is Port's Operating Agent, worked with Caterpillar to install the oxidation catalysts on the cranes and fork trucks. FMT, with help from Cummins, provided valuable technical vehicle information to assist Caterpillar in selecting the appropriate aftertreatment technology.

As part of the project kick-off, Ohio Senator Voinovich was tapped as the keynote speaker. He described the broad bipartisan support from industry, public and environmental officials that was demonstrated with the passage of the Diesel Emission Reduction Act (DERA). DERA created a program to assist in reducing diesel emissions through the provision of federal funding to retrofit public and private diesel fleets. The DERA program received \$49.5 million in federal appropriations in 2008, which will further the efforts of the Midwest Clean Diesel Initiatives.

As this project's story outlines, private companies and public organizations worked together towards a common goal of reducing exhaust emissions, resulting in a hugely successful effort.