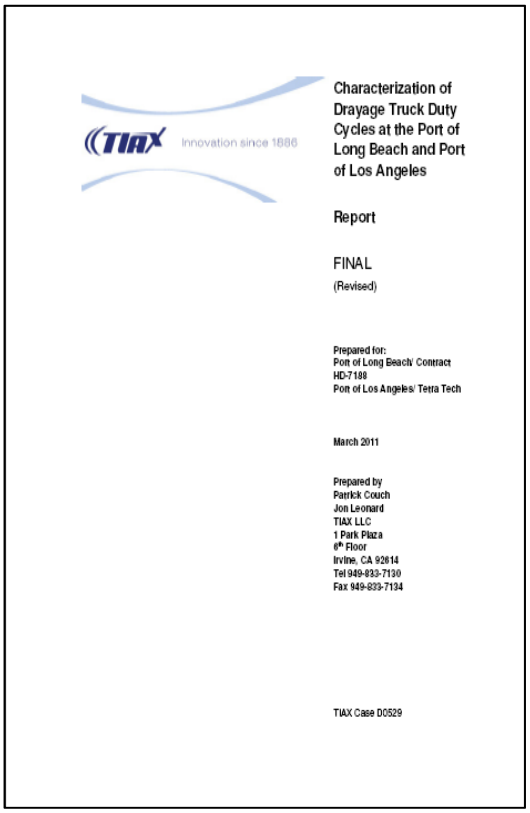
Characterization of Drayage Truck Duty-Cycles

Technology Manufacturer
Not applicable

Co-Participants
Port of Long Beach; Port of Los Angeles; TIAX, LLC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Characterization of Drayage Truck Duty Cycles at the Port of Long Beach and Port of Los Angeles

Report

FINAL
(Revised)

Prepared for:
Port of Long Beach/ Contract
HD-7188
Port of Los Angeles/ Terra Tech

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Background

At the time of this study, there were approximately 11,000 heavy-duty diesel drayage trucks in service at the Port of Long Beach and Port of Los Angeles. According to the Ports' 2010 emissions inventories, the drayage truck fleet was the second largest source of NO_x emissions and the fourth largest source of DPM emissions at the Ports. Even with increasingly stringent emissions standards promulgated by regulatory agencies, the drayage truck source category must continue to be as clean as possible. The introduction of zero-emission, hybrid-electric or other advanced heavy-duty truck technologies into the drayage fleet has the potential to provide significant emission reductions for this source category.

Project Objective

The Ports initiated the Drayage Truck Duty-Cycle Characterization project in order to provide drayage truck equipment manufacturers a thorough understanding of typical duty cycles associated with drayage service. The goal of this project was to collect detailed duty cycle information for drayage truck operations in near-dock, local, and regional operation. This duty cycle information, and raw data collected for the study, is available online for equipment manufacturers to help accelerate and improve the development of advanced drayage truck technologies.

Benefits

While this project did not result in direct emission reduction benefits, it is anticipated that a wide variety of clean heavy-duty drayage truck technology developers would benefit from this duty-cycle characterization project.

Results

For this project, vehicle operational data for multiple trucks were collected over a period of several weeks in the later part of 2010. Project trucks were equipped with data loggers and produced data in each of three operating regions: near-dock, local, and regional operation. The characterization of port drayage truck operation resulting from this project was used to develop a composite duty-cycle that will be used in upcoming drayage truck emissions evaluations. In

addition, the duty-cycle will be distributed to engine and vehicle original equipment manufacturers with technology targeted to the drayage market.

Data from this study were used to develop a chassis dynamometer test schedule for drayage trucks serving the Ports in 2011. More information on the "Development of a Drayage Truck Chassis Dynamometer Test Cycle" project may be found in the body of the full report.

Project Costs

The Ports initiated this project to fulfill the need for drayage truck operational profiles that ports are uniquely positioned to support. The Ports contracted with Tetra Tech and their subcontractor TIAX, LLC, an internationally recognized expert in the field of duty-cycle characterization and development. The Ports funded the study to support future TAP efforts to support technologies that reduce emissions from heavy-duty trucks.

The combined TAP funding from both Ports was $25,681.