U.S.-Mexico Fuel Switching Demonstration on Oceangoing Vessels in the Gulf of Mexico

***Angela Bandemehr*[1]**, *Louis Browning*[2], *Kenneth Gathright*[3], *Bryon Griffith*[4] and *Wayne Miller*[5]
[1]U.S. Environmental Protection Agency, Office of International and Tribal Affairs, Washington, DC, USA
[2]ICF International, San Francisco, CA, USA
[3]Port of Houston Authority, Houston, TX, USA
[4]U.S. Environmental Protection Agency, Gulf of Mexico Program, Stennis Space Center, MS, USA
[5]University of California at Riverside, CA, USA

This project was the result of a partnership between the EPA, the Port of Houston Authority, the Mexican federal government, the U.S. Maritime Administration, and two major shipping companies, Maersk Line and Hamburg Süd. Additionally, ICF International and the University of California-Riverside managed the technical elements of the program, including emission inventory development, dispersion modeling and the emission measurements on the Hamburg Süd vessel. This first-ever fuel switch demonstration in the Gulf of Mexico focused on illustrating the effectiveness of fuel switching on oceangoing vessels to reduce impacts to the Gulf of Mexico and its coastal populations. EPA engaged the maritime shipping industry and government representatives from Mexico at the local, municipal, state and federal levels, including the State of Veracruz, SEMARNAT (Secretaría de medio ambiente y recursos naturales, Mexico's Ministry of Environment and Natural Resources) and PEMEX (Mexico's state-owned petroleum company), to showcase the environmental benefits of implementing an Emission Control Area (ECA), which requires fuel switching on oceangoing vessels; and the project also helped raise awareness of the upcoming North American ECA in the U.S. and Canada, which will be effective in August 2012 per international standards under the International Maritime Organization. Emission measurements were taken while a Hamburg Süd vessel steamed between ports, approached selected ports, and docked at the ports, and found that switching to low-sulfur marine fuel (0.1% fuel sulfur) achieved significant reductions in emissions of nitrous oxide, sulfur oxide and particulate matter (2.5 micron in size) – five, 90 and 81 per cent respectively – at only a 2% increase in vessel operating costs. The results of the demonstration were presented to Mexican stakeholders at meetings and workshops in Mexico. They will also be presented to the general public in the Gulf of Mexico via information kiosks at Coastal Environmental Learning Centers located in major aquariums throughout the Gulf. The fuel switching demonstration along with emission reduction estimates and dispersion modeling informed policy makers in Mexico of the potential health and environmental benefits of fuel switching in Gulf of Mexico waters through the implementation of an ECA using the Ports of Veracruz and Alta Mira as case studies.

Contact Information: Angela Bandemehr, U.S. Environmental Protection Agency, Office of International and Tribal Affairs, Mail Code: 2660R, 1200 Pennsylvania Ave N.W., Washington, D.C. 20460, Phone: 202-564-1427, Fax: 202-565-2411, Email: bandemehr.angela@epa.gov