

**Texas Commission on Environmental Quality
New Technology Research & Development (NTRD) Program
Monthly Project Status Report**

Contract Number: 582-11-13473-2019
Grantee: Robert Bosch LLC
Report for the Monthly period: November 2011 **Date Submitted:** December, 10, 2011

Section I. Accomplishments

Provide a bulleted list of project accomplishments as well as a description of their importance to the project.

- Final Baseline Measurements on Marine Vessel in Houston Texas between November 21, 2011, and December 2, 2011.
 - Shipping of measurement equipment to the measurement site (Houston, Tx)
 - Procured and installed portable emission measurement system on the marine vessel.
 - Installed various hardware, weld-on sockets for sensors, etc. on the vessel engine, wiring, data acquisition instrumentation
 - Completed engine emission measurement and data logging
 - Analysis of the measurement has been completed; summarized in the deliverable report
- Measured NO_x data was shared with the catalyst supplier for proper SCR catalyst design
- Subcontractor for dynamometer testing (FEV) has been approved by NTRD.
- A comparable marine engine has been identified for dynamometer testing
- Design of the aftertreatment system
 - First design completed
 - Computational fluid dynamics (CFD) analysis commenced
 - Catalyst samples have arrived from supplier

Indicate which part of the Grant Activities as defined in the grant agreement, the above accomplishments are related to:

Phase 1 -Task 1: Baseline Measurement

- 1.2 Measurement of Baseline Emissions
- 1.3 Analysis of Measuring data

Phase 1 – Task 2: System Design

- 2.1 First design of aftertreatment concepts
- 2.2 Urea tank Layout
- 2.3 wiring harness
- 2.4 CFD Modeling
- 2.5 Catalyst selection

Section II: Problems/Solutions

Problem(s) Identified: Report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project

- a) The engine speed sensor displayed erratic signals at high engine speeds. Under investigation; no major, adverse impact on the gathered data expected

Proposed Solution(s): Report any possible solution(s) to the problem(s) that were considered/encountered

- a) Verification of the mounting position of this speed sensor is underway.

Action(s) Conducted and Results: Describe the action(s) taken to resolve the problem(s) and its effect

- a) See above

Section III. Goals and Issues for Succeeding Period:

Provide a brief description of the goal(s) you hope to realize in the coming period and identify any notable challenges that can be foreseen

- Design the urea tank and layout, including face-to-face meeting with potential urea tank suppliers
- Design layout of the hydraulic urea lines for the Denox system and modification of backflow valve for urea supply module
- Iterations in the on-going CFD Analysis
- Procurement of components and manufacturing of the aftertreatment system at Bosch internal sample construction facility
- Detailed test plan for engine dynamometer and work packages
- Procurement of the diesel engine for dyno testing underway

Date: 12/10/2011

Authorized Project Representative's Signature

NOTE: *Please attach any additional information that you feel should be a part of your report or that may be required to meet the deliverable requirements for tasks completed during this reporting period.*