

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

Contract Number: 582-11-11143-3264

Grantee: Engine, Fuel, and Emissions Engineering, Inc.

Report for the Monthly period: April 21 to July 31, 2011 **Date Submitted:** August 12, 2011

Section I. Accomplishments

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

- Completed the draft test protocol for validation of EF&EE's emission measurement system, submitted it for California Air Resources Board (CARB) review, and received CARB comments. This protocol also provides for conducting the emission testing required to verify the Compact SCR system on an electric generator.
- Conducted preliminary testing on EF&EE's electric generator to confirm correct operation of the Compact SCR system under the draft protocol. RAVEM measurements show 90% reductions in NO_x and CO and 95% reduction in THC emissions with the SCR catalyst.
- Made and tested modifications to RAVEM hardware and software to enable it to measure pollutant concentrations in raw exhaust gas as well as diluted exhaust.
- Initiated drafting of applications for verification of Compact SCR technology in generators revisions to draft verification plan for Compact SCR in marine propulsion applications.

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

- The above activities pertain to Task 1: Finalize Validation Test Plan and Revise Verification Plan

Section II: Problems/Solutions

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

- a) Revisions to the test plan and verification plan are running behind schedule, due to staff shortages and illness of the primary investigator during late June and early July. Two-thirds reduction of sales from 2009 to 2010 required EF&EE to lay off most staff, with a consequent increase in workload on the survivors. Sales are now rebounding, but hiring and training staff will take time. In the meantime, surviving senior staff are over-extended.
- b) Cash flow issues associated with the collapse and rebound of sales have affected our ability to make the required advance payments to University of California Riverside for their testing services.
- c) To date, we have experienced no technical issues that would put the success of the project in question.

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

- a) Cash flow issues will be substantially relieved during August, as payments are received for invoices submitted in May and June. We expect to pay U.C. Riverside by the end of August, and to be able to schedule the verification testing in late September or early October.
- b) The backlog built up during the PI's illness is steadily being reduced. We expect to complete and submit the draft verification plans and revised test plan by the end of August.

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

- Complete and submit draft verification plan for Compact SCR in marine propulsion engines
- Complete and submit draft verification plan for Compact SCR in generator engines
- Revise and resubmit test plan for correlation testing of RAVEM vs. U.C. Riverside
- Make required \$9, up-front payment to U.C. Riverside to initiate testing.

Date: August 11, 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.*