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

Contract Number: 582-11-11145-3264

Grantee: The University of Texas at Austin (UTCEM)

Report for the Monthly period: February 2012

Date Submitted: March 8, 2012

Section I. Accomplishments

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

- Worked through computer communication issues with the station's programmable logic controller (PLC) and remote input/output (IO) islands. Were able to operate compressor remotely and add more hydrogen to the storage cylinders
- Corrected dispenser operational issues from previous month. Performed cold start on hydrogen dispenser and performed functional test on the station's sequencing valves by dispensing into two 1.2 foot^3 cylinders provided by Gas Technology Institute (GTI).
- Began fabrication of reformer upgrades and modifications.
- Finalized layout for new combustion air blower, dispenser purge blower, and electrical enclosure blower. The blower installation allows for better cooling of electrical enclosures and removes burden on compressed air supply. Installation of the blower system will occur first week of March 2012.
- Continued preparations for the Proterra bus delivery. The bus is scheduled to arrive March 11, 2012.

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

- Task 2.1.1: The PERFORMING PARTY will contract with GTI to prepare hydrogen fueling station and increase hydrogen fuel capacity.
- Task 2.1.2.5: The PERFORMING PARTY and GTI will provide a supply of backup hydrogen for bus refueling.
- Task 2.3: The PERFORMING PARTY will ensure that the Proterra bus, Capital Metro personnel, and support material are prepared for the demonstration.

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 computer used for data collection and monitoring the generation and dispensing equipment at the hydrogen station failed to boot up several times.
b) The air compressor that provides air for pneumatic valve actuation and electrical enclosure purge at the hydrogen station appears to have developed a leak in the first stage of compression. This leak made the compressor cycle too often and resulted with the compressor tripping its circuit breaker.
c) Proterra worked through their transmission problems and will ship the bus to Austin the first week of March 2012. The demonstration will not start until April 2012. This is one month later than anticipated in the current schedule resulting from Amendment 2.

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

a) The computer is functional after the actions taken below, but its performance will need to be monitored, and the computer may eventually need to be replaced. A back up copy of the hard drive was made by UT-CEM's Information Technology (IT) department.
b) Due to the age of the air compressor it is difficult to obtain the parts needed to fix the damaged valves. A solution is to provide combustion air and electrical enclosure purge air with more reliable low pressure blowers. If successful, the higher pressure air needs for pneumatic valve actuation will be provided with UT-CEM shop air or bottled nitrogen dioxide.
c) We will work to compress pre-service trials and training schedules in order to start the demo as soon as possible and complete a 12-month demonstration prior to the project end date of May 2013.

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

a) UT-CEM's IT department found signs of water damage and internal corrosion in the computer. The pins on the RAM chip were cleaned and the chip was reseated. The computer is currently working but will be monitored closely.
b) The lower pressure blower system was purchased and assembled and will be installed next month.
c) Pre-service trials and testing have been schedule for the week of March 12, 2012, following delivery of the bus. Anticipated demo start is early-April 2012, which would allow a 12-month demo prior to the project end date.

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

- Continue fueling station upgrades and preparation with GTI. (Task 2.1)
  - Install new blower system with control valves, flow meters, and plumbing.
  - Complete reformer modifications and upgrades
  - Install reformer and begin commissioning of the station.
- Complete/continue preparations for bus demonstration. (Task 2.3)
  - Bus scheduled for arrival in Austin, Texas, on March 11, 2012
  - Complete pre-service trials and testing
  - Complete driver and operator training

Date: 3/8/2012

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.*