

## **NTRD Program Disclaimers**

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

Contract Number: \_\_\_\_\_582-5-70807-0005\_\_\_\_\_

Grantee: \_\_\_\_\_Teledyne Energy Systems, Inc.\_\_\_\_\_

Date Submitted: \_\_\_\_\_09 May 2006\_\_\_\_\_

Report for the **Monthly** period:

Starting Date \_\_\_\_\_1 Apr 2006\_\_\_\_\_      Ending Date \_\_\_\_\_29 Apr 2006\_\_\_\_\_

Section I. Accomplishments *(Please provide a bulleted list of project accomplishments as well as a description of their importance to the project.)*

- Teledyne Energy Systems (TESI) and subcontractor Clean Fuel Generation (CFG) held two regular biweekly telecoms during the month of April.
- The Railroad Commission of Texas completed the draft of the Task 1 report and is submitting it to TESI for review.
- Progress continued on Task 2 objectives. TESI continued work on the process flow diagram integrating the reformer/purifier and fuel cell subsystems. An initial integrated system diagram was completed and TESI and CFG will now work to refine the APU system and optimizing component specifications.
- Work continued on testing the reformer subsystem at CFG.
  - Last month a reported problem was that CFG had concerns about the durability (performance and lifetime) of the catalyst at the temperature cycling expected in typical power profile of the auxiliary power unit (APU). Testing in April was performed with new batch of catalyst that has not demonstrated the short lifetime previously seen. However, at the end of the month, it had not been on test long enough to confirm the problem was resolved. Catalyst performance continues to be closely monitored for degradation, but at this time, it is theorized that there was a problem with the batch of catalysts used in the previous tests.
  - Fabrication of new hydrogen purifier components was completed and the units were being assembled in the last week of the month. These units will initially undergo bench and longevity testing after which they will be coupled with the reformers for in-situ testing.

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

The above accomplishments are related to Task 2 in the Grant Activities including system modeling and evaluation of subsystems for the fuel processor.

Section II: Problems/Solutions

<p><b>Problem(s) Identified</b></p> <p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<p>A power profile for a truck APU application was found in a study performed under a DOE contract. However, this profile does not seem to accurately reflect how such a system will be utilized. It is important to have such a profile as the basis for the system model and component testing.</p>
<p><b>Proposed Solution(s)</b></p> <p><i>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</i></p>	<p>The team will seek additional information regarding the power usage profiles during truck idling and derive a realistic power vs time curve against which to model &amp; test.</p>
<p><b>Action(s) Conducted and Results</b></p> <p><i>(Please describe the action(s) taken to resolve the problem(s) and its effect)</i></p>	

**Section III. Goals and Issues for Succeeding Period:** *(Please 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)*

Goals for May are to continue reformer testing, finalize the integrated APU process and instrumentation diagram (P&ID), and start procurement of fuel cell subsystem components for testing. Work will also continue to set up the APU system model.

Additional information-

 \_\_\_\_\_ Date: 10 May 2006  
 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.*