

## **NTRD Program Disclaimers**

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

Contract Number: 582-5-65591-0010

Grantee: Eaton Corporation

Date Submitted: June 16, 2005

Report for the **Monthly** period:

Starting Date May 1, 2005

Ending Date May 31, 2005

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

1. **Accomplishment:** Previous period's goal #1 (Complete FMEAs for the system) – Work on FMEAs was postponed until an updated system configuration is finalized. See section II.  
**Importance:** This document is helpful in product design and used heavily to create a product qualification test plan.
2. **Accomplishment:** Previous period's goal #2 (Continue vehicle durability test) – System trouble shooting efforts were successful in determining the causes of the HLA system not operating. The system now functions and the durability test will resume in June after updating the truck to the newest HLA design concept.  
**Importance:** The results of the durability test will give valuable insight into necessary design modifications for the production intent design.
3. **Accomplishment:** Previous period's goal #3 (Complete the drawings for the long lead-time items and order them) – Preliminary drawings of all the major castings were sent to suppliers for quotes. The final detailing of the machining drawings is 80% done.  
**Importance:** Fundamental design work of the system components.
4. **Accomplishment:** Several tasks were initiated that focus on improving the reliability of the HLA design. These include creating a full time position for a reliability engineer and organizing reliability engineering training for team members, which is scheduled for early June.  
**Importance:** Tasks will help assure a product designed with high reliability.
5. **Accomplishment:** Good progress was made on the product system specification.  
**Importance:** This document is the main product definition document. It will continue to evolve and improve.

Indicate which part of the Scope of Work, the above accomplishments are related to:

1. SOW 2.1.3.1
2. SOW 2.1.3.1
3. SOW 2.1.3.2
4. SOW 2.1.1.1
5. SOW 2.1.1.1

## 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>It is difficult to remove trapped gas in the current HLA design, due to the closed system design. It is now apparent that the system design needs to be changed to an open-style system in order to stay on schedule and meet our start of production goals.</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 design direction chosen to resolve this issue is to go to an open system architecture. New design concepts are being evaluated which will result in more robust and maintainable product. The key system performance measures of fuel savings, emissions reduction, and brake wear reduction will remain essentially the same. Because of this, we plan to perform the vehicle emissions testing using a closed system design.</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>	<p>Several design concept reviews have taken place to generate and evaluate new open system concepts. A functional prototype of a leading concept is being built and will be tested during June.</p>

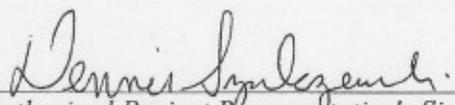
**Section III. Goals and Issues for Succeeding Period:** *(Please provide a brief description of the goal(s) you hope to realize in the coming period and identify any notable challenges that can be foreseen)*

**GOALS:**

1. Define primary path for open system architecture.
2. Retrofit existing durability vehicle with open system concept hardware.
3. Complete the drawings for the long lead-time items and order them.

**Section IV. Commercialization Progress:**

**CLEAR Act:** A bill providing tax credits for hybrid, alternative fuel, and fuel cell vehicles was recently introduced in the US Senate. The bill, called CLEAR Act, is very similar to the CLEAR Act bill that was proposed (but not passed) as part of the Energy Bill in both the House and Senate two years ago. The bill is fairly technology neutral. Broad industry and environmental support is being conveyed to Washington. If enacted, tax credits of up to approximately \$12,000 could be attained by the end user. This would have a profound effect on the payback to the end user and would greatly increase the number of vehicles on which the HLA system would provide a rapid payback (1-2 years).

  
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Authorized Project Representative's Signature

Date: 6/16/05

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

