

## **NTRD Program Disclaimers**

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**Texas Commission on Environmental Quality  
New Technology Research & Development (NTRD) Program  
Monthly Project Status Report  
GTI Project #20485**

Contract Number: 582-5-70807-0018

Grantee: Gas Technology Institute

Date Submitted: January 10, 2006

Report for the Monthly period: December 2005

Starting Date: December 1, 2005

Ending Date: December 31, 2005

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

<b>Accomplishment</b>	<b>Importance to the Project</b>
<p>The gas liquefier has been partially disassembled in order to begin upgrading components in preparation for the field test.</p> <p>This work is a continuation from the November, 2005 report.</p>	<p>Components for the liquefier are being individually tested and evaluated in order to determine whether they should be replaced, or cleaned and reinstalled. Components evaluated include:</p> <ul style="list-style-type: none"> <li>• Gas clean-up system</li> <li>• Oil separator</li> <li>• Valve train for gas clean-up system</li> <li>• Heat exchanger</li> <li>• Oil cooler</li> </ul>
<p>Much of the work this month focused on the oil cooler, pump, and filtering system. Replacement piping was ordered for the heat exchanger and reassembly of those components was started</p>	<p>Component refurbishment and/or replacement is needed to assure reliability and to maximize efficiency of the system.</p>

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

Accomplishment	Grant Activity
Liquefier system disassembly and component evaluation and replacement	Tasks 1-6
Engine component replacements	Tasks 1-6
Oil pump, filters, and cooler system reworked	Tasks 1-6

Section II: Problems/Solutions

Problem(s) Identified	
<p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<ol style="list-style-type: none"> <li>1) Height of current refrigerant heat exchanger could present problems for transporting the unit from GTI's testing labs to its deployment site in Texas.</li> <li>2) H-E-B Grocery will not be the deployment location for the natural gas liquefier.</li> </ol> <p>These issues are carried over from last month's report</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>	<ol style="list-style-type: none"><li>1. Incorporating reinforcement bracing into the existing design can stabilize the heat exchanger unit.</li><li>2. GTI has identified a major transit agency in Texas that operates LNG vehicles and is interested in becoming a replacement host site for the natural gas liquefier.</li></ol> <p>These solutions are still in progress from last month's report</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>	<ol style="list-style-type: none"><li>1. GTI has completed the new design of the liquifier assembly. A pdf file with drawings is included in this report submission.</li><li>2. GTI is currently in discussions with the transit agency concerning the details for field-testing the liquefier at that agency's LNG fueling site. The replacement host site is located in a non-attainment area.</li></ol>

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)*

- Continue systems refinement, efficiency enhancements, and system optimization activities that were initiated during October.
- Reach agreement on deployment location and begin on-site permitting, gas supply, and operating groundwork. This item will most likely continue for the next reporting period.



Date: 1-10-06

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*Authorized Project Representative's Signature*

**J. Brian Weeks, Associate Director,  
Hydrogen Energy Systems  
Gas Technology Institute**

**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.*