

## **NTRD Program Disclaimers**

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

Performing Party – WOW Energy Inc. I.D. 68-0554788

Contract Number: **TCEQ New Technology Research and Development Grant  
Contract 582-5-70807-0010**

Grantee: **TCEQ**

Date Submitted: **April 10th, 2006**

Report for the **Monthly** period:

Starting Date **March 1<sup>st</sup> 2006**                      Ending Date **March 30<sup>th</sup> 2006**

Section I. Accomplishments

- **Completed the construction of the Final Flue Gas Cleaning Pilot Plant and the unit is now in the Houston, TX area.**
- **WOW Energy, Inc. personnel have been working on site at the AES Deepwater facilities to prepare the connections, etc. for the installation of the unit to begin first testing. Agreements with AES are complete and the unit is ready for installation at the site. Maintenance downtime at the site in March means that hook up will not take place until April 2006. The time leading up to this date will be used to further test the equipment and refine operational procedures.**
- **WOW Energy, Inc. personnel have conducted more detailed site surveys of Texas Municipal Power Authority (TMPA) coal burning facility in Carlos TX to test the FFGC unit on this site following testing at AES Deepwater.**
- **Testing equipment has been purchased and operating procedures and software interfaces tested. Independent third party testers have been selected.**
- **Key personnel required during hook-up and testing have been identified and dates are have been finalized.**
- **WOW Energy personnel have worked on the FFGC unit connecting hoses, etc. Unit has been assembled / constructed on site and all the components have been tested, including a full unit test. Composition of additives and associated reactions have been verified.**

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

**Task One: Test Site Selection  
(July 14<sup>th</sup> 2005 to September 8<sup>th</sup> 2005)  
Commenced January 3<sup>rd</sup> 2005 and is 100% complete**

Task One: A contractual detailed agreement with AES Deepwater is complete. Test Plan and Safety Execution which is complete including the final determination of the chemicals to be used. WOW personnel continue to have a presence on AES Deepwater facilities and have now begun working towards the

second installation at Texas Municipal Power Authority's (TMPA) coal burning facility in Carlos, TX. Final date for commencement of testing has been delayed resulting from late arrival of unit to Houston and timetable conflicts with AES Deepwater arising from delay. Holcim, Midlothian testing discussions are continuing but Texas Municipal Power Authority's (TMPA) coal burning facility in Carlos, TX has replaced this plant as the second testing facility.

- 2.1.1.1 The baseline flue gas analysis and testing procedures are complete subject to site testing.
- 2.1.1.2 The expansion of testing sites and agreements continues beyond the initial 2 sites.
- 2.1.1.3 Shop Testing took place on October 3, 2005 at the Eisenmann Corporation facilities and the unit passed all tests. The unit is now in the Houston area.
- 2.1.1.4 Safety planning is complete.
- 2.1.1.5 Texas Municipal Power Authority's (TMPA) coal burning facility in Carlos, TX is now the second test site.

Completion of Task One is complete.

**Task Two: FFGC Pilot Plant Design  
(July 14<sup>th</sup> 2005 to November 2<sup>nd</sup> 2005)  
Commenced April 15<sup>th</sup> 2005 and is 100% complete.**

- 2.2.1.1 The modifications to the existing scrubber design is complete.
- 2.2.1.2 The design of the serpentine section of the second stage is complete.
- 2.2.1.3 Vendors and specific equipment for UV components is complete.
- 2.2.1.4 The definition of the size and number of the FFGC-PP chemical additive vessels is complete.
- 2.2.1.5 The definition of the size and number of by product vessels is complete and has been relayed to AES Deepwater. Existing plant storage and treatment systems review is complete.
- 2.2.1.6 The FFGC-PP systems and subsystems are all procured.
- 2.2.1.7 The type of semi-trailer has been selected for transportation.
- 2.2.1.8 The design of the electrical and instrumentation systems is complete.

- 2.2.1.9 The control system and control logic design is complete.
- 2.2.1.10 The final layout drawings including the trailer mounting details is complete.

**Task Three: Fabrication & Construction**  
**(July 14<sup>th</sup> 2005 to January 26<sup>th</sup> 2006)**  
**Commenced May 1<sup>st</sup> 2005 and is 100% complete.**

Eisenmann has completed the unit construction based on our submitted production schedule. Wow Energy, Inc. has approved the Eisenmann Quality Control and Inspection Plan.

- 2.3.1.1 The selection of major component suppliers is complete and major procurements are complete.
- 2.3.1.2 The baseline production schedule is approved.
- 2.3.1.3 Quality Control and Inspection Plan review is complete.
- 2.3.1.4 The final construction drawings release is complete.
- 2.3.1.5 The shop test plan draft is complete.
- 2.3.1.6 As-built drawings are complete.
- 2.3.1.7 Conduct shop test successfully completed.

**Task Four: Operating and Test Plan**  
**(July 14<sup>th</sup> 2005 to January 26<sup>th</sup> 2006)**  
**Commenced May 1<sup>st</sup> 2005 and is 100% complete.**

Wow Energy has selected the chemical additives to be used in the FFGC-PP. The initial flow rates and quantities have been determined and used to size the pumps, sumps and vessels.

- 2.4.1.1 Task complete.
- 2.4.1.2 The chemical additives have been selected, task complete.
- 2.4.1.3 The Safety Execution Plan is complete.
- 2.4.1.4 The initial chemical quantities and storage requirements are complete for AES Deepwater.

- 2.4.1.5 As the FFGC-PP design basis was to recycle the used solutions and by-products, there should be very little waste or by-product. We are analyzing and quantifying the amount of by-product for each test site.
- 2.4.1.6 The analysis and quantity of by-products for each test site continues to be developed.
- 2.4.1.7 Final baseline of the Test Plan continues to be developed.

**Task Five is scheduled to commence in October 2005**

- 2.5.1.1 Delivery and installation. The unit is now in the Houston area and is pending final date for installation at AES Deepwater. The unit has been assembled / constructed in the Houston area and all components have been integrated and a full test has been conducted.

**Task Six is scheduled to commence in December 2006**

Task six is dependant on results of testing for each site and specific full scale designs will be undertaken following testing.

**Task Seven is ongoing throughout the project commencing on January 3<sup>rd</sup> 2005.**

Section II: Problems/Solutions

<p>Problem(s) Identified</p> <p><i>(Please report anticipated or unanticipated problem(s) encountered and its effect on the progress of the project)</i></p>	<p><i>Installation delays at AES Deepwater resulting from the late arrival of the unit in Houston. This late arrival then meant that the testing would overlap with the maintenance of the AES Deepwater facility scheduled for March 2006. The unit will not be hooked up until April 2006.</i></p>
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<p>Proposed Solution(s)</p> <p><i>(Please report any possible solution(s) to the problem(s) that were considered/encountered)</i></p>	<p><i>Site installation / final construction due to begin in mid April 2006.</i></p>
<p>Action(s) Conducted and Results</p> <p><i>(Please describe the action(s) taken to resolve the problem(s) and its effect)</i></p>	<p><i>The additional time will be used to further test the unit and refine operating procedures.</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)*

- ***We are working with AES for delivery, hook up and testing of the unit. Unit is ready for hook up pending completion of maintenance at AES site for end of March 2006. Hook up will take place in mid April 2006.***
- ***We are working on the Holcim test site issues but Texas Municipal Power Authority (TMPA) coal burning facility in Carlos, TX is now the second test site. Other sites have been identified and a strong interest continues to take place for further testing with the unit.***
- ***We have finalized the contractual agreement between AES Deepwater and Wow Energy for the testing at AES. The two attachments (Test Plan and Safety Execution Plan) are complete.***
- ***We are drafting a Letter of Intent between Wow Energy and our other test site candidates which we plan on signing and moving into contractual agreement negotiations.***
- ***Flue gas instrumentation port locations and equipment has been delivered personnel training continues to take place, construction of the unit is taking place..***

Martin Brau \_\_\_\_\_ Date: 10 April, 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.

**TCEQ New Technology Research and Development Grant  
Contract 582-5-70807-0010  
Performing Party – WOW Energy Inc. I.D. 68-0554788  
Notice to Proceed Issued July 14<sup>th</sup> 2005**

**Narrative**

Tasks One, Two, Three and Four are complete and the unit is now in the Houston area. Testing of the unit was successful. Task Seven is ongoing in accordance with the above reports. Tasks Five is now dependant of completion of maintenance at the AES facility to take place in March. Task 6 will commence as soon as data is available following site testing.

The unit was assembled / constructed in the Houston are prior to its hook-up at AES Deepwater and a test of the unit was undertaken. Detailed review of all additives to be used was also undertaken.

The unit is now ready to be hooked up at AES Deepwater.

In accordance with the contract, we will continue to hold monthly project reviews, as well as, day to day project discussions. We are now focused on site installation and testing of the unit.

Photographs (Site of first FFGC installation at AES Deepwater)



