

## **NTRD Program Disclaimers**

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9/15/05

**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: **September 9th, 2005**

Report for the **Monthly** period:

Starting Date **August 1st 2005**

Ending Date August 31<sup>st</sup> 2005

**Section I. Accomplishments**

- **Conducted multiple teleconference meetings with Eisenmann Corporation (pilot plant design and fabrication contractor) and AES Deepwater (first test site) to review interconnection requirements, site specific locations and safety planning. All requirements on track for testing at AES Deepwater scheduled for late December and January.**
- **Completed the Site Access Agreement with AES Deepwater and working on the two attachments (Test Plan and Safety Execution Plan).**
- **Met with Sempra Twin Oaks (Lignite) and TMPA Gibbons Creek (PRB) to initiate discussions on pilot plant testing. These two sites serve as backup in case Holcim takes too long to line up.**
- **Fabrication of the Pilot Plant is complete and outfitting is scheduled to be completed by September 26th. Shop testing commences on September 27<sup>th</sup> and will continue for one week. The Pilot Plant will be ready to ship in October.**

**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 80% complete**

Task One: A contractual detailed agreement with AES Deepwater is complete with the exception of the Test Plan and Safety Execution. At Holcim, Midlothian testing discussions are continuing but as mentioned above we have initiated discussions with additional candidates focusing on those that are coal power plants.

2.1.1.1 The baseline flue gas analysis and testing procedures have been developed and detailed procedure will be complete by mid-September. This data has been used in the selection of the emissions analyzer equipment.

- 2.1.1.2 The completed the detailed design review and approval of the FFGC-PP drawings. AES Deepwater has committed to be the first testing site. The final agreement with AES is approved pending the submittal of the Test Plan and the Safety Execution Plan. All interface requirements are base lined. Wow met with two other plants that are interested in the testing program. They are Sempra Twin Oaks and TMPA Gibbons Creek. These plants will give us test runs on Powder River Basin coal and on Texas Lignite coal.
- 2.1.1.3 The shop test plan is in final draft and scheduled for completion during the week of September 12th. Shop Testing is to begin on September 27<sup>th</sup>. WOW will attend all of the shop testing and rework prior to accepting the delivery of the Pilot Plant.
- 2.1.1.4 The preparation of the Safety Execution Plan continues with AES. The Test Plan and the Safety Execution Plan should be completed by the end of September. Currently the AES Deepwater test will begin in late December or early January. The schedule accommodates modification to the plant during the planned outage for our Pilot Plant interconnections. Follow-on test site Safety Execution Plans will be base lined on the AES plan.
- 2.1.1.5 At Holcim, we are evaluating the intake and discharge parameters for the specific site and should conclude the interface design and related re-injection/discharge treatment issues by the end of September. Holcim may be replaced in the testing program by either Twin Oaks or Gibbons Creek.

Completion of Task One is on track per the contract schedule.

**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 95% 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 The analysis of the UV radiation system is ongoing and although we targeted to complete this month, we are extending the vendor selection into September. The FFGC-PP will have the ability to incorporate this system in the field. It was determined to provide access in the first scrubber stage for the UV option.
- 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 in complete and has been relayed to AES Deepwater. Existing plant storage and treatment systems review is complete. Review of plant storage and treatment systems at Holcim are scheduled for late August and should be complete in September. (Please note Task One).
- 2.2.1.6 The FFGC-PP systems and subsystems are all procured.
- 2.2.1.7 The semi-trailer has been selected for leasing.
- 2.2.1.8 The design of the electrical and instrumentation systems is 100% complete.
- 2.2.1.9 The control system and control logic design is 100% complete.
- 2.2.1.10 The final layout drawings including the trailer mounting details is completed.

The project schedule demonstrates that the FFGC-PP project is ahead of the contractual schedule and that Task Two is currently scheduled to complete in early September. The final design report shall be submitted to TCEQ at completion of this task.

**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 85% complete.**

Eisenmann is finishing the unit construction based on our submitted production schedule. Wow has approved the Eisenmann Quality Control and Inspection Plan.

- 2.3.1.1 The selection of major component suppliers is complete and major procurements have been released.
- 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 and annotations with regard to specific test parameters are being incorporated.
- 2.3.1.6 As-built drawings are scheduled to commence in August and is scheduled for completion in late October.
- 2.3.1.7 Conduct shop test is currently scheduled for September.

Task Three is well ahead of the contract schedule. The FFGC-PP will be ready to ship to Texas in late October. The as-built drawings, shop test reports and photographs will be submitted upon delivery of the unit in Houston.

**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 25% 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 The test site hosts are evaluating their existing permits and have taken the action to amend them if required. AES has completed the review.
- 2.4.1.2 The chemical additives have been selected. The quantity of chemicals required for each test site is under review. AES testing evaluation of chemical requirements is complete. This task for both sites will be completed by early September.
- 2.4.1.3 The Safety Execution Plan continues in the drafting stage. It will incorporate the handling of the chemical solutions and waste products.
- 2.4.1.4 The initial chemical quantities and storage requirements are complete for AES Deepwater and will be developed for Holcim and/or other test sites during the upcoming project meetings in August and September.
- 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 We are developing a plan with AES that incorporates these by-products into their gypsum production. As we further the technical reviews with Holcim and the additional test sites, we will develop a by-product disposal plan for testing at their site.
- 2.4.1.7 As we proceed with definitive site test agreements, there will be a site specific test plan and procedure. This task will commence in mid- August. This task has been extended as we review additional test sites.

Parts of this task were performed early in the design stage as they relate to the FFGC-PP design basis. The main part of this task is scheduled to commence at the end of July and carry on until early September.

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

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

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

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><i>We have experienced a delay with Holcim due to a change out of management.</i></p> <p><i>This has delayed those parallel tasks associated with the Test Plan and the Safety Execution Plan, as well as the site specific interface and interconnection requirements.</i></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><i>We have meet with Sempra Twin Oaks and TMPA Gibbons Creek for discussions on entering their respective power plants as test sites. Both plants were very interested in participating.</i></p>

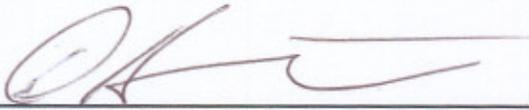
**Action(s) Conducted and Results**

*(Please describe the action(s) taken to resolve the problem(s) and its effect)*

*We now have two additional flue gas characteristics to work with. AES Deepwater uses petcoke as fuel. Twin Oaks is a mine mouth lignite power plant and Gibbons Creek uses Power River Basin coal as fuel.*

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 on the Holcim test site issues but now have to additional sites under review.**
- **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 in draft.**
- **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.**
- **We have finalize the flue gas instrumentation port locations and selection of the monitoring equipment..**

  
\_\_\_\_\_  
Authorized Project Representative's Signature

Date: 9/9/05

**NOTE:** *Please attach any additional information that you feel should be a part of your report or that may be required to meet the 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, Four and Seven are ongoing in accordance with the above reports..  
Tasks Five has been rescheduled to commence in November of 2005. Task 6 will commence in December of 2006.

The Wow Energies project team has held continuous discussions with Eisenmann during the construction of the FFGC-PP. This part of the project is drawing to completion in September. Wow has been pleased with the quality of the work and product.

In accordance with the contract, we will continue to hold monthly project reviews, as well as, day to day project discussions. In September, Wow Energies will conduct a final pilot plant inspection and witness the Shop Testing in Chicago. We are focused on finalizing our Test Plan and Safety Execution Plan, as well as, lining up our second test facility.

**Photographs**



