

TECHNICAL PROGRESS REPORT

REPORT TYPE: SEMI-ANNUAL

For

REPORTING PERIOD
BEGINNING April 1, 2006
ENDING September 30, 2006

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Report Submitted October 30, 2006

For

DOE Award No. DE-PS26-02NT15444

PREFERRED UPSTREAM MANAGEMENT PROJECTS (PUMP) III
Distributed Generation Power Unites at Marginal Oil Well Sites

Report Submitted
By The
Interstate Oil and Gas Compact Commission
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DISCLAIMER

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ABSTRACT

The CEC approved funding on April 9, 2003 for \$1,000,000.00 instead of the \$1,500,000.00 COPE requested for the project. A kickoff meeting with the California Energy Commission (CEC) was held on Monday, April 14, 2003, in their Sacramento, CA offices. Mark Carl, IOGCC project manager for the DOE grant, attended this meeting, along with Bob Fickes with COPE, Edan Prabhu, Mike Merlo and CEC officials. The change in funding by the CEC required a modification in the scope of work and an amended form DOE F 4600.1. The modifications were completed and the IOGCC received approval to commence work on the project on May 9, 2003. On May 29, 2003, Virginia Weyland with DOE/NETL, Mark Carl with IOGCC, and Bob Fickes with COPE, Edan Prabhu and Mike Merlo, consultants with COPE, participated in a teleconference kick-off meeting.

During May, 2003, COPE canvassed its membership for potential locations for the four test sites. They received a very good response and have identified at least two potential sites for each of the four test sites. COPE has been obtaining gas samples from the various potential lease sites for analyses to verify the chemical properties analyses which the oil and gas producers provided during the initial contact period. The St. James project located at 814 W. 23rd Street in Los Angeles, California, was selected as the first test site for the project.

A Project Advisory Committee (PAC) was established in May, 2003. The following representatives from each of the following areas of expertise comprise the PAC membership. Acquisition of permits for the initial test site has required drawn out negotiations with CEC which has hindered progress on the technical aspects of the project. The technical aspects will begin aggressively beginning in October, 2003.

The Southern California Air Quality Management District (SCAQMD) donated three Capstone micro-turbines to the project. These micro-turbines will be utilized at the St. James Project site located in Los Angeles, California. This site will fulfill the requirements of the medium Btu test site. It is anticipated that start-up of operations will begin during late December, 2003 or early January, 2004.

The High Btu site is functioning intermittently due to well and microturbine difficulties and equipment was being installed at the Harsh gas site with an expected start up date in November. A well site owned by Chevron was selected by COPE for the Low Btu site after several other sites higher on the selection list were dismissed due to site specific problems. COPE has been working on a contract with Chevron for approximately 6 months and this has greatly slowed progress due to the contract Chevron is attempting to get COPE to sign. IOGCC has requested COPE to begin seeking an alternative well site with a small operator.

The Harsh Gas Site was finally able to acquire approval from Pacific Gas and Electric (PG&E's) to connect to its grid to export excess electricity. This process required over 15 months to accomplish due to continual PG&E delays and unnecessary requirements

placed on the project. The site began operations on September 5, 2006 and has been operating all but 2 days since start up. The down time was due to a power outage by PG&E.

The Low BTU site is essentially completed and the Flex-Microturbine is on location awaiting final electrical hookup's prior to startup.

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LISTS OF GRAPHICAL MATERIALS

None

INTRODUCTION

This is the ninth Semi-Annual Technical Report submitted in compliance with the United States Department of Energy (DOE) National Energy Technology Laboratory Preferred Up-Stream Management Practices (PUMP) III Assistance Grant Number DE-FC26-02NT15444 awarded to the Interstate Oil and Gas Compact Commission (IOGCC). This is a joint project between the IOGCC and the California Oil Producers Electric Cooperative (COPE) with funding provided by the DOE and the California Energy Commission (CEC). The entire project scope of work is anticipated to exceed \$2,000,000.00. Funding for the project is from an award from the DOE to the IOGCC for \$1,000,000.00 and the balance of the funding is being obtained by COPE through grant funding from the (CEC) for \$1,000,000.00 and additional in-kind donation of time and materials.

Project work entails generating electricity at 4 different sites to run oil well pumping units at marginal oil well sites, or at other sites where there is a potential for oil wells to be plugged due to poor gas quality that prohibits the production of the oil, using of distributed energy generation. Natural gas of various qualities and Btu content which do not meet pipeline quality specifications produced in association with oil production will be the energy source used to generate the electricity. One site will utilize high Btu gas, one site will utilize medium Btu gas, one site will utilize harsh (high H₂S content) gas and the last site will use very low Btu gas.

EXECUTIVE SUMMARY

Work Status and Progress: COPE received an executed copy of the California Energy Commission (CEC) grant on April 9, 2003 which allowed the PUMP III project to move forward. The CEC approved funding for \$1,000,000.00 instead of the \$1,500,000.00 COPE requested for the project. A kickoff meeting with the CEC was held on Monday, April 14, 2003, in their Sacramento, CA offices. Mark Carl, IOGCC project manager for the DOE grant, attended this meeting, along with Bob Fickes with COPE, Edan Prabhu, Mike Merlo and CEC officials.

The change in funding by the CEC required a modification in the scope of work and an amended form DOE F 4600.1. The modifications were completed and the IOGCC received approval to commence work on the project on May 9, 2003. On May 29, 2003, Virginia Weyland with DOE/NETL, Mark Carl with IOGCC, and Bob Fickes with COPE, Edan Prabhu and Mike Merlo, consultants with COPE, participated in a teleconference kick-off meeting.

COPE canvassed its membership for potential locations for the four test sites. We presently have contracts on the High Btu site, the Medium Btu site and the Harsh Gas site. The Low Btu site was anticipated to be at a well location operated by Chevron but extensive contract negotiations make this location uncertain and there is an increased effort to identify an alternate site.

The St. James project, located at 814 W. 23rd Street in Los Angeles, California, is the Medium Btu site and was selected as the first test site for the project. Testing at this site was completed in March 2006 after 24 months of very successful operation. The three microturbines at the site worked extremely well. COPE arranged with the University of Southern California – Irving to include the St. James site in its on-line monitoring Website so anyone can log on and evaluate the system at any time. The on-line monitoring well data is currently available at <http://www.apep.uci.edu/DER/AQMD/> at project site #20. The monitoring site data have not been updated since December 15, 2004 pending Air Quality Management District renewal of the project with the University of California – Irving. The St. James site is denoted as site number 20 at this Website.

The High Btu site experienced several delays due to well bore and microturbine problems during the first quarter of 2005 but has been operating consistently the past year. This project site is also performing extremely well using waste casinghead gas to microturbines for electricity for the pumping unites at the site.

COPE was working on a contract with Chevron to use one of their well sites for the Low Btu project but negotiations fell through due to contract demands by Chevron that were in conflict with DOE's contract requirements with the IOGCC. IOGCC requested COPE to seek alternative sites for the Low Btu project site and a new operator has been identified and work is proceeding on permits and installation. The new operator for the Low Btu site is DCOR, a California operator that specializes in purchasing production that is

economically marginal and maximizing oil and gas production through streamlined operations and new technologies.

We are finding that obtaining the pertinent permits for sites the biggest hurdle to cope with at each of the sites. However, Mr. Bob Fickes, President of COPE, has been successful in obtaining approval from the California Energy Commission that utilizing waste/flare gas for the generation of electricity, as this project is doing, qualifies as an environmentally friendly renewable resource activity. This allows operators tax benefits and should allow for facilitating permitting.

The Harsh (H₂S) site completed installation and began operations on September 5, 2006. The site has been working continuously since start up except for a 2 day down period due to a Pacific Gas & Electric power outage. This site experienced many various delays related to permitting in California and especially due to delays and unnecessary requirements from Pacific Gas and Electric. This required an extension of time for the project. The extension was approved in September 2004 for 18- months on this project. However the delays related to the failed Chevron negotiations for the Low Btu project site required an additional no-cost extension of this contract through September, 2007. This extension is required in order to have adequate time for installation of equipment and enough time for operation to determine the success of the research using the Flex microturbine with very low Btu gas.

The Low BTU site is essentially completed and the Flex-microturbine is on location awaiting final electrical hookup's prior to startup.

EXPERIMENTAL

MICROTURBINE NOISE ABATEMENT

The St. James project site received citizen complaints regarding excessive noise once the microturbines were installed and we were requested to investigate and provide recommendations. Capstone and Cal Power were contacted for recommendations for possible noise abatement and mitigation techniques. We acquired a sound meter and performed spot readings to establish a baseline.

Several trial fixes were attempted during July, 2004 with limited success. The ambient noise level for the area exceeded existing city ordinance allowable levels with, or without, the microturbines operating at the site. The primary issue for the individual's complaints is the high pitch whine emanating from the microturbines. Trial fixes were completed in August with the installation of a prototype design installed on all three microturbines. The noise suppression equipment has reduced the whine significantly and is now considered to be at an acceptable level. A photograph of the various noise suppression designs may be seen in the August, 2004 Status Report located in the Appendix of the previous Technical Progress Report submitted to DOE.

During May, 2005 the St. James project owner has advised COPE of continuation of the noise complaint arbitration and has requested assistance with reduction of the microturbine whine. Mitigation action previously taken by COPE and the owner had reduced the noise level for the site improved the condition but was not completely satisfactory. A consultant was retained to perform a more detailed noise survey and provide recommendations and submitted a report on May 7, 2005 with recommendation of utilizing noise blankets and lagging to reduce the tonal signature of the microturbines.

In July, 2005 a contract was awarded to Sound Waves to provide noise suppression covers for the microturbines. One cover was fabricated and installed. Results of the first installation will be reviewed with the owner in August before fabrication of the other two microturbine covers.

Dring August, 2005 one acoustical cover was installed on MT #1 during July with positive results. The owner advised COPE on August 4th that the noise complaint had been resolved and requested that any additional work be discontinued on the remaining two covers at this time. Monitoring of the microturbine performance compared to the other two units has not shown any adverse effect from the cover.

RESULTS AND DISCUSSION

MEDIUM Btu LOCATION:

The Medium Btu project site is at the St. James project lease site located at 814 W. 23rd Street in Los Angeles, California. Operations began in the first quarter of federal fiscal year 2004 (late December, 2003). The long delay in getting this site ready for start-up was due to its location. The site is located in downtown Los Angeles which made permitting extremely difficult due to the many various regulatory agencies. Air quality permit requirements proved to be the greatest hurdle. Mr. Bob Fickes, President of COPE, was successful in obtaining approval from the California Energy Commission that utilizing waste/flare gas for the generation of electricity, as this project is doing, qualifies as an environmentally friendly renewable resource activity. This allows operators utilizing the methods we are doing research on for this project extra tax benefits and should allow for facilitating permitting.

We are also breaking new ground on how operators will be able to deal with excess “waste gas” or electricity generated when utilizing distributed energy equipment.

Continuous production from the site has been on-going since May, 2004. This project site is no longer being monitored as the contract expired at the end of February 2006 and we were successful in returning this idle site back to economic production that provided approximately 50 barrels of oil per day over the past 2 years. The site is still producing utilizing the microturbines used during the project evaluation time period.

Monthly status reports for the months of April through September, 2006 are included herein in the Appendix.

HIGH Btu LOCATION:

The High Btu well site has been experiencing problems related to design changes to the on-site compressor, gas production fluctuation problems where they routinely run out of gas in the evenings (possibly due to decreased ambient temperatures keeping the gas in liquid form) and repairs to the well bore itself. The repairs to the well bore took longer than expected due to the shortage of available workover rigs. During July, 2005 the work on the well was completed and placed back on line and the microturbine was re-started for electrical generation. Shortly afterward the microturbine was required to be shut down due to a problem with the fuel-air ratio control valve. This valve was repaired in late August-early September and shortly afterward the control board experienced problems and required repair work which again forced shut down of the microturbine.

HARSH GAS LOCATION:

During this reporting period the Harsh gas site located in Kern County, California, (called the Maricopa Site) has been installing piping and foundation work for the generator and ancillary equipment. Work continued on air permitting for the project. A Capstone microturbine was originally selected for this site because the site is not only a harsh gas site (with H₂S of approximately 6,000 ppm) but the Btu content of the gas is also

considered medium to low. The California Air Pollution Control District for this region where this project occurs said that a request for variance would be permitted for this site to test the Capstone microturbine high sulfur unit. Due to hidden cost and liability concerns contained in the contract submitted to COPE for the project it was decided that an Ingersoll Rand (IR) turbine would be utilized at this site in place of the Capstone equipment.

A contract was negotiated with IR and the generator has been installed and the site is ready to begin operations as soon as the interconnect agreement with Pacific Gas & Electric (PG&E) is finalized. PG&E received the agreement in December, 2004 and final negotiations were to be completed in early April, 2006, however PG&E placed a new last minute \$25,000 requirement at a meeting that was arranged for them to sign the agreement. After numerous calls and extra work effort by the project team we were finally successful in obtaining all the permits and were able to start operations on September 5, 2006. The site has been working continuously since start up except for a 2 day down period due to a Pacific Gas & Electric power outage.

LOW Btu LOCATION:

COPE was working on a contract with Chevron to use one of their well sites for the Low Btu project but negotiations fell through due to contract demands by Chevron that were in conflict with DOE's contract requirements with the IOGCC. IOGCC requested COPE to seek alternative sites for the Low Btu project site and a new operator has been identified and work is proceeding on permits and installation. The new operator for the Low Btu site is DCOR, a California operator that specializes in purchasing production that is economically marginal and maximizing oil and gas production through streamlined operations and new technologies. Modifications to the Flex-microturbine have been completed and it has been delivered to the site. Start up of operations will commence as soon as final electrical connections have been completed.

CONCLUSIONS

The medium BTU site (St. James project site), has been operating almost continually since the beginning of May, 2005 allowing the renewed production of oil and gas from this site. Research work at this project site has been successfully completed and the microturbines proved to be very effective in providing a continuous electrical supply for the pumping operations.

The High Btu site has now been in operation for approximately 18 months and after some initial difficulty in dealing with fluctuations in the quality/Btu content of the well head gas the site has been operating smoothly for the past 12 months.

Installation at the Harsh gas site is complete at this time. The only difficulty/obstacle remaining prior to start-up of the distributed generation unit is Pacific Gas & Electric (PG&E). They are proving to be very reluctant to allowing the site to interconnect with their grid by placing unnecessary requirements on the project. An initial agreement was submitted to PG&E in December 2004. It is difficult to understand why PG&E is so reluctant to receiving “free” electricity considering deliverability problems in the past.

The Low Btu site is nearing start up and is expected to begin operations during November, 2006.

REFERENCES

None

BIBLIOGRAPHY

None

LISTS OF ACRONYMS AND ABBREVIATIONS

AQMD	Air Quality Management District
BTU	British Thermal Units
CEC	California Electric Cooperative
COPE	California Oil Producers Electric Cooperative
DOE	Department of Energy
IOGCC	Interstate Oil and Gas Compact Commission
IR	Ingersoll Rand
NETL	National Energy Technology Laboratory
PAC	Project Advisory Committee
PG&E	Pacific Gas & Electric
PUMP	Preferred Upstream Management Practices
SCAQMD	Southern California Air Quality Management District

APPENDICES

STATUS REPORT

For

OFFGASES, Contract Number DE-FC26-02NT15444

April, 2006

Project Manager: Mark Carl

What we planned to accomplish this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Start interconnection permitting
- Start air quality permitting
- Start building and safety permitting

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

How we are doing compared to our plan

Issues encountered:

- There still seems to be some issues with interconnection on Harsh project dealing with export of excess power.

Actions:

- Arrange conference call with PG&E interconnection staff and COPE staff. Edan, with his experience in Rule 21, is great help in sorting out the problems. PG&E promised answers in early February. Still no decisions on PG&E interconnection issues. Met with PG&E rates group. Waiting on decision. Meeting at the site between COPE and PG&E interconnection

personnel was completed in March. Waiting on decisions on PG&E interconnection issues from PG&E.

What we accomplished this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation

- High BTU installation completed

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

- **Task 6: Low BTU Installation.**

- Worked on piping design based on gas analysis
- Worked on scope with DCOR and collected existing site drawings

-

Task 7: Harsh Gas Installation.

- Received cost estimate for ground fault protection.
- PG&E requests additional resistors on low voltage side of transformer
- Prepared drawings of ground fault protection scheme.
- Designed and purchased resistor for low voltage side of transformer
- Reviewed electrical rate impact of generator installation.
- Install Beckwith protection device
- Resolved Export of power issue with PG&E

Task 9: High test and monitor.

- Worked with new contract repair tech to bring turbine back to working order
- Work on loss of gas volume to turbine

-

Task 10: Med test and monitor.

- Medium BTU Test and Monitoring is completed

What we expect to accomplish during the next period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Start interconnection permitting
- Start air quality permitting

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

How we are doing compared to our plan

Issues encountered:

- There still seems to be some issues with interconnection on Harsh project dealing with export of excess power.

Actions:

- Arrange conference call with PG&E interconnection staff and COPE staff. Edan, with his experience in Rule 21, is great help in sorting out the problems. PG&E promise answers in early February. Still no decisions on PG&E interconnection issues. Met with PG&E rates group. Waiting on decision. Meeting at the site between COPE and PG&E interconnection personnel was completed in March. Waiting on decisions on PG&E interconnection issues from PG&E.

Status of Milestones and Deliverables

Task Number	Task/Description	Start Date		Due Date		Status (%)
		Planned /	Actual	Planned/	Actual	
1.1	Attend Kick-off Meeting	4/14/2003	4/14/2003	4/26/2003	4/14/2003	100
1.2	CPR Meetings	1/17/2004		2/17/2004		
1.3	Final Meeting	3/7/2005		3/31/2005		
1.4	Monthly Progress Reports	4/26/2003	4/26/2003	3/6/2005		70
	Test Plans, Technical Reports and Interim Deliverables	10/20/2003	2/2004	2/16/2004		20
1.6	Final Report	2/15/2005		3/6/2005		
1.7	Identify and Obtain Matching Funds	4/14/2003		4/26/2003		100

	Identify and Obtain					
1.8	Required Permits	4/14/2003	4/14/2003	10/6/2003		80
1.9	Electronic File Format	4/14/2003	4/14/2003	4/14/2003	4/14/2003	100
1.10	Establish the PAC	5/5/2003	5/5/2003	7/14/2003	5/21/2003	100
1.11	Conduct PAC Meetings	7/21/2003	10/09/03	1/15/2005		
2.0	Site Selection	6/2/2003	5/12/2003	10/16/2003	10/21/2003	100
3.0	Specify Equipment	6/23/2003	5/12/2003	10/20/2003		100
	High BTU Installation &					
4.0	Testing	10/20/2003	10/03/03	2/16/2004		100
	Medium BTU Installation					
5.0	& Testing	10/20/2003	5/20/2003	2/16/2004		100
	Low BTU Installation &					
6.0	Testing	10/20/2003	9/15/2003	2/16/2004		20
	Harsh Gas Installation &					
7.0	Testing	10/20/2003	9/15/2003	2/16/2004		90
	High BTU Gas System					
	Maintenance &					
9.0	Monitoring	2/24/2004		2/24/2005		50
	Medium BTU Gas System					
	Maintenance &					
10.0	Monitoring	2/24/2004	7/13/04	2/4/2006	2/4/2006	100
	Low BTU Gas System					
	Maintenance &					
11.0	Monitoring	2/24/2004		2/24/2005		
	Harsh Gas System					
	Maintenance &					
12.0	Monitoring	2/24/2004		2/24/2005		
	Technology Transfer					
13.0	Activities	2/15/2005		3/6/2005		

STATUS REPORT
For
OFFGASES, Contract Number DE-FC26-02NT15444
May, 2006

Project Manager: Mark Carl

What we planned to accomplish this period

Task 1.8: Identify and Obtain Required Permits:

- **Ongoing process. Will track under each classification activity unless generic activity.**

Task 3: Specify Equipment

- **All equipment selected for projects.**

Task 4: High BTU Installation.

- **High BTU installation completed.**

Task 5: Medium BTU Installation.

- **Medium BTU installation completed.**

Task 6: Low BTU Installation.

- **Start interconnection permitting**
- **Start air quality permitting**

Task 7: Harsh Gas Installation.

- **Finish PG&E interconnection issues**
- **Perform turbine startup.**

Task 9: High Btu Test and monitor.

- **Maintain OFFGASES project equipment**

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

Actions:

- **Arrange conference call with PG&E interconnection staff and COPE staff. Edan, with his experience in Rule 21, is great help in sorting out the problems. PG&E promised answers in early February. Still no decisions on PG&E interconnection issues. Met with PG&E rates group. Waiting on decision. Meeting at the site between COPE and PG&E interconnection personnel was completed in March. Waiting on decisions on PG&E interconnection issues from PG&E.**

What we accomplished this period

Task 1.8: Identify and Obtain Required Permits:

- **Ongoing process. Will track under each classification activity unless generic activity.**

Task 3: Specify Equipment

- **All equipment selected for projects.**

Task 4: High BTU Installation

- **High BTU installation completed**

Task 5: Medium BTU Installation.

- **Medium BTU installation completed.**

- **Task 6: Low BTU Installation.**

- **Developed pad and microturbine orientation drawings. Comments on preliminary drawings being resolved. Conflict with vehicle access area is being resolved.**
- **Revised preliminary one line diagram based on comments from SCE interconnect representative.**
- **Contacted Electrical Contractor for site and initiated process for contract award.**
- **Interfaced with SCE Interconnect personnel and prepared draft application. Issue of existing contract for Gas Turbine was identified as significant issue. Meeting set for June 7 at SCE General Office to resolve issue. DCOR presently has a QF agreement which SCE is renegotiating with DCOR. Microturbine Rule 21 process creates a conflict with agreement.**
- **APCD application is pending consultant availability to prepare and submit.**
- **Manufacturing of Flex Turbine is progressing with target of shipping the last week in June or first week in July.**

Task 7: Harsh Gas Installation.

- **Approved cost estimate for ground fault protection.**
- **Resolved PG&E's request for additional resistors on low voltage side of transformer**
- **.**
- **Designed and purchased resistor for low voltage side of transformer**
- **Reviewed electrical rate impact of generator installation.**
- **Install battery backup system for Beckwith protection device**
- **Waiting on draft interconnection agreement.**

Task 9: High test and monitor.

- **Monitor turbin preformance**

Task 10: Med test and monitor.

- **Medium BTU Test and Monitoring is completed**

What we expect to accomplish during the next period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Meet with SCE and issue Interconnect application.
- Start air quality permitting
- Continue manufacturing of microturbine system
- Continue to resolve design issues and award electrical contract

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

How we are doing compared to our plan

Issues encountered:

- **Harsh project**
- PG&E has brought up new issues on metering and the backup batteries for Beckwith not being rated for seismic area.
- Low BTU Consultant was unavailable to start air quality permit application in May
- Actions:

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Harsh Project

- Though Metering issues are clearly defined in rule 21 PG&E seems to feel the need to approve them. This approval process causes yet another delay in getting the interconnection agreement.

Low BTU

- Consultant will expedite effort in June.

Status of Milestones and Deliverables

Task Number	Task/Description	Start Date		Due Date		Status (%)
		Planned /	Actual	Planned/	Actual	
1.1	Attend Kick-off Meeting	4/14/2003	4/14/2003	4/26/2003	4/14/2003	100
1.2	CPR Meetings	1/17/2004		2/17/2004		
1.3	Final Meeting	3/7/2005		3/31/2005		
1.4	Monthly Progress Reports	4/26/2003	4/26/2003	3/6/2005		70
	Test Plans, Technical Reports and Interim Deliverables	10/20/2003	2/2004	2/16/2004		30
1.5	Final Report	2/15/2005		3/6/2005		
1.6	Identify and Obtain Matching Funds	4/14/2003		4/26/2003		100
1.7	Identify and Obtain Required Permits	4/14/2003	4/14/2003	10/6/2003		80
1.8	Electronic File Format	4/14/2003	4/14/2003	4/14/2003	4/14/2003	100
1.9	Establish the PAC	5/5/2003	5/5/2003	7/14/2003	5/21/2003	100
1.10	Conduct PAC Meetings	7/21/2003	10/09/03	1/15/2005		
1.11	Site Selection	6/2/2003	5/12/2003	10/16/2003	10/21/2003	100
2.0	Specify Equipment	6/23/2003	5/12/2003	10/20/2003		100
3.0	High BTU Installation & Testing	10/20/2003	10/03/03	2/16/2004		100
4.0	Medium BTU Installation & Testing	10/20/2003	5/20/2003	2/16/2004		100
5.0	Low BTU Installation & Testing	10/20/2003	9/15/2003	2/16/2004		25
6.0	Harsh Gas Installation & Testing	10/20/2003	9/15/2003	2/16/2004		90
7.0	High BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		50
9.0	Medium BTU Gas System Maintenance & Monitoring	2/24/2004	7/13/04	2/4/2006	2/4/2006	100
10.0	Low BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
11.0	Harsh Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
12.0	Technology Transfer Activities	2/15/2005		3/6/2005		

STATUS REPORT
For
OFFGASES, Contract Number DE-FC26-02NT15444
June, 2006

Project Manager: Mark Carl

What we planned to accomplish this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Meet with SCE and issue Interconnect application.
- Start air quality permitting
- Continue manufacturing of microturbine system
- Continue to resolve design issues and award electrical contract

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

What we accomplished this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation

- **High BTU installation completed**

Task 5: Medium BTU Installation.

- **Medium BTU installation completed.**

- **Task 6: Low BTU Installation.**

- **Reviewed power purchase agreement**
- **Reviewed Generating Facility Interconnection Agreement (GFIA) Addendum and approved for signature.**
- **Developed electrical contractors scope of work and issued PO to electrical contractor. Contractor installed underground conduit to pad area for power and communications circuits.**
- **Owner notified Project that contractor would not be available in July due to priority outages at Mandalay and off-shore facilities.**
- **Worked on SCE interconnection agreement. Met with SCE on June 7, 2006. Submitted application in meeting. Submitted protection set points of microturbine to SCE later in month.**
- **Negotiated internet access through owner's network. Project computer and accessories delivered to site.**
- **Manufacturer of Flex Turbine notified Project that microturbine had shipped June 30, 2006 with estimated delivery during first week of July.**
-

Task 7: Harsh Gas Installation.

- - **Sent pre commissioning and PG&E PPI settings to PG&E.**
 - **Worked on meter installation schedule.**
- **Worked on remote meter reading for PG&E meter.**
- **Meet with PG&E on interconnection issues**
-
- **Waiting on draft interconnection agreement.**

Task 9: High test and monitor.

- **Monitor turbine performance**

Task 10: Med test and monitor.

- **Medium BTU Test and Monitoring is completed**

What we expect to accomplish during the next period

Task 1.8: Identify and Obtain Required Permits:

- **Ongoing process. Will track under each classification activity unless generic activity.**

Task 3: Specify Equipment

- **All equipment selected for projects.**

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Complete manufacturing of microturbine system and deliver to site.
- Work on electrical power system installation as crafts and equipment become available.
- Consultant resolve permitting requirements or exemption request and have APCD issue letter if exemption.

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

How we are doing compared to our plan

Issues encountered:

Harsh Project

- PG&E continues to add requirements outside the scope of rule 21 for interconnection of Harsh Project.

Low Btu Project

- APCD procedures do not address R and D exemption process.

Actions:

Harsh Project

- Approve PG&E changes. Will take up with PUC at end of project.

Low Btu Project

- Consultant negotiate agreement with APCD for R and D exemption.

Status of Milestones and Deliverables

Task Number	Task/Description	Start Date		Due Date		Status (%)
		Planned /	Actual	Planned/	Actual	
1.1	Attend Kick-off Meeting	4/14/2003	4/14/2003	4/26/2003	4/14/2003	100
1.2	CPR Meetings	1/17/2004		2/17/2004		
1.3	Final Meeting	3/7/2005		3/31/2005		
1.4	Monthly Progress Reports	4/26/2003	4/26/2003	3/6/2005		75

	Test Plans, Technical Reports and Interim Deliverables					
1.5	Deliverables	10/20/2003	2/2004	2/16/2004		30
1.6	Final Report	2/15/2005		3/6/2005		
1.7	Identify and Obtain Matching Funds	4/14/2003		4/26/2003		100
1.8	Identify and Obtain Required Permits	4/14/2003	4/14/2003	10/6/2003		80
1.9	Electronic File Format	4/14/2003	4/14/2003	4/14/2003	4/14/2003	100
1.10	Establish the PAC	5/5/2003	5/5/2003	7/14/2003	5/21/2003	100
1.11	Conduct PAC Meetings	7/21/2003	10/09/03	1/15/2005		
2.0	Site Selection	6/2/2003	5/12/2003	10/16/2003	10/21/2003	100
3.0	Specify Equipment	6/23/2003	5/12/2003	10/20/2003		100
4.0	High BTU Installation & Testing	10/20/2003	10/03/03	2/16/2004		100
5.0	Medium BTU Installation & Testing	10/20/2003	5/20/2003	2/16/2004		100
6.0	Low BTU Installation & Testing	10/20/2003	9/15/2003	2/16/2004		30
7.0	Harsh Gas Installation & Testing	10/20/2003	9/15/2003	2/16/2004		90
9.0	High BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		50
10.0	Medium BTU Gas System Maintenance & Monitoring	2/24/2004	7/13/04	2/4/2006	2/4/2006	100
11.0	Low BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
12.0	Harsh Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
13.0	Technology Transfer Activities	2/15/2005		3/6/2005		

STATUS REPORT
For
OFFGASES, Contract Number DE-FC26-02NT15444
July, 2006

Project Manager: Mark Carl

What we planned to accomplish this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Complete manufacturing of microturbine system and deliver to site.
- Work on electrical power system installation as crafts and equipment become available. Start mechanical system installation.
- Consultant resolve permitting requirements or exemption request and have APCD issue letter if exemption.

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

What we accomplished this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation

- High BTU installation completed

Task 5: Medium BTU Installation.

- **Medium BTU installation completed.**

- **Task 6: Low BTU Installation.**
 - **Flex Turbine arrived on site July 5, 2006.**
 - **Microturbine pad was poured and the unit placed on it July 10th. All physical work was stopped at the owner's direction until the APCD permit or exemption letter is received by their representative. (see APCD bullet below)**
 - **The owner identified the need for a process hazards analysis (PHA) for this installation. A meeting was held on July 18 with design and operations personnel to review the project design. Action items were given to collect additional system and design information and provide feedback at the next meeting. The PHA process is an iterative process and will require some additional scope to provide duplicate controls and valves to perform safety functions. Due to potential duplication, the additional design can not be finalized until the PHA is complete.**
 - **The contractor performed some work in July but was not be available for most of the month due to priority outages at Mandalay and off-shore facilities mentioned in last month's report. Also, APCD permit restraint affected what limited work that could be done.**
 - **APCD exemption letter was issued by Ventura County on July 25, 2006.**
 - **Mechanical design to tie microturbine exhaust into ESYS tail gas incinerator (Oxidizer) has identified a problem with back pressure on the microturbine and potential tie in problem with Oxidizer. The manufacture has been contacted and efforts to resolve design issues are in process. If the design becomes unfeasible, the APCD letter allows direct exhaust from the microturbine. This issue and PHA are delaying mechanical work.**

Task 7: Harsh Gas Installation.

- **Final city electrical inspection completed. No Red Tags.**
- **Waiting on PG&E Law Department approval for the release of the Interconnection Agreement**
- **Finalized Standby Agreement documents,**
- **Set tentative PPI schedule date.**
- **Sent Special Facility Agreement for the NGOM meter to PG&E Distribution Planning.**
- **Finalized AC electrical drawings**
- **Preformed final walkthrough and punch list with electrical contractor**
- **Completed the IR Checklist and attachments with the exception of the PG&E contracts.**

- Set IR final commissioning date for first week in August
-

Task 9: High test and monitor.

- Monitor turbine performance

Task 10: Med test and monitor.

- Medium BTU Test and Monitoring is completed

What we expect to accomplish during the next period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Resolve PHA and exhaust issues, work on redesign and restart portions of construction

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine commissioning, PPI, and startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

How we are doing compared to our plan

Issues encountered:

Harsh Project

- PG&E continues to add requirements outside the scope of rule 21 for interconnection of Harsh Project.

Low Btu Project

- Design interface with Oxidizer and resolution of PHA analysis.

Actions:

Harsh Project

- Approve PG&E changes. Will take up with PUC at end of project.

Low Btu Project

- **Work with Oxidizer manufacturer to resolve design issues. Perform PHA analysis and start design to address results.**

Status of Milestones and Deliverables

Task Number	Task/Description	Start Date		Due Date		Status (%)
		Planned /	Actual	Planned/	Actual	
1.1	Attend Kick-off Meeting	4/14/2003	4/14/2003	4/26/2003	4/14/2003	100
1.2	CPR Meetings	1/17/2004		2/17/2004		
1.3	Final Meeting	3/7/2005		3/31/2005		
1.4	Monthly Progress Reports	4/26/2003	4/26/2003	3/6/2005		75
	Test Plans, Technical Reports and Interim Deliverables	10/20/2003	2/2004	2/16/2004		30
1.6	Final Report	2/15/2005		3/6/2005		
1.7	Identify and Obtain Matching Funds	4/14/2003		4/26/2003		100
1.8	Identify and Obtain Required Permits	4/14/2003	4/14/2003	10/6/2003		80
1.9	Electronic File Format	4/14/2003	4/14/2003	4/14/2003	4/14/2003	100
1.10	Establish the PAC	5/5/2003	5/5/2003	7/14/2003	5/21/2003	100
1.11	Conduct PAC Meetings	7/21/2003	10/09/03	1/15/2005		
2.0	Site Selection	6/2/2003	5/12/2003	10/16/2003	10/21/2003	100
3.0	Specify Equipment	6/23/2003	5/12/2003	10/20/2003		100
4.0	High BTU Installation & Testing	10/20/2003	10/03/03	2/16/2004		100
5.0	Medium BTU Installation & Testing	10/20/2003	5/20/2003	2/16/2004		100
6.0	Low BTU Installation & Testing	10/20/2003	9/15/2003	2/16/2004		30
7.0	Harsh Gas Installation & Testing	10/20/2003	9/15/2003	2/16/2004		90
9.0	High BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		50
10.0	Medium BTU Gas System Maintenance & Monitoring	2/24/2004	7/13/04	2/4/2006	2/4/2006	100
11.0	Low BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
12.0	Harsh Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
13.0	Technology Transfer Activities	2/15/2005		3/6/2005		

STATUS REPORT
For
OFFGASES, Contract Number DE-FC26-02NT15444
August, 2006

Project Manager: Mark Carl

What we planned to accomplish this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Resolve PHA and exhaust issues, work on redesign and restart portions of construction

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine commissioning, PPI, and startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

What we accomplished this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation

- High BTU installation completed

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

- **Task 6: Low BTU Installation.**
 - SCE issued electrical protection set points approve by their Engineer.
 - DCOR issued written authorization to restart work on July 31. Contractor was still working on outage items during first part of August.
 - The Process Hazards Analysis (PHA) was completed and issued on August 24. Design of safety system was initiated and redesign of electrical backboard to accommodate additional programmable controller (SC) and clarification of design for contractor.
 - Contractor effort was primarily focused on interfacing on redesign and material acquisition during August.
 - Flex Energy worked on programming the system programmable controller (EC) and establishing remote interface through the Project onsite computer.
 - Mechanical design is in process to accommodate the safety system components and controller SC. DCOR has taken the lead on this task due to need to tie into existing systems. Mechanical work is on hold until the redesign is complete and field equipment is acquired.

Task 7: Harsh Gas Installation.

- IR Commissioning preformed 8/17/06.
- Installed GFI on Turbine.
- Signed final interconnection agreement along with standby tariff, Departing load agreement, and added facilities agreement
- Resolved the 250 Volt ground to earth potential.
- Set Departing Load (DL) Charges to be calculated on "Historical Usage"
- Set the PPI target date of 22 August 2006 changed to 06 September 2006.
-

Task 9: High test and monitor.

- Monitor turbine performance

Task 10: Med test and monitor.

- Medium BTU Test and Monitoring is completed

What we expect to accomplish during the next period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Continue with redesign for safety system and start Electrical work not directly affected.

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine commissioning, PPI, and startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

How we are doing compared to our plan

Issues encountered:

Harsh Project

- PG&E continues to add requirements outside the scope of rule 21 for interconnection of Harsh Project.

Low Btu Project

- Design interface with Oxidizer and resolution of PHA analysis.

Actions:

Harsh Project

- Approve PG&E changes. Will take up with PUC at end of project.

Low Btu Project

- Esys (Oxidizer vendor) issued a letter indicating that we could not exhaust into their unit without upsetting their process. PHA analysis was completed and issued on August 24. Design for safety system is in process.

Status of Milestones and Deliverables

Task Number	Task/Description	Start Date		Due Date		Status (%)
		Planned /	Actual	Planned/	Actual	
1.1	Attend Kick-off Meeting	4/14/2003	4/14/2003	4/26/2003	4/14/2003	100
1.2	CPR Meetings	1/17/2004		2/17/2004		
1.3	Final Meeting	3/7/2005		3/31/2005		
1.4	Monthly Progress Reports	4/26/2003	4/26/2003	3/6/2005		75
	Test Plans, Technical Reports and Interim Deliverables	10/20/2003	2/2004	2/16/2004		30
1.6	Final Report	2/15/2005		3/6/2005		
1.7	Identify and Obtain Matching Funds	4/14/2003		4/26/2003		100

	Identify and Obtain					
1.8	Required Permits	4/14/2003	4/14/2003	10/6/2003		80
1.9	Electronic File Format	4/14/2003	4/14/2003	4/14/2003	4/14/2003	100
1.10	Establish the PAC	5/5/2003	5/5/2003	7/14/2003	5/21/2003	100
1.11	Conduct PAC Meetings	7/21/2003	10/09/03	1/15/2005		
2.0	Site Selection	6/2/2003	5/12/2003	10/16/2003	10/21/2003	100
3.0	Specify Equipment	6/23/2003	5/12/2003	10/20/2003		100
	High BTU Installation &					
4.0	Testing	10/20/2003	10/03/03	2/16/2004		100
	Medium BTU Installation					
5.0	& Testing	10/20/2003	5/20/2003	2/16/2004		100
	Low BTU Installation &					
6.0	Testing	10/20/2003	9/15/2003	2/16/2004		35
	Harsh Gas Installation &					
7.0	Testing	10/20/2003	9/15/2003	2/16/2004		90
	High BTU Gas System					
	Maintenance &					
9.0	Monitoring	2/24/2004		2/24/2005		50
	Medium BTU Gas System					
	Maintenance &					
10.0	Monitoring	2/24/2004	7/13/04	2/4/2006	2/4/2006	100
	Low BTU Gas System					
	Maintenance &					
11.0	Monitoring	2/24/2004		2/24/2005		
	Harsh Gas System					
	Maintenance &					
12.0	Monitoring	2/24/2004		2/24/2005		
	Technology Transfer					
13.0	Activities	2/15/2005		3/6/2005		

STATUS REPORT
For
OFFGASES, Contract Number DE-FC26-02NT15444
September, 2006

Project Manager: Mark Carl

What we planned to accomplish this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation.

- High BTU installation completed.

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

Task 6: Low BTU Installation.

- Continue with redesign for safety system and start Electrical work not directly affected.

Task 7: Harsh Gas Installation.

- Finish PG&E interconnection issues
- Perform turbine commissioning, PPI, and startup.

Task 9: High Btu Test and monitor.

- Maintain OFFGASES project equipment

Task 10: Medium Btu test and monitor.

Medium BTU Test and Monitoring is completed.

What we accomplished this period

Task 1.8: Identify and Obtain Required Permits:

- Ongoing process. Will track under each classification activity unless generic activity.

Task 3: Specify Equipment

- All equipment selected for projects.

Task 4: High BTU Installation

- High BTU installation completed

Task 5: Medium BTU Installation.

- Medium BTU installation completed.

- **Task 6: Low BTU Installation.**
 - DCOR and Contractor continue to work on higher priority work to maintain plant operation. The Electrical power portion of the installation has been installed including connection to the transformer. “Turbine side” work is on hold pending final design and material acquisition for the SC.
 - Design of safety system and redesign of electrical backboard to accommodate additional programmable controller (SC) is continuing.
 - Flex Energy worked on programming the system programmable controller (EC) and establishing remote interface through the Project onsite computer.
 - Mechanical design is in process to accommodate the safety system components and controller SC. DCOR has taken the lead on this task due to need to tie into existing systems. Mechanical work is on hold until the redesign is complete and field equipment is acquired.
 - SCE has indicated readiness for commissioning test.

Task 7: Harsh Gas Installation.

- PPI preformed on 06 September 2006.
- Received permission to operate from PG&E interconnection

Task 9: High test and monitor.

- Monitor turbine performance

Task 10: Med test and monitor.

- Medium BTU Test and Monitoring is completed

Task 12: Harsh Gas Test and Monitoring

- Monitor turbine performance

What we expect to accomplish during the next period

How we are doing compared to our plan

Issues encountered:

Harsh Project

- PG&E continues to add requirements outside the scope of rule 21 for interconnection of Harsh Project.

Low Btu Project

- Design of SC needs to be completed and material ordered . Owner, DCOR, has experienced delays due to workload demand on their limited resources needed to do this task.

Actions:

Harsh Project

- Approve PG&E changes. Will take up with PUC at end of project.

Low Btu Project

- **Design for safety system is in process by DÉCOR. Weekly interface with owner by team to encourage completion.**

Status of Milestones and Deliverables

Task Number	Task/Description	Start Date		Due Date		Status (%)
		Planned /	Actual	Planned/	Actual	
1.1	Attend Kick-off Meeting	4/14/2003	4/14/2003	4/26/2003	4/14/2003	100
1.2	CPR Meetings	1/17/2004		2/17/2004		
1.3	Final Meeting	3/7/2005		3/31/2005		
1.4	Monthly Progress Reports	4/26/2003	4/26/2003	3/6/2005		75
	Test Plans, Technical Reports and Interim Deliverables	10/20/2003	2/2004	2/16/2004		30
1.6	Final Report	2/15/2005		3/6/2005		
1.7	Identify and Obtain Matching Funds	4/14/2003		4/26/2003		100
1.8	Identify and Obtain Required Permits	4/14/2003	4/14/2003	10/6/2003		80
1.9	Electronic File Format	4/14/2003	4/14/2003	4/14/2003	4/14/2003	100
1.10	Establish the PAC	5/5/2003	5/5/2003	7/14/2003	5/21/2003	100
1.11	Conduct PAC Meetings	7/21/2003	10/09/03	1/15/2005		
2.0	Site Selection	6/2/2003	5/12/2003	10/16/2003	10/21/2003	100
3.0	Specify Equipment	6/23/2003	5/12/2003	10/20/2003		100
4.0	High BTU Installation & Testing	10/20/2003	10/03/03	2/16/2004		100
5.0	Medium BTU Installation & Testing	10/20/2003	5/20/2003	2/16/2004		100
6.0	Low BTU Installation & Testing	10/20/2003	9/15/2003	2/16/2004		55
7.0	Harsh Gas Installation & Testing	10/20/2003	9/15/2003	2/16/2004		100
9.0	High BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		50
10.0	Medium BTU Gas System Maintenance & Monitoring	2/24/2004	7/13/04	2/4/2006	2/4/2006	100
11.0	Low BTU Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
12.0	Harsh Gas System Maintenance & Monitoring	2/24/2004		2/24/2005		
13.0	Technology Transfer Activities	2/15/2005		3/6/2005		