“Risk Based Data Management System (RBDMS) and Cost Effective Regulatory Approaches (CERA) Related to Hydraulic Fracturing and Geologic Sequestration of CO₂
Background

- Risk Based Data Management System for Hydraulic Fracturing (RBDMS HF)
- RBDMS and Cost Effective Regulatory Approaches (CERA)
- CO$_2$ Needs Assessment
Objective 1 RBDMS HF Module

- Add new components to RBDMS to allow states to evaluate, track and permit (where necessary) HF operations.
- Define parameters of HF module by working with RBDMS Steering committee and pilot states including Pennsylvania, New York, and Oklahoma.
- Add new data fields in RBMDS to track HF activities.
- Develop an integrated data mining and GIS interface.
Objective 2: RBDMS Core Development and CERA projects

- Advance RBDMS Core Development including:
  - Update Wellbore schematic utility
  - Update GIS and data visualization tools
  - Install RBDMS.net in OK and PA
  - Install Classic RBDMS in Illinois
  - Develop needs assessment for Illinois RBDMS Coal
  - Field inspection module
  - Electronic Commerce: Electronic permitting & reporting: CO, AL, NY, PA
    - ePermit now being used in CO, CO also accepts electronic filing of MIT’s
Objective 2: RBDMS Core Development and CERA projects cont’d.

- Water Energy Sustainability: Integrate water quality and quantity with RBDMS energy: Pilot states OH, CO, NE, PA, NY
- Annual RBDMS training and program planning meetings: April 2010, Florida, October 2010 location to be determined

- Develop and implement an On-line BMP catalog of exploration and production practices in numerous states
Objective 3 (CO² Needs Assessment)

- Survey states to develop criteria for selection of partner/pilot states (Complete)
- Interview industry stakeholders to evaluate needs
- Conduct interviews of partner/pilot states using input from project team and industry stakeholder interviews
- Develop a state “Needs Assessment” document, training template, and program implementation plan
Project Team

- GWPC Staff (Project administration & support)
- Mark Layne, ALL Consulting (Data systems design)
- Tom Gillespie, Virtual Engineering Solutions (Data systems design)
- Dave Lowther, Coordinate Solutions (GIS design)
- Stan Belieu, Nebraska Oil and Gas Commission (State regulation development)
- Bill Bryson, Kansas Corporation Commission, Retired (State regulation development)
- Scott Anderson, Environmental Defense Fund (Environmental stakeholder input)
- John Veil, Argonne National Laboratory (Technical advisor)
- Theresa Pugh, American Public Power Association (Industry stakeholder input)
- Cathy Reheis-Boyd, Western States Petroleum Association (Industry stakeholder input)*

* Invited but not yet confirmed
Topical project team meetings are held via conference call and in association with GWPC meetings:

- The first HF & CO$_2$ team meetings were held in Denver (October 2009) in conjunction with the fall RBDMS training
- The next scheduled project team meetings:
  - Monday, January 25 in conjunction with the GWPC UIC meeting
  - Sunday, April 25 in conjunction with the annual RBDMS training
<table>
<thead>
<tr>
<th>Title</th>
<th>Planned Date</th>
<th>Verification Method</th>
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</thead>
<tbody>
<tr>
<td>Needs Assessment</td>
<td>February 2010</td>
<td>Needs Assessment Document Finalized and Meets all requirements stated in Subtask 2.4</td>
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<tr>
<td>Data Structure</td>
<td>April 2010</td>
<td>Data Structure incorporates all PAC identified needs</td>
</tr>
<tr>
<td>Final Release of Prototype Results</td>
<td>October 2010</td>
<td>Final Release has been tested and is ready to implement</td>
</tr>
<tr>
<td>User Assistance</td>
<td>December 2010</td>
<td>Telephone help desk and VPN support initiated</td>
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A - Title: Final GIS Module
Planned Date: December 2010
Verification Method: Updated GIS Module Installed and Tested by at least 2 states

B - Title: Incorporation of .NET Technology
Planned Date: MS, March 2010, OK December 2010, OH, June 2010, PA February 2011
Verification Method: .NET applications match business rules in OK, PA, OH, and MS or other states as determined by the PAC

C - Title: RBDMS Inspection Module
Planned Date: MS February 2010, OK, August 2010, NE February 2011
Verification Method: The application integrates RBDMS database information with a detached GIS system usable in the field with or without Internet access. Install in OK, MS, and NE.

D - Title: BMP Catalog
Planned Date: August 10, 2011
Verification Method: Complete BMP Catalog Available Online
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<tr>
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<tbody>
<tr>
<td>I - Complete survey of state agencies</td>
<td>November 30, 2009</td>
<td>Review survey responses</td>
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<tr>
<td>J - Conduct and analyze state follow-up interviews</td>
<td>January 15, 2010 (Revised to March 2010 to allow for stakeholder interviews)</td>
<td>Review interview documentation</td>
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<tr>
<td>L - Submit Final Needs Assessment Document to USDOE</td>
<td>April 30, 2010 (Revised to July 2010 due to shift in draft document preparation)</td>
<td>Notice of receipt from USDOE</td>
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<tr>
<td>M – Prepare Regulatory Implementation Plan</td>
<td>October 15, 2010</td>
<td>Receipt of reviewers comments</td>
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<tr>
<td>N – Submit Final Regulatory Implementation Plan to USDOE</td>
<td>January 30, 2011</td>
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## Tasks

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<tr>
<th>TASK</th>
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<tbody>
<tr>
<td>1.0 – Project Management and Planning</td>
</tr>
<tr>
<td>2.0 - Hydraulic Fracturing and CO\textsubscript{2} Geo-sequestration Parameter Determination</td>
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<tr>
<td>3.0 – Design and Develop RBDMS HF</td>
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<td>4.0 – Programming and Development</td>
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<td>5.0 – Release of Prototype Results</td>
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<td>6.0 – Provide Final Release Services</td>
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<td>7.0 – RBDMS Core Development</td>
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<td>8.0 – Electronic Commerce</td>
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<td>9 – Water-Energy Sustainability</td>
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<td>10.0 - Cost Effective Regulatory Approach / E&amp;P BMP Catalog</td>
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<td>11.0 - CO\textsubscript{2} Geo-Sequestration Parameter Determination</td>
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<tr>
<td>12.0 – Program Management Template</td>
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<td>13.0 – Technology Transfer</td>
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Deliverables

1. Final needs assessment documents for Hydrofrac and CO₂ modules including use cases for base module.
2. Workplan for development of the hydrofrac module
3. Report summarizing the proposed CO₂ module
4. Annual Report detailing significant accomplishments
5. RBDMS modules to be posted on the GWPC RBDMS Sharepont site and made available for downloading:
   1. RBDMS.net
   2. RBDMS ePermit
   3. RBDMS eReport
   4. RBDMS hydraulic fracturing
6. State needs assessment document for regulation of CO₂ geosequestration
7. On-line state BMP catalog of exploration and production practices
**Benefits and Impacts to Industry**

- Improved understanding of state regulatory processes for permitting CO2 geosequestration projects
- Increased ability to submit well data electronically relative to hydraulic fracturing
- Access to a training framework for technical and regulatory needs
- Additional support for states to acquire “Primacy”; which improves permitting efficiency
# Costs (RBDMS HF)

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<th>Team Members:</th>
<th>BP 1</th>
<th>BP 2</th>
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## Costs RBDMS Core & CERA

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## Costs (CO2 Needs Assessment)

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