Meeting Goals

• Develop policy, program guidance and standards for:
  • Web enabling RBDMS
  • New RBDMS initiatives for classic, .net, and Web
  • Migration path from classic and .net to Web

• Set development and implementation goals for 2017
• April 2017 RBDMS
RBDMS Overview
What is RBDMS?

RBDMS (Risk Based Data Management System) is a suite of integrated data management tools that assist state regulatory agencies in the management and oversight of UIC and oil and gas activities. Built from the bottom-up by the system’s users, RBDMS integrates years of experience in multiple states with data management and program best practices to address the ever evolving needs of state regulatory programs.

RBDMS Leadership

**RBDMS Steering Committee** – Develops policy, budget and priorities. Right now has representatives from Nebraska, North Dakota, Utah, New York and Michigan. Members are mostly directors and deputy directors of state oil and gas programs.

**RBDMS Technical Committee** – Welcomes representatives from all RBDMS states. Currently consists of representatives from Nebraska, Arkansas, Oklahoma, Alabama, New York, Colorado and Utah. Members are typically programmatic and IT managers from state oil and gas programs.
RBDMS Project Timeline

- **1992**: RBDMS for injection wells is launched with support from DOE’s Office of Oil & Natural Gas.
- **1997**: RBDMS Classic is installed in Alaska, Mississippi, North Dakota, and Nebraska.
- **1998**: RBDMS is expanded to include GIS, production reporting and tracking, and a field inspecting category.
- **2000**: RBDMS Environmental is used to help states manage data associated with their source water protection programs.
- **2001**: RBDMS.Net, coupled with enhanced RBDMS Public Portal and eReport capabilities.
- **2002**: RBDMS states expand public portal capabilities to assist state and industry data users.
- **2003**: The RBDMS eReport schema for production and injection reporting is completed and API/PIDEX accepts it as a national standard.
- **2008**: The RBDMS eReport schema for production and injection reporting is completed and API/PIDEX accepts it as a national standard.
- **2009**: eForm goes live, allowing the state’s oil and gas well permit review process to become paperless and allow for public access and comment.
- **2011**: Design of the National Oil and Gas Gateway begins.
- **2013**: Seismic application is launched in the state of Oklahoma. RBDMS now utilized by 24 states and the Osage Nation.
- **2015**: FracFocus.org launched, supplementing initiatives by RBDMS states to ensure effective regulatory oversight and increase public access to data about hydraulic fracturing operations.
- **2016**: WellFinder mobile app is launched in Oklahoma.

RBDMS Awarded the DOE 100 Award: best 100 scientific and technological accomplishments the department had funded in its first 23 years.
RBDMS provides solutions that allow state programs to more efficiently manage their mission critical activities and responsibilities. RBDMS products increase efficiency for state programs thereby increasing production (faster permitting etc.), reduce data errors, and ensure environmental protection.

<table>
<thead>
<tr>
<th>State Mission Critical Responsibilities</th>
<th>RBDMS Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permitting</td>
<td>✔️</td>
</tr>
<tr>
<td>Drilling &amp; Completion</td>
<td>✔️</td>
</tr>
<tr>
<td>Production</td>
<td>✔️</td>
</tr>
<tr>
<td>Plugging &amp; Abandonment</td>
<td>✔️</td>
</tr>
<tr>
<td>Inspection &amp; Compliance</td>
<td>✔️</td>
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<tr>
<td>Facilities</td>
<td>✔️</td>
</tr>
<tr>
<td>Environmental Protection Through Well Life Cycle</td>
<td>✔️</td>
</tr>
</tbody>
</table>
RBDMS Product Overview

• RBDMS Core (Classic and .net)
• Electronic permitting and reporting
• Field inspection
• Compliance
• RBDMS Environmental
• WellFinder (mobile App)
• RBDMS data portal
• Seismic application

• Under development
  • RBDMS Web
  • WaterTracker
  • AOR 3-D visualization tools
  • Updated and enhanced GIS/date interface
  • WellFinder (mobile App)
  • RBDMS Environmental
One of the unique and most beneficial aspects of RBDMS is the collaborative culture that surrounds it. RBDMS states have a community of people from across the nation who are facing similar questions and issues. Trainings are held twice a year where states network and talk about recent developments, next steps and more.

In this way, tools developed in one state can be adopted and enhanced in another, leading to continuous improvement and wider deployment.

Training Opportunities

RBDMS training sessions provide opportunities for state agencies to:

• Train in the use of RBDMS products
• Showcase their own information management processes
• Discuss beneficial updates and potential additions to RBDMS
Electronic Permitting and Reporting – Moving Forward

Existing
- e-form silverlight
- e-form html 5 (partial)
- from builder - proposed
- RBDMS 3.0 online forms - proposed

Proposed - The Challenge

Electronic Permitting and Reporting

Adaptor
- RBDMS Classic
- RBDMS .net
- Colorado
- Other
- RBDMS 3.0

RBDMS
Energy & Water Software | Data Solutions
# RBDMS Electronic Permitting/Reporting Status

<table>
<thead>
<tr>
<th>Existing</th>
<th>Under Development</th>
<th>Waiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York: eform, cold fusion</td>
<td>Arkansas: eform</td>
<td>New York: Classic</td>
</tr>
<tr>
<td>Michigan: eform</td>
<td>Oklahoma: eform</td>
<td>West Virginia: .net</td>
</tr>
<tr>
<td>Utah: eform, cold fusion</td>
<td>Wyoming: eform</td>
<td>North Dakota: Classic</td>
</tr>
<tr>
<td>Alabama: eform</td>
<td>Utah: eform</td>
<td>Mississippi: .net</td>
</tr>
<tr>
<td>Colorado: eform</td>
<td>California: RBDMS web forms</td>
<td>Other possible</td>
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<tr>
<td>North Dakota: PDF forms</td>
<td></td>
<td>Kansas:</td>
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<tr>
<td>Oklahoma: efiler</td>
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<td>Ohio</td>
</tr>
<tr>
<td>Nebraska: eform</td>
<td></td>
<td>Texas</td>
</tr>
</tbody>
</table>
Purpose
RBDMS Environmental manages field and other analytical data from areas of oil and gas and mining activities. It is used to track field observations for soil, sediment, surface water, groundwater, tissue, and air matrices and also accepts analytical water quality and chemical data reports from industry and third-party laboratories.

Current Updates

• Currently adding more statistical functions for a variety of state agencies
• Installing at the Wyoming DEQ, Wyoming Oil & Gas, and the Alabama Geological Survey
• Allows for data exports for use by state program staff in 3rd party GIS and statistical applications
• Updating the user interface
Purpose

eForms integrates seamlessly with RBDMS Core, allowing agencies to collect information from both the regulated community and the public. eForms increase agency efficiency by allowing oil and gas operators to file for permits and other regulatory forms electronically and check on their status throughout the review process.

Product Features

- Color-coding shows the timing status of all tasks and approaching deadlines for state program staff.
- Program staff receive automated e-mail alerts when deadlines approach.
- Program staff record comments and conditions of approval on the same forms that industry submits.
- Roles-based security, SSL ensures that forms in draft status are kept private from the agency and the public, yet allows data sharing with other agencies once forms are submitted.
Purpose

The RBDMS Data Portal provides powerful tools for both internal and external users to view and understand RBDMS data and improves internal and external communication. This is accomplished through internal and public-facing applications that include intuitive search capabilities, an interactive mapping interface and robust data export options. This tool has been shown to decrease the amount of time agency staff spend looking for data and responding to public data requests.
RBDMS Field Inspection

Purpose

RBDMS Field Inspection is a web-enabled product designed to assist field inspectors in managing their inspections by minimizing data entry and maximizing their ability to document site details and problems.

Features

• Offline capabilities
• Secure login
• Available for use in the field on laptops and tablets
• Communicates directly with RBDMS giving supervisors instant results
• Includes a risk matrix to help inspectors prioritize high risk wells
• Access to multilateral and FracFocus data

Usage

Pilot tested in Utah, Michigan and California
Purpose

Well Finder is a mobile application (iOS & Android) that displays nearby oil, gas, and injection wells. This tool is used by members of the public, inspectors, emergency responders and others who must locate wells in their area and understand basic information about the well. WellFinder is also powered by the same data as the Oil and Gas Data Gateway which is a central location for public oil and gas data displayed in both map and tabular formats.

Features

Search wells to display valuable data:
- API (permit) numbers
- Well type (oil, gas, injection, etc.)
- Well status (active or plugged)
- Operator contact information
- Recent & historical production data
- Regulatory agency contacts

Usage

To date, WellFinder contains data for Oklahoma, Nebraska, New York, Arkansas, and Mississippi.
OK Seismic Application: Dashboard Features

Summary: Last 60 days*
547 Seismic Events

Graduated Symbols: Blue markers – Wells: Avg Daily Volume (60 days)
Red markers – EQ Events: Magnitude

Volume Curve Comparison Charts: Custom Well Sets
EQ Event Detail
Well Volume Detail

Volume and EQ Occurrence: Custom Regions

The Future of RBDMS
California WellStar Project

Beginning in 2015, GWPC began the transition into the next generation of RBDMS in partnership with the California Department of Conservation’s Division of Oil, Gas, and Geothermal Resources (DOGGR). California selected RBDMS to power their updated oil, gas and UIC data management system (WellStar). California will be using RBDMS best management practices to upgrade oil and gas regulatory oversite.

The next generation of RBDMS supplies users with real-time data and collaboration through a modern, web-enabled user interface.

Bringing RBDMS to the web means that both managers and workers will have better tools when and where they need them. Additional upgrades to the public-facing RBDMS website will improve external communication and agency efficiency.

Area of Review

The GWPC is constantly developing new and enhanced tools. Current projects include a mobile field inspection application and an Area of Review (AOR) 3-D data visualization tool to enhance the ability of agency staff to evaluate aquifer exemptions and potential risks.

Water Tracker

WaterTracker will be installed in California as part of RBDMS 3.0. California Senate Bill 1281 mandates that DOGGR track the origin and disposition of all water used, produced and disposed in oil and gas operations.
Area of Review Module
RBDMS will be developing a Water Tracker product for source and disposition data related to produced water management.
FY 2016 Objectives
RBDMS FY 2016 Objectives

Key Project Objectives

• Explore additional web based upgrades for RBDMS including .Net, Web, and Environmental
• Upgrade the RBDMS portal user interface in several states to ease public access to data
• Provide training to states
• Improve public access to FracFocus through upgraded search features and a redesigned website
• Update and install RBDMS modules in additional state programs
• Help states address challenges related to produced water reuse
• Support state efforts related to natural gas storage
• Improve the capabilities of eForms to further support electronic commerce and ease paperwork burdens on both states and industry
• Aid states with continued regulatory improvement through SOGRE
Project Deliverables

• Deploy new eForms with quicker validation for industry
• Explore eForm Builder for simpler form creation for program (non IT) staff
• Perform additional needs assessments: eg. Kansas
• Develop updated Field Inspection module based on research funded in previous fy’s
• Web-enable portions of RBDMS.net
• Additional AOR pilot projects similar to OWSM/OK Seismic App
• Continue state training and sharing innovations across state programs
• Maintain FracFocus Helpdesk support for industry and other users
• Rollout upgraded FracFocus website
• Promote FracFocus usage beyond the U.S.
• Upgrade the WellFinder Mobile App (2.0) and add additional states
• Upgrades states on RBDMS Classic to RBDMS.net
• SOGRE consultations with states
• Produced water primer and forums