

Spring and Fall Training Sessions

The RBDMS Spring and Fall Training sessions focus on the administration and maintenance requirements for state-specific RBDMS products. Representative recent topics have included data translation and migration with SQL Server Integration Services, developing RBDMS report templates and filters, customizing RBDMS Data Mining and GIS, and serving permitting and completion forms with eForm.

4. RECENT RBDMS DEVELOPMENT: REPORTS FROM THE AGENCIES

The GWPC has been applying its accumulated technical knowledge base to support the RBDMS eCommerce Initiative in installations nationwide. Great strides have been made in leveraging available funding resources and providing communication and liaison services. However, resources through state channels remain scarce, and the mission, large. The GWPC greatly appreciates support at the national level and welcomes such partners in this ongoing and important work.

As paper-based form submittals and manual processing have been converted to Web-based data processing and publication, the GWPC has been developing, continually improving, and incrementally rolling out RBDMS applications. These RBDMS projects are always managed

within the constraints of member-agency workloads and program funding. A representative sampling of some of the RBDMS projects now underway in the GWPC's member-state agencies is presented in this chapter.

The Technical Advisory Committee encourages sharing code and programming techniques among RBDMS agencies.



Participants in the RBDMS Training meetings work through examples of tasks that RBDMS database administrators must be able to perform. The feedback becomes guidance for future curricula and RBDMS development.

Colorado Oil and Gas Conservation Commission

When new rules imposing greater protections for Colorado's source waters became effective in April 2009, the eForm Web application was ready to be launched to enforce these rules. Additional documents now must be submitted with each location assessment permit, and eForm allows for two-way communication of electronic documents between industry and the agencies. By allowing the operator to submit digital documents, an increase in productivity was achieved along with reducing the amount of paper stored.

Three agencies, two within the Colorado Department of Natural Resources (the COGCC and the Department of Wildlife) and the Colorado Department of Public Health and Environment (CDPHE) are tasked with reviewing and processing information for Form 2A, Oil and Gas Location Assessment, which includes source water and other environmental impacts, in compliance with House Bills 1298 and 134.

Although it does not use the RBDMS database internally, the COGCC partnered with the GWPC in 2007 to begin a project that culminated in the release of eForm, a Web application that multiple states have embraced for receiving permit applications, completion reports, sundry notices, and other regulatory forms over the Web. eForm includes single-form processing, workflow and timing clock notification, a public comment forum, and the ability for sister agencies to share incoming data and to coordinate

recommended conditions of permit approval and other feedback.

eForm application allows the industry operator and the public to monitor exactly where in the review process the form is, what steps remain to be completed before the permit will be approved, and the amount of time remaining for each review task. This functionality is displayed through the Web application main navigation page (see the discussion in Chapter 2). Members of the public also can post comments about the permit application after the operator submits it and while it is under review status.

Roles-based security, a system of document form statuses, and secure socket layer (SSL) features also allow industry to save draft permit applications in a secure area on the agency server through user name and password credentials.

The commitment of DOE funding through the GWPC was instrumental in allowing the project to be approved by the State of Colorado Office of Information of Technology. With this support, the COGCC was able to accomplish better interagency communication at a lower overall cost.

Illinois Department of Natural Resources, Division of Oil and Gas

RBDMS Classic is being installed in Illinois in anticipation of efficiency increases from reducing hard-copy paperwork and introducing electronic storage of well information. With the increased ease of filing, storage, retrieval, and data manipulation RBDMS offers, the agency anticipates greater efficiency in the allocation of staff and resources. Specifically, staff will have better access to the data needed to evaluate well construction information and other data when reviewing permit applications. Likewise, RBDMS will decrease the length of time necessary to issue permits. Public access to the data also is expected to improve, which will also reduce the time staff members spend retrieving data for public requests. The project is expected to be complete in 2010.

The ease of data access and ability to share data with other agencies will be of particular value in the regulation of CO₂ sequestration issues and in dealing with emergency response to such occurrences as crude oil or salt water releases and tank battery fires.

Kentucky Division of Oil and Gas (KDOG)

Kentucky continues to reap the benefits of the GWPC's RBDMS program. As is the case with many state agencies this year, the economic downturn has resulted in budget cuts and staff downsizings at the KDOG. However, the RBDMS program has allowed the Division to continue to provide excellent service to the oil and gas industry.

The KDOG has updated its RBDMS application in the last year to address several emerging issues. The first is an increasing number of horizontal/directional and multilateral well drilling permit requests. Regulating this well type requires the Division to track down-hole measurements to ensure compliance with the statutory requirements. KY RBDMS was updated this year to show the proposed and the as-drilled location of the well.

A second major issue is the new legislation the Kentucky General Assembly passed into law concerning wells drilled in areas of coal mining. Oil and gas operators are now required to submit an as-drilled plat for each well drilled in a coal area. The operators are also required to submit a directional survey if the proposed well is deemed to be in an active mining area or an inclination survey if the proposed well is deemed to be in inactive mining area.

The Division also is required to track the depth of the lowest workable coal as the surveys must be run from this depth. The new legislation also allows the oil and gas operators a variance of 15 feet from the permitted location on the surface and up to 150 feet from true vertical at the base of the lowest workable coal. A new function was created in RBDMS to allow for a check of the distance between the permitted

location and the as-drilled location to ensure the operator is compliant with the spacing allowances.

The KDOG also has implemented additional automated email communications between all staff to effectively process well transfer requests, non-compliance violations, flow line and/or gathering line application approvals, well testing permits, drilling permits and field inspections. With the assistance of RBDMS, the level of communication has increased among staff, which has resulted in improved service to the oil and gas industry. RBDMS also allows staff to monitor potential problems which could have a negative impact on the environment. The KDOG upgraded RBDMS from SQL Server 2000 to SQL Server 2005 this year.

The Division is in the process of seeking primacy of Class II underground injection control (UIC) wells from the Environmental Protection Agency, Region 4 in Atlanta, Georgia. If granted primacy, several programs would have to be developed and implemented to process UIC permit applications, well records and field inspection reports. In addition, several CO₂ geo-sequestration test wells have been drilled in Kentucky. If these tests prove successful, Kentucky could see an increase in the drilling of these types of wells. If the drilling of CO₂ geo-sequestration wells continues to increase, this Division will use RBDMS to track the pertinent information relating to these wells.

Mississippi State Oil & Gas Board

The MSOGB was one of the first agencies to embrace RBDMS in the late 1990s and continued to use the early Access version of the front-end application until 2007. At that time, the agency decided to invest in a sweeping upgrade of its systems to use the full suite of RBDMS.NET products:

- The RBDMS.NET client-server application (.NET/.SQL Server 2005) is now being rolled out to internal agency staff. The upgrade will eliminate the manual processes now used for handling client, bond, well, permitting, inspection, fee tracking, and docket data (see Exhibits 13 and 14). The MSOGB installation was the first RBDMS.NET installation to include a GIS that is integrated with well record details.
- The eReport.NET application is now being tested with industry operators for monthly production and injection reporting.
- The RBDMS Data Mining application is now available to public users at <http://gis.ogb.state.ms.us/MSOGBOnline>. The application includes filterable views and reporting, and satellite imagery (see Exhibit 13).
- The RBDMS eForm application is now in development and testing by agency staff.

New York State Department of Environmental Conservation, Division of Mineral Resources (NYSDEC DMN)

The NYSDEC DMN has used RBDMS since 2000. With DOE funding through the GWPC, the last 10 years have brought great increase in the DMN's ability to track drilling, production, and environmental compliance with oil and gas regulations.

With the advent of the Marcellus Shale gas play, New York State is embarking on new regulatory approaches to large-scale hydraulic fracturing of low-permeability reservoirs. In response to a directive by the Governor, the DMN is preparing a Supplementary Generic Environmental Impact Statement (SGEIS) to guide the permitting process for oil and gas wells completed with this process. This extensive new regulatory document is being prepared in advance of large-scale HF becoming permissible in New York. Any company planning to conduct a high-volume hydraulic fracturing program before the completion of the SGEIS will be required to complete a site-specific EIS.

As part of these changes, the DMN will require modifications of and extensions to the existing RBDMS to effectively track these new regulatory requirements. The new requirements include water usage from source to disposal, chemical tracking, and changes to the environmental assessment forms. GWPC will be funding the development of this extensive new

module with DOE grant funding, and the project is scheduled to begin in mid-2010.

The GWPC also assisted the DMN with the installation of a Web-based permit application called OGePermit, which is now in testing. The application, which eliminates the need to transcribe data and improves data quality control, will permit more in-depth review of applications to drill, deepen, or plugback wells. The OGePermit application allows electronic transfers of permit applications to be sent to other divisions within the agency, thus speeding the time it takes to issue a permit. Future extension of the application will include completion reports for industry operators. Base code for the ePermit application was adapted from the Utah agency's installation to handle additional requirements.

An online searchable database that the DMN installed with GWPC assistance and DOE funding is now helping to open New York oil and gas resources to industry exploration. With the Data Mining application, yearly production data is being made available to the public for the first time. Additionally, well location data can be exported and plotted with freeware such as Google Earth.

In 2010, the NYSDEC will partner with the GWPC to release a version of the RBDMS Well Schematic Utility in Adobe Flash.

New Mexico Oil Conservation Division (OCD)

In New Mexico, RBDMS is the repository for hydraulic fracturing data for individual wells. This data is available to field staff for review. It also is used to track data for tertiary recovery of oil and gas with CO₂ EOR wells. As a tracking system for permitting and discharge permit renewals for oil and gas related activities, RBDMS greatly reduces the time staff needs to spend in review of permit issuance by providing data access easily. The OCD uses RBDMS to track activities related to oil and gas service companies, gas processing plants, gas compressor stations, refineries, crude pump stations, Class I and III injection wells, and underground gas storage, among other uses.

RBDMS is also used for information exchange with the OCD's sister agencies and the public. For example, the enhanced recovery tax reductions offered by the State are tracked through RBDMS. The OCD uses the data from RBDMS to notify the Tax Revenue Department where the appropriate tax reductions should be allotted, a procedure that promotes the innovative recovery efforts of operators. Various facilities, especially refineries, may be regulated by different agencies within New Mexico. As discussed on page 12, OCD RBDMS provides data access to other state agencies for their review upon potential issuance of a permit(s) as well as data exchange with the BLM.

RBDMS serves as the interface for all scanned documents associated with individual wells, hearing orders, and environmental permits submitted to the OCD. The public then has access to all of these documents for online review and printing.

In 2008, New Mexico experienced two brine well collapses. RBDMS was used to determine if nearby wells or other oil field related infrastructure could potentially be impacted by the collapses. Currently, permits for brine wells (active and plugged) are tracked through RBDMS. The OCD is using the data stored with the permits to anticipate potential collapses and to formulate possible steps for preventing such collapses.

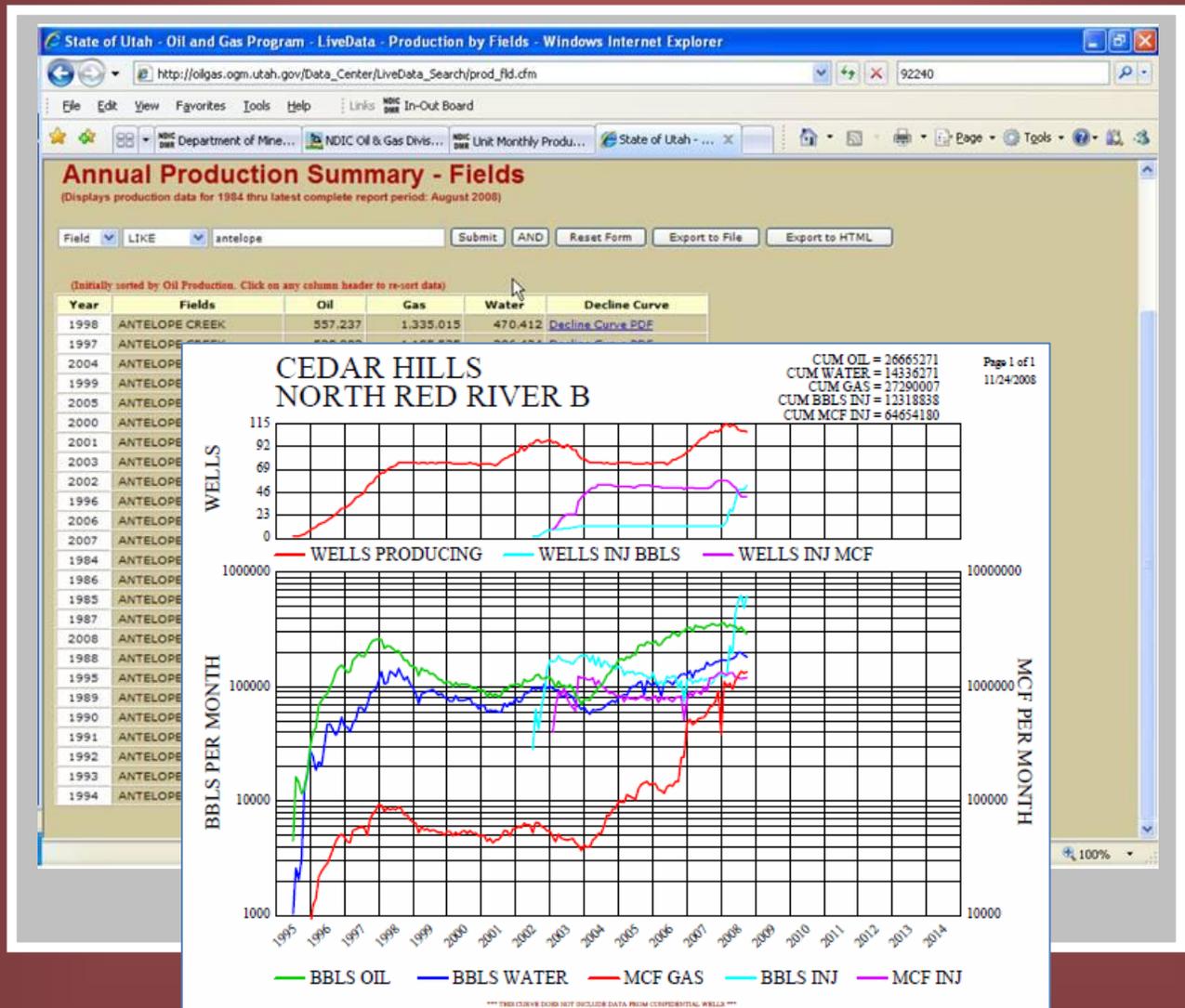
RBDMS increases protection of New Mexico's water resources in several ways:

- By tracking abandoned wells, the OCD can ensure that these wells are plugged in a timely manner.
- By tracking mechanical integrity test results, the OCD can ensure that the integrity of injection is maintained.
- By tracking the conditions imposed on well permit approvals to protect water resources.
- By tracking discharge permits, the OCD can ensure that the respective facilities are inspected for compliance with their permits.
- By tracking site remediation plans and groundwater abatement plans, the OCD can monitor the timely remediation of contaminated sites.

EXHIBIT 16. This year the UDOGM adopted the PDF Performance Curve utility that the NDIC developed for use with RBDMS Classic.

North Dakota Industrial Commission Utah Division of Oil, Gas, and Mining (UDOGM)

The NDIC and the UDOGM are both long-time participants in the RBDMS Initiative and have been leaders in the nationwide program to promote the benefits of RBDMS. Most recently, the NDIC developed a visual utility to evaluate performance curves on the basis of data reported from producing fields and wells through RBDMS applications. The UDOGM Utah has installed and customized the ND PDF performance curve to run on its Web site for both field curves and well curves. The field curve link is shown in the Utah RBDMS Data Mining application at <http://oilgas.ogm.utah.gov> in Exhibit 16.



Oklahoma Corporation Commission

The OCC is now in the process of installing RBDMS.NET for internal agency staff use in managing data associated with as many as 140,000 active wells in Oklahoma. The work comes as part of a \$1 million overhaul to replace two antiquated computer systems, an Oracle system and a COBOL “green screen” application, with a single SQL Server 2005. A major focus of the OCC’s project is electronic import of well locations and inspection data with the goal of making the information available over the Web (Exhibit 17). The project is scheduled for completion in mid-2010.

Pennsylvania Bureau of Oil and Gas Management

The economic factors that led oil and gas operators to consider large-scale production from the Marcellus Shale formation both feasible and desirable have had significant consequences for the Pennsylvania Department of Environmental Protection (DEP) Bureau of Oil and Gas Management (BOGM). Essentially, this “oil-patch agency” is now tasked with the regulatory oversight of a world-class gas play. The DEP hired 68 new inspectors in February 2010 as one result, and permit requests for the last few years are sharply above historic levels. Streamlining the permitting process is considered another critical focus of the upgrade to RBDMS.NET for the BOGM, which currently processes 6,510 related permits per year. The time to issue a permit now averages 28 days for the agency, and management believes that the completion of RBDMS.NET and the installation of the eForm application will cut this time to 1 to 2 days for routine permits such as sundry notices, allowing staff to focus greater technical review on new permits. The DEP BOGM is now completing a needs assessment and other analysis to begin a project to customize RBDMS.NET to meet its rapidly changing business rule requirements.

The BOGM now manages a great deal of its program-specific data related to oil and gas well permitting and field inspection activities with numerous Access databases. Company, bonding, facility (well inventory), and enforcement information is shared with many other bureaus within the DEP and statewide through an Oracle database named eFACTS, which flows data to several public information Web applications. In the course of their duties, BOGM technical staff members also consult a second Oracle database,

the Well Information System (WIS), which is owned by the Department of Conservation and Natural Resources (DCNR).

The GWPC will assist the PA DEP to install a comprehensive RBDMS program to meet the challenges and goals of centralizing oil and gas regulatory information from all of these sources and to establish desired data flows to the eFACTS database to continue feeding existing public-access Web sites. Furthermore, the project will enhance public data access by integrating RBDMS datasets (well location, construction, ownership, permitting, and production) through RBDMS Data Mining; automate and streamline the permitting process through RBDMS eForm; and offer a field inspection utility with merge replication to RBDMS.NET.

The need for a mobile platform is critical, and a major challenge will be meeting the technical requirements for the field inspection module and the data ownership requirements for RBDMS.NET and eFACTS. The project will provide readiness for tracking data elements associated with hydraulic fracturing and a new approach to reporting production data. In short, RBDMS.NET will provide the BOGM with the technical data management system it needs to accommodate the nascent and evolving regulatory rules for oil and gas company activities within the Marcellus Shale play.

Phase 1 to install and customize RBDMS.NET to meet the BOGM business rule requirements is scheduled to last 20 months. The eForm Web application will be installed and made available to industry operators as a Phase 2 effort. Other work to meet the requirements of regulating hydraulic fracturing and protecting state watersheds will follow.



Photo courtesy of The Oklahoman.

EXHIBIT 17. Bob Griffith/OCC inspects a well. A strong emphasis in the current OK RBDMS development work is electronically importing the well locations into the database.

In Acknowledgement and with Appreciation...

The groundbreaking work described in this document is performed with the oversight of the RBDMS Steering and Technical Advisory Committees and the GWPC Technical Director. These individuals, listed here, volunteer their time and professional skills to ensure the success of these programs and to provide direct technical support to their peers. The extent of the program commitments the GWPC has been able to support is thanks in large part to these “RBDMS ambassadors.”

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Mark Bohrer, North Dakota Industrial Commission

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- ALL Consulting, LLC
- Coordinate Solutions, Inc.
- Digital Design Group
- Troy Web Consulting, Inc.
- Virtual Engineering Solutions, Inc.

Ground Water Protection Council:

Paul Jehn, Technical Director

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CALENDAR OF UPCOMING RBDMS EVENTS

The schedule for RBDMS activities and projects for the remainder of 2010 and into 2011 is shown at right.

Work to kickoff the **RBDMS.NET** project in Pennsylvania starts the week of July 19, 2010. Discussion will focus on mapping the data requirements of the PA BOGM to RBDMS data structures.

The GWPC Annual Forum and Water/Energy Symposium in September will feature demonstrations of **RBDMS for Water** and a workshop in the requirements for tracking and reporting in the **RBDMS Hydraulic Fracturing** module.

RBDMS Fall Training in Albany in October will feature hands-on instruction in configuring **RBDMS eForm** for electronic permitting and completion reporting; demonstrations of the **RBDMS Wellbore Diagramming Tool**; and an overview of using **RBDMS Classic** with Office 2007.

In RBDMS Spring Training in Lido Beach in April 2011, participants will discuss progress in these ongoing project areas in addition to hands-on work with updated development tools for RBDMS rollouts.

Federal, state, and local government representatives and industry operators are welcome to attend the Annual Forum and the training events. Limited scholarships may be available to RBDMS member-agency employees. If you are interested in learning more, please contact Paul Jehn (<mailto:pauljehn@gmail.com>).

Major Project Meeting:

PENNSYLVANIA RBDMS.NET KICKOFF MEETING
July 19-23, 2010
 PA BOGM Offices
 Rachel Carson State Office Building
 400 Market Street, Harrisburg, PA

GWPC Annual Forum:

WATER/ENERGY SYMPOSIUM
September 26-29, 2010
 Sheraton Station Square
 Pittsburgh, PA
 July 19-23, 2010

RBDMS Training Events:

RBDMS FALL TRAINING
October 13-15, 2010
 NYSDEC Offices
 625 Broadway Avenue
 Albany, NY

RBDMS SPRING TRAINING
April 9-14, 2011
 Lido Beach Hotel
 Lido Beach, FL

July 2010						
Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

August 2010						
Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

September 2010						
Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

October 2010						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

April 2011						
Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
1	2	3	4	5	6	7