



COALBED METHANE EXTRA

A publication of the Coalbed Methane Outreach Program (CMOP)

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Opportunities in the US

CMM Opportunities in the Rocky Mountain Region

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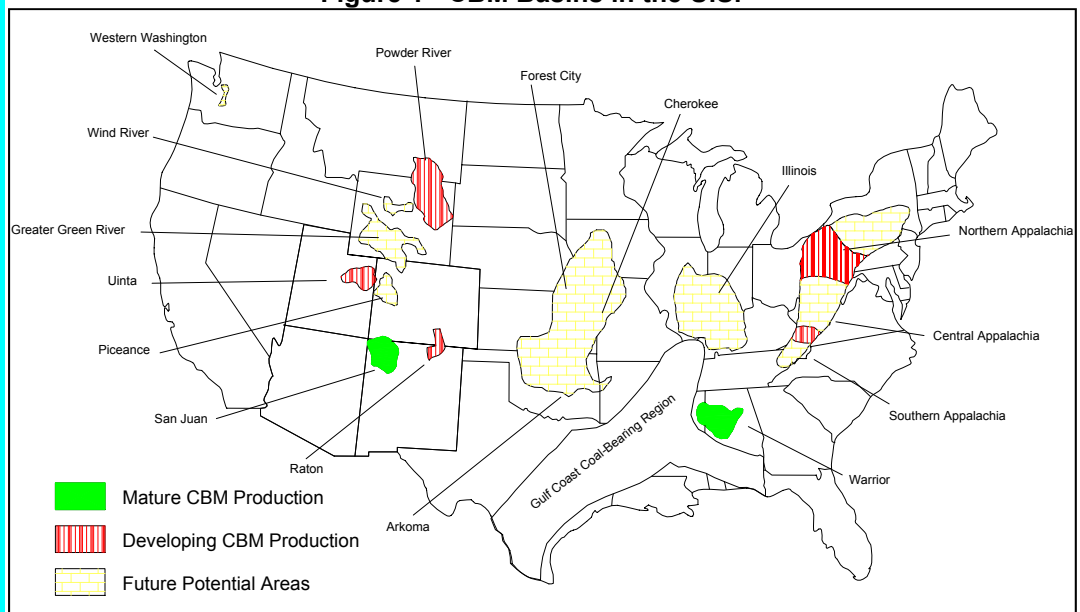
In 2001, the United States produced 1.6 trillion cubic feet (45 Bm³) of coalbed methane (CBM), and the majority of CBM production was in the western US. Although there are a number of underground coal mining operations in the gassy western coal basins, only mines in the eastern US are currently recovering coal mine methane (CMM) for use. With drainage operations in place at some western mines, there is significant potential for CMM development in the West. This article examines the current status of CMM recovery and use in the US, with specific emphasis on the Rocky Mountain region. The article discusses the perceived barriers to CMM recovery in the region, explores the reasons why CMM production has lagged behind CMM production in the eastern US, and assesses the CMM development potential at a number of mines in the Rocky Mountain region.

Introduction

In 2001, 1.6 trillion cubic feet (Tcf) of coalbed methane (CBM) was produced in the U.S., representing 7.9 percent of the total U.S. natural gas production (Annual Report of U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, US DOE 2001). Almost all of the CBM production is located in 3 producing basins: the Black Warrior Basin in Alabama and the San Juan and Powder River Basins in the western U.S. (See Figure 1).

An important subset of CBM is coal mine methane which is CBM produced from pre-drainage wells or gob areas. In 2001, EPA estimates that US mines captured about 40 billion cubic feet (Bcf) of coal mine methane (CMM), or just less than 3% of total US CBM production. All of this production, however, occurred in the eastern US where coal mine methane

Figure 1 - CBM Basins in the U.S.





CMM Opportunities in the Rocky Mountain Region (Continued From Page 1)

has been profitably produced in the Appalachian Basins since the 1980's. For example, 10-12 Bcf of the 110 billion cubic feet Bcf of gas produced annually from coal seams in Alabama is from CMM wells. In Virginia, where gas production from coal seams exceeded 60 Bcf in 2001, one third of the gas was produced from CMM wells. In neighboring southwest West Virginia, an additional 4 Bcf of gas from coal seams was produced, nearly half attributed to CMM wells.

Barriers to CMM Development in the Western US

In contrast to the success in the Appalachian and Black Warrior Basins, there has been very little CMM recovery and use in the Rocky Mountain region. This lack of progress can largely be attributed to three key barriers:

- Limited Operations Experience
- Infrastructure Limitations
- Property and Mineral Rights

Limited Operations Experience: Unlike their counterparts in the East, operators of the western gassy mines have limited experience draining and recovering CMM. Mine operators in the East have been global innovators and leaders in mine degasification for close to 30 years developing a strong base of institutional and technical knowledge. Western operators do not have this history, and therefore do not have the same depth of experience.

Infrastructure Limitations: The natural gas pipeline network is not as extensive in the West as compared to the infrastructure in the East. The limited capacity results in transportation constraints and limited access to markets even for gas production close to pipelines. Exacerbating the problem, the nearest pipelines are often located 5 -10 miles from gathering operations. Gas production in the West also faces higher transmission costs to move gas to the markets in the Midwest and eastern US.

Ownership/Lease Rights: Ownership of coalbed and coal mine methane is one of the most common and contentious barriers to successful project development. Similar to the East, acquisition of the natural gas rights has been difficult for some western developers. Developers in the West, however, face an additional hurdle. Much of the land in the West is federal property rather than private property, and managed by such agencies as the U.S. Forest Service and the Bureau of Land Management. This can necessitate additional reviews and authorizations for facilities, equipment, and operations. (For more on ownership, see *Court Cases in Three States Decide CBM Ownership* in this issue).

Overcoming Barriers to CMM Development

Even with these obstacles, the Western mines present excellent opportunities for CMM capture and use.

A number of underground mines have installed or have received approval to install methane drainage systems creating a ready source of medium- to high-quality gas. Two examples are the West Elk and Sanborn/Elk Creek mines in Colorado. Both have already instituted gas drainage programs. In addition, companies with degasification experience are acquiring interests in western mines. BHP Billiton, a firm with substantial experience in mine drainage in Australia, is now operating the San Juan mine in New Mexico.

With regard to infrastructure issues, capacity constraints are expected to continue, but efforts are underway to address the infrastructure needs. According to the US Department of Energy, interstate natural gas pipeline capacity is expected to increase by an additional 2 Bcf per day by 2003 as two planned expansions and two new pipelines come on line in the Rocky Mountains. This additional capacity, necessary to meet the increased demand generated by the gas production in the San Juan and Powder River Basins, could make pipeline injection a more viable option for western mines (US DOE, *Natural Gas Transportation – Infrastructure Issues and Operational Trends*, 2001).

If the infrastructure problems can be resolved, there are several options for the CMM. For gas drained in advance of mining, the CMM can be delivered directly to the pipeline. At projects where gob gas and CBM are produced, the gob gas and CBM can be blended or processed to meet pipeline quality specifications. Several operations in Appalachia use this approach, and a project at the abandoned Golden Eagle mine in Colorado also uses this approach.

For drainage operations that still will not have pipeline access, an alternative is electricity generation. Power production is a realistic possibility for both medium- and high-quality coal mine methane. In fact, gas usage for electricity sales may require a lower initial investment and generate a higher revenue stream over the life of the project than a pipeline injection project in the Rocky Mountain region. Unlike gas pipelines, electric power lines exist at all active coal mine sites and many of the abandoned mines. Most operating coal mines are large consumers of electricity, and therefore could utilize all or most of the electricity produced from an on-site electricity generating facility.

CMM Opportunities in the Rocky Mountain Region (Continued From Page 2)

Greenhouse gas incentives may offer an additional source of revenue increasing the profitability of CMM projects. CMM liberated from active and abandoned coal mines vented into the atmosphere is a greenhouse gas. Therefore, recovery and use of CMM mitigates greenhouse gas emissions and may offset the emission of other greenhouse gases such as carbon dioxide. While markets for such emission reductions are still emerging, CMM projects are already considered a marketable type of GHG reduction. With prices in these markets ranging from \$0.10 - \$0.30 per mcf, even the existing market can add value to a project.

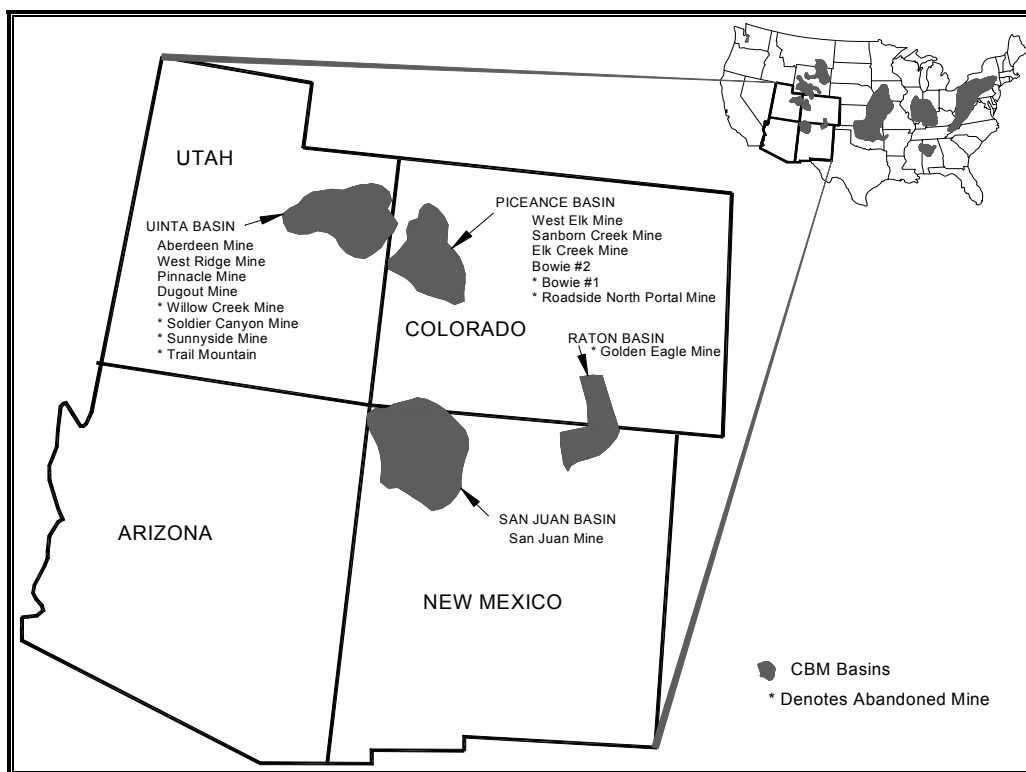
Ownership will continue to be an issue and potential hurdle for project developers, and complete resolution of the issues surrounding ownership is unlikely in the near future. For CMM production on federal land, however, it is worth noting that this additional layer, often considered a burden, in reality provides a key benefit to developers - transparency. Because the solicitation for mineral leases is a public process, CMM developers have the opportunity to compete on a level playing field for the right to produce the gas from coal seams on federally owned properties.

Opportunities for CMM Development in Western States

From 1997 to 2001, at least 10 of the gassiest 75 underground coal mines in the U.S. were located in Colorado, Utah, and New Mexico (annual ventilation data, Mine Safety & Health Administration). Based on 2001 ventilation emissions data, four of these mines are among the top 50 gassiest mines, and are excellent candidates for CMM development. Furthermore, several existing longwall operations expect to encounter significantly more gas as their mining depths increase in coming years, and three new longwall mines located in gassy areas are expected to begin production by early 2003. Figure 2 shows the location of the 4 major Rocky Mountain basins with underground coal mining operations. The Powder River Basin is in Wyoming and Montana, but surface mining predominates in that Basin.

Even more encouraging are recent activities in the region. Two mines in Colorado currently employ degasification systems, and two additional mines, one in Colorado and another in New Mexico, have plans to incorporate drainage programs in their operations

Figure 2—Rocky Mountain Coal Basins





CMM Opportunities in the Rocky Mountain Region (Continued From Page 3)

in the near future. Abandoned mines are also candidates for coal mine methane production, and several gassy mines in the West have closed in recent years.

The majority of CMM prospects in the West are found in three states: Colorado, Utah, and New Mexico. Table 1 identifies the number of operating or planned mines with greater than 1 million cubic feet per day of methane emissions and the number of closed mines with emissions sufficient to support recovery projects.

Table 1 - Prospective Mine Locations

| State | Number of Mines Projected to be Operating in 2003 with Emissions >1 mmcf/d | Number of Closed Mines with High Potential for CMM Recovery |
|------------|--|---|
| Colorado | 4 | 4 |
| Utah | 4 | 3 |
| New Mexico | 1 | 1 |

Table 2 on the following page identifies specific mines that could be excellent candidates for project development. As noted in the last row of the table, this is not an exhaustive list and there are other mines that may present very good development opportunities.

Conclusions

The success in the Eastern US has demonstrated the economic viability of CMM projects in the US. Although CMM production in the West has lagged behind the East, the prospects for CMM are quite good given the progress made by several mines to incorporate drainage operations, the improved access to natural gas pipelines, and the increasingly favorable conditions for power generation. In addition, CMM developers in the region have the benefit of working in tandem with an experienced and highly successful CBM industry. Often times, key alliances between coal mine operator, gas producer, and electric power company can help facilitate the success of a CMM project.

With the growing interest in the West and the large potential for CMM reductions, the Coalbed Methane Outreach Program plans to increase its efforts in this region to encourage and facilitate project development by identifying viable CMM recovery opportunities, evaluating options for the most effective use of the recovered CMM, and publicizing CMM projects

Relevant Colorado, Utah, and New Mexico Web Sites:

- MSHA District 9 Home Office (coal mine information & data): http://www.msha.gov/DISTRICT/DIST_09/D9HOME.HTM
- Colorado Bureau of Land Management (coal leases on federal land): <http://www.co.blm.gov/>
- Colorado Division of Minerals and Geology (state mining authority): <http://mining.state.co.us/>
- Colorado Oil and Gas Conservation Commission (CBM well databases): <http://oil-gas.state.co.us/>
- Colorado Geologic Survey (GIS data of coal mines & CBM wells): <http://geosurvey.state.co.us/>
- Utah Division of Oil, Gas, and Mining (state mining authority): <http://www.dogm.nr.state.ut.us/>
- Utah Geologic Survey (geologic maps & well locations): <http://www.ugs.state.ut.us/>
- Utah Oil and Gas Conservation (CBM well databases): <http://dogm.nr.state.ut.us/oilgas/RULES/rulepage.htm>
- Utah Bureau of Land Management (federal coal leases): <http://www.ut.blm.gov>
- New Mexico Oil and Gas Association (industry information): <http://www.nmoga.org/nmoga-home.htm>
- New Mexico Bureau of Geology and Mineral Resources (geologic maps): <http://geoinfo.nmt.edu/>
- New Mexico Energy, Minerals, & Natural Resources Department (coal & gas well production): <http://www.emnrd.state.nm.us/>
- New Mexico Bureau of Land Management (federal coal leases): http://www.nm.blm.gov/www/new_home_2.html

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Table 2 - Candidate Mines in the Rocky Mountain Region

| STATE | MINE | OWNER/ OPERATOR | STATUS |
|--|--|---|--|
| Currently Operating and Planned Mines | | | |
| Colorado | West Elk Somerset, CO Piceance Basin | Arch/Mountain Coal Co. | <ul style="list-style-type: none"> • Vent emissions of 12 mmcf/d • Longwall operation • Active vertical and in-mine drainage • US Forest Service permit for additional drainage wells |
| | Sanborn Creek Somerset, CO Piceance Basin | Oxbow Mining | <ul style="list-style-type: none"> • Vent emissions of 5 mmcf/d • Longwall operation • Active gob gas drainage |
| | Elk Creek Somerset, CO Piceance Basin | Oxbow Mining | <ul style="list-style-type: none"> • Longwall operations begin 2003 • Adjacent to Sanborn Creek • Expected to be gassy, and gob drainage in mine plan |
| | Bowie No. 2 Paonia, CO Piceance Basin | Bowie Resources | <ul style="list-style-type: none"> • 300 mcf/d vent emissions, but may grow as deeper reserves mined • Longwall operation • Gob drainage in mine plan |
| New Mexico | San Juan Mine Farmington, NM San Juan Basin | BHP Billiton | <ul style="list-style-type: none"> • Planned 6 million ton per year longwall operation entering production in Winter 2002/2003 • Developmental mining produced emissions of 800 mcf/d • Gob drainage in mine plan |
| Utah | Aberdeen Mine Carbon County, UT Uinta Basin | Andalex Resources | <ul style="list-style-type: none"> • Emissions of 2-4 mmcf/d • Gassiest mine in Utah |
| | West Ridge Carbon County, UT Piceance Basin | Andalex Resources | <ul style="list-style-type: none"> • Emissions of 1.5 mmcf/d • Longwall operation |
| | Pinnacle Carbon County, UT Piceance Basin | Andalex Resources | <ul style="list-style-type: none"> • Emissions range from 0.3-1.3 mmcf/d |
| | Dugout Mine Carbon County, UT Piceance Basin | Canyon Fuel Co (Arch Coal & Itochu Corp) | <ul style="list-style-type: none"> • Emissions of 500 mcf/d • Room & pillar operation with plans to begin longwall operations in near future |
| Closed and Abandoned Mines | | | |
| | Golden Eagle Mine Trinidad, CO | Williams Energy | <ul style="list-style-type: none"> • Current operation producing 1.5 mmcf/d • Emissions of 4.5 mmcf/d when mine was operating |
| | Solider Canyon Carbon County, UT | Canyon Fuel Co | <ul style="list-style-type: none"> • Closed in 1999 • Emissions of 2-4 mmcf/d when mine was active and methane drainage employed during operation • CMM was recovered/used until 1994 |
| | Others | | <ul style="list-style-type: none"> • 35 mines designated by MSHA as gassy (> 100 mcf/d) • 1/3 of these gassy mines had emissions > 1 mmcf/d when operating • Several recent closures of 1+ mmcf/d mines: Willow Creek (UT), Roadside North Portal (CO), Bowie #1 (CO) |



International Developments

Update From the United Kingdom

Alkane Energy officially opened a new power plant utilizing methane from an abandoned mine at Wheldale, Yorkshire on October 10, 2002. The ceremony was performed by the British Minister of State for Energy and Construction. Wheldale, Alkane's largest project, began delivering gas to Scottish & Southern Energy in February 2002. The plant was developed using the existing mine shafts, which were sealed but not filled upon closure of the mine.

At the Prince of Wales Colliery in Pontefract, Yorkshire, Alkane connected directly into an underground roadway and was able to integrate the gas extraction system into the mine closure plan. The mine ceased coal production in August 2002 and Alkane is currently installing a gas pipeline from deep in the mine workings to the surface. They anticipate the plant will begin operation during 2003. Additional information on all Alkane activities can be found on their website at www.alkane.co.uk

Octagon Energy

Octagon is currently extracting CMM from the Hickleton Vent in South Yorkshire which supplies Octagon's 5.4MW Power Station. Hickleton became operational in December 2000. The Hickleton site is currently the only power plant that has been both built by and operated by Octagon, although they are in the early stages of development of two additional power plants on CMM sites. Octagon has an agreement with Deutz for modular power generation plants and maintenance agreements. For more information, visit their website at <http://www.octagonenergy.co.uk/index.htm>

StrataGas

In January 2002 StrataGas completed the commissioning of the Bentinck CMM gas plant near Kirkby-in-Ashfield, Nottinghamshire, which was designed to supply CMM to the adjacent 10MW generating plant owned and operated by Warwick Energy Limited. The gas is extracted from the old Annesley Bentinck mine complex and was one of the first projects of its type (along with StrataGas's Silverdale site in Staffordshire) to combine the closure of a colliery with planned future gas recovery. Warwick, who is partnering with StrataGas, has contracted to take up to 38 million therms of gas from StrataGas over the next five to seven years. Due to the nature of the contracts, revenues from the two CMM projects are currently unaffected by the reduction in electricity prices suffered by other energy companies.

sites at Calverton and Rufford in Nottinghamshire, Markham Main in Yorkshire (in conjunction with Warwick Energy Limited), Sutton, Pleasley and Palterton in Derbyshire (also in conjunction with Warwick) and Cyn Heidre in South Wales. These sites are in various stages of assessment and the development of the sites will depend on full commercial evaluation on an individual basis. More information can be found at <http://www.stratagas.com/index.html>

Ugletan Sees Progress In Russia

The International Coal & Methane Center, known as Ugletan and located in Kemorovo, Russia, is dedicated to promoting coal mine methane and coalbed methane recovery and utilization in Russia and other countries of the Former Soviet Union. Since Ugletan was established earlier this year (*CBM Extra*, August 2002), the company has seen a growing interest in the coalbed and coal mine methane development potential of the Western Siberian Kuznetsk Basin (Kuzbass). As a result, their activities have been directed at increasing awareness of the potential of the Kuzbass and promoting growth of the CMM/CBM industry in Russia. Some of the key activities currently being pursued by Ugletan include:

- In conjunction with the Ministry of Energy, the Kemorovo Regional Administration, the Institute of Coal and Coal Chemistry of Siberia RAS and the U.S. EPA, organizing an international workshop on CBM/CMM investment opportunities in Russia, scheduled for 17-19 March 2003;
- Organizing and conducting a technical workshop on forecasting, monitoring, and utilization of CBM;
- Collecting and analyzing data related to methane abatement at the Kapitalnia mine in Russia;
- Designing a methodology for determining CMM reserves for the Russian Mine Rescue Institute in Kemorovo;

In addition, Ugletan recently collaborated with ICF Consulting to develop and submit a proposal, entitled "*Russian Federation – Removing Barriers to Coal Mine Methane Recovery and Utilization*", to the United Development Programme and Global Environmental Facility (UNDP/GEF). The prime goal of the proposed project is to mitigate greenhouse gas emissions by removing barriers to the financing and implementation of coal mine

International Developments

Ugilemetan (continued)

methane (CMM) recovery and utilization projects in Russia. The proposal was recently approved by the UNDP and GEF Secretariat in October 2002. The total project cost is US\$8 million, with the UNDP/GEF contributing US\$3.1 million.

Those interested in learning more about Ugilemetan may contact Oleg Tailakov at tailakov@mail.stanet.ru or visit their website at: www.ugilemetan.ru

Australian Government to Provide \$54 Million (AUD) for Coal Mine Methane Power Projects

In May 2001, two independent electricity generating companies received up to \$24 million (US \$13.2 million) from the Australian government to reduce greenhouse gas emissions from three coal mines in New South Wales (NSW) and Queensland. In October 2001, a second round of awards were announced with \$30 million (16.5 million USD) going to three additional CMM projects. The awards were part of the government's Greenhouse Gas Abatement Program (GGAP). The GGAP is a major Australian government initiative to encourage mitigation of greenhouse gases. No date is set to announce the third round award winners. Following are summaries of the five projects:

Energy Developments Limited will receive up to \$11 million (US\$6 million) to install and operate four innovative gas turbine generators at Anglo Coal Holding's German Creek property in central Queensland. The GGAP funding will be used to purchase four container-mounted 3MW gas turbine engines at Grasstree Colliery at German Creek. The total project cost is expected to be more than \$30 million (US\$16.5 million) and reduce emissions by 2.4 Mt CO₂e during 2008-2012. A Deed of Agreement was signed in September 2001, and initial activity on this project has now commenced. The project should be fully operational by April 2005.

Envirogen Pty Ltd will receive up to \$13 million (US\$7.1 million) to install 10 gas engine generators at the Teralba Mine on the NSW Central Coast, and 10 additional gensets at the North Goonyella Mine in central Queensland. GGAP funding will be used to purchase, install and operate ten 1MW reciprocating gas engines at each of two coal mines. The total project cost is expected to be more than \$26 million (US\$14.3 million) and reduce emissions by 2 Mt CO₂e during 2008-2012.

The Deed of Agreement was also signed in September 2001, and initial activity on this project has also begun. The project is expected to be fully operational by June 2004.

BHP Billiton was awarded \$6 million (US\$3.3 million) towards a \$10.7 million (US\$5.9 million) project to install an innovative combustion unit that can burn low concentration ventilation air methane at the West Cliff colliery in NSW. The project is expected to reduce emissions by 1.0 Mt CO₂e during 2008-2012.

Powercoal will receive up to \$15 million (US\$8.2 million) towards a \$26 million (US\$14.3 million) project to connect the air intakes of Vales Point power station to the mine ventilation systems of Endeavour and Munmorah collieries in NSW. The project will use the gas as combustion air at the power plant, and reduce methane emissions to the atmosphere by 4.4 Mt CO₂e between the years 2008-2012.

Envirogen Pty Ltd was offered up to \$9 million (US\$4.9 million) towards a second project to install 10 gas engine generators at the Bellambi Mine on the NSW South Coast. Methane recovered from pre-drainage wells will be used to fuel the gensets. The total cost of the project is \$16 million (US\$8.8 million), and will reduce emissions by 1.8 Mt between 2008-2012.

For more information, contact Jen Eddy +61 2-6277-7580 at the Ministry for Industry, Science & Resources or the Australian Greenhouse Office at +61 2-6274-1427 <http://www.greenhouse.gov.au/index.html>

Partnership for Energy and Environmental Reform (PEER) Announces Restructuring of Ukrainian Operations

Partnership for Energy and Environmental Reform (PEER) announced that effective October 1, 2002, their Ukraine operations would be restructured to reflect the changes in the interest and markets for Ukrainian CBM/CMM. According to Jerry Triplett, President, this restructuring should allow PEER to work more closely with the coal mines, local development companies, and regional authorities to implement the projects. The primary office will move from Kyiv to Donetsk in the heart of the Ukrainian coal industry. However, a smaller Kyiv office will be maintained. New Contact Information: Kyiv, Ukraine +380-44-246-7659 and trip@public.ua.net Donetsk, Ukraine: +380-62-335-1443 and ugol@peer.dombass.com

International Developments

China Coalbed Methane Clearinghouse Supports China CMM Industry

Over the last several years, the China Coalbed Methane Clearinghouse (CBMC), with the support of USEPA, has been working in concert with Chinese coal mining companies to introduce interested investors and developers to CMM project opportunities. These opportunities are located at a number of gassy coal mines found in several provinces of China. Through a cooperative effort with coal mine operators, CBMC has published and released seven brochures that serve as introductions to the coal mining properties and outlines for potential projects. These project opportunities are ones that the coal mining companies feel could be fully realized with outside technical assistance and investment. Potential investments range from \$5 to \$30 million USD.

Since early 2002, CBMC has turned its attention toward a broader goal of promoting and supporting commercialization of CMM projects in China. The strategy undertaken by CBMC includes a variety of activities designed to disseminate information to investors and organizations worldwide, and to strengthen the capabilities of CMM and CBM professionals within China.

- In June 2002, CBMC sponsored a workshop in Zhuhai, China, where representatives of several mines met to discuss topics covering issues related to financing CMM projects.
- On November 13-14 of this year, CBMC hosted the Third International CBM/CMM Symposium in China in Beijing. This meeting focused on topics relevant to financing and development of CMM and CBM projects in China.
- CBMC is preparing a document, entitled "Guideline for Commercial Development of Coal Mine Methane in China," for publication that will be of interest to anyone desiring to know more about the opportunities for CMM development in China. The document will contain: (1) a brief description of CMM and CBM resources; (2) offer comprehensive information on the policy, regulations, and laws; and (3) lead the reader through the steps that must be taken to develop CMM projects in China.

Please contact Mr. Huang Shengchu or Ms. Hu Yuhong of CBMC at huangsc@coalinfo.net.cn or ceec@public3.bta.net.cn, respectively, for more information.

3rd International Methane & Nitrous Oxide Mitigation Conference to be Held in Beijing, China

The organizers of the 3rd International Methane & Nitrous Oxide Mitigation Conference have announced that the conference will be held from 14-19 September, 2003 in Beijing, China. The conference will focus in detail on important sources of methane and nitrous oxide, including landfills and sewage management, natural gas and oil systems, coal mining, and agriculture. Attendees will participate in source-specific discussions on characterizing emission sources, using proven and innovative technologies to reduce emissions, and overcoming the barriers to project development. Cross-cutting themes, such as monitoring and verification procedures, the economics of mitigation, and multi-gas/multi-source analyses will be featured throughout the conference. With widespread participation from experts throughout the world, a global picture of the potential for expanded methane and nitrous oxide mitigation will be developed. The call for papers was released on November 8 and abstracts are due by 31 January 2003. For more information, visit www.ergweb.com/methane_china.com (English) or www.coalinfo.net.cn/coalbed/meeting/2203/2003z.htm (Chinese). Questions may be directed to Mr. Clark Talkington at talkington.clark@epa.gov or +1.202.564.8969, or Ms. Liu Xin at cbmc@public.bta.net.cn or +86.10.8461.2010. Proceedings from the 2nd International Methane Mitigation Conference are available on the internet at <http://www.ergweb.com/methane/>



Legal Issues

Court Cases in Three States Decide CBM Ownership

Ownership of CBM continues to be a contentious and confusing issue. In the latest round of cases, courts in three states have issued decisions of first impression regarding the ownership of and leasehold interest in coalbed methane. The issues revolve around 1) conventional oil and gas leaseholder's right to drill shallow CBM wells, 2) ownership of CBM separated from coal during mining, and 3) whether to include CBM as a mineral intended to be granted in severance deeds. The following are brief summaries of the cases along with some general conclusions that can be drawn from the decisions.

A. Energy Development Corporation v. Moss et al., Civil Action No. 98-C-173 (W. Va. Cir. June 19, 2002)

The Circuit Court of McDowell County, West Virginia, recently decided the case of *Energy Development Company v. Moss, et al.*, Civil Action No. 98-C-173 (W. Va. Cir. June 19, 2002). The main issue involved whether a lessee under a standard oil and gas lease has "the right to drill for and produce coalbed methane from the coal seams in the properties covered by the leases." The court ruling stated that a conventional oil and gas lease, such as the ones at issue, containing the phrase *all oil and gas*, with nothing further, does not grant a lessee the right to extract coalbed methane from the lessors' coal seams. The court determined that the intent of the parties at the time the leases were signed governed the interpretation of the leases.

B. Ratliff v. Harrison-Wyatt, LLC et al., Case No. 187-00, Cir. Ct. for Buchanan County, Virginia (opinion letter dated August 29, 2002).

The plaintiffs' argued that CBM was a *gas* and that *gas* was not granted to the defendants' predecessors in title. They contended that the severance deeds were very clear that the only mineral estate that was granted was the coal. Consequently, title to the CBM did not pass to the grantees in the severance deeds. Of interesting note for coal mine methane production, the court found that the coal owner does have the right to vent CBM as an incident to mining its coal. The one caveat to the right to vent the CBM was the court's finding that the surface owner has "the rights to profits from CBM captured during the venting process."

C. Newman et al. v. RAG Wyoming Land Company et al., No. 01-209 (Wyo. September 6, 2002)

The 1974 severance deed at issue in this case granted "all coal and minerals commingled with coal that may be mined or extracted in association therewith or in conjunction with such coal operations" and reserved "all oil, gas and other minerals except as set forth above." The Wyoming Supreme Court was called upon to decide if the severance deed conveyed CBM. The court identified its first step in this process as the examination of the terms of the deed and determination of their plain and ordinary meaning. Under the court's interpretation of the plain meaning of the terms of the severance deed, the court could not find that the parties intended to include coalbed methane as a mineral intended to be granted in the severance deed. The court also considered, and rejected, the arguments that CBM production is most economical and efficient when done *in conjunction* with mining and that the right to ventilate gas during mining implied the ownership of CBM.

Conclusions

Coalbed methane ownership continues to be a difficult subject. Based on these three recent decisions, it appears that courts will likely continue to take a case-by-case approach considering the facts in each case and the severance provisions within each property deed.

Jill Harrison of the Penn Stuart law firm in Abingdon, Virginia contributed to this article. For additional information, Ms. Harrison can be contacted at jharrison@pennstuart.com.



Upcoming Events

Coalbed Methane: Dealing with Regulatory and Environmental Issues in Project Management
Houston, Texas USA
January 29-31, 2003

Sponsored by Infocast, Inc., this conference's goal is to examine strategies for developing profitable coal bed methane projects, within the framework of current environmental, regulatory and permitting restraints. Speakers include U.S. EPA, U.S. BLM, and EcoSecurities Ltd. For more information, contact Erin Markewitz at erinm@infocastinc.com.

SRI CBM Water Management Strategies

Durango, Colorado
February 10-11, 2003

Topics include new innovations, solutions and scientific data on water quality, permitting, regulations and water uses. For more information, visit their website at www.srinstitute.com

2nd Annual Coal Seam and Mine Methane Conference

Brisbane, Australia
February 19-20, 2003

The 2nd annual conference will examine CBM resource, technical issues, and markets in Australia. For more information, visit <http://www.ibcoz.com.au.csm03>

Society for Mining, Metallurgy and Exploration

Cincinnati, Ohio
United States
February 24-26, 2003

The Society for Mining, Metallurgy, and Exploration has issued a call for papers for its 2003 annual meeting. There are a number of sessions devoted to coal mining including Underground Coal Mine Ventilation. For more information, go to www.smenet.org

Oberhausener Grubengastage 2003 – German CMM Conference
Oberhausen, Germany
March 20-21, 2003

The international conference provides a forum for technical discussions related to coal mine methane recovery and implementation of projects in Germany and other countries.

For more information, contact Clemens Backhaus at +49 (0)208/85 98-1188 or ba@umsicht.fhg.de.

SRI 4th Annual Coalbed and Coal Mine Methane Conference
Denver, Colorado
March 24-25, 2003

Topics will include international emissions investment, changing regulations and tax credits, environmental politics, and methane project economics. For more information, visit their website at www.srinstitute.com or contact Heidi Aigler at haigler@srinstitute.com or at (212) 967-0095, ext. 271.

International Workshop on Coalbed Methane: Business Development Opportunities in Russia

Kemerovo, Russia
March 17-19, 2003

The workshop will address production of coalbed and coal mine methane in the Russian Federation with special focus on institutional and economic aspects of the commercialization of CBM/CMM development in Russia, geology of coal-gas deposits, and modern technologies to recover and utilize CBM and CMM. For more information contact Oleg Tailakov at tailakov@mail.stanet.ru or visit <http://www.uglemetan.ru/HTML/GeneralEng.html>.

2003 International Coalbed Methane Symposium

Tuscaloosa, Alabama, USA
May 5-9, 2003

The symposium provides the opportunity for interdisciplinary examination and exchange of both innovative and basic technologies concerning coalbed methane. For more information, please contact Novo Hodo at nhodo@ccs.ua.edu.

3rd International Methane & Nitrous Oxide Mitigation Conference
Beijing, China
September 14-19, 2003

The conference will focus in detail on important sources of methane and nitrous oxide, including landfills and sewage management, natural gas and oil systems, coal mining, and agriculture. Attendees will participate in source-specific discussions on characterizing emission sources, using proven and innovative technologies to reduce emissions, and overcoming the barriers to project development. Topics such as monitoring and verification procedures, economics of mitigation, and multi-gas/multi-source analyses will be featured throughout the conference. For more details, visit www.ergweb.com/methane_china.com (English) or www.coalinfo.net.cn/coalbed/meeting/2203/2003z.htm (Chinese) for the most current information.



New Publications

Coalbed Methane Production of the Appalachian Basin USGS Open File Report 02-105 Summary of CBM activities and potential in Pennsylvania, Ohio, West Virginia, Virginia, eastern Kentucky, and Alabama. March 2002. Available on line at <http://pubs.usgs.gov/of/2002/of02-105>

Conference Proceedings from Second DOE/UN International Conference and Workshop on Hybrid Power Systems April 16-17, 2002, Papers and presentations on fuel cell/turbine hybrid power, microturbine generator hybrid power systems, as well as technical assessments and market opportunities for other hybrid power concepts. Available on line through NETL publications at <http://www.netl.doe.gov/coalpower/mining/index.html>.

Coal Seam Natural in the Northern Appalachian Basin: Presentations from the IOGCC Conference, Charleston, WV USA September 24, 2002 Presentations by many speakers on the technical, economic, market, and policy issues impacting US and Northern Appalachian CBM and CMM production at <http://www.iogcc.state.ok.us/ISSUES/CSNG/csng.htm>.

Collected Studies: Coal Seam Natural Gas, Published by the Interstate Oil and Gas Compact Commission, this very useful spiral bound document is bibliography containing over 900 reports, articles, and other publications addressing CBM and CMM. Available in hard copy from IOGCC at <http://www.iogcc.state.ok.us> or EPA at 1-888-STAR-YES. It is expected to be available in electronic format soon at <http://www.epa.gov/coalbed/clibrary/creports.htm>.

Address inquiries about the Coalbed Methane *Extra* or about the US EPA Coalbed Methane Outreach Program to:

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