

## **Progress Update – Year 2**

# **Coalbed Methane Multi-Stakeholder Advisory Committee (MAC) Recommendations**

**May 2008**

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# Executive Summary

The Coalbed Methane (CBM) Multi-Stakeholder Advisory Committee (MAC) was formed in November 2003 as part of a review and consultation initiated by the Department of Energy (DOE). The MAC's Final Report, released to the public in May 2006, contained 44 recommendations to improve existing rules and regulations related to CBM development or to identify areas for further study. Some of the identified issues were unique to CBM, but many others were related to broader energy development and may also be linked with other initiatives already underway.

This report is the second public update on the progress achieved in addressing the Final Report recommendations. As of March 31, 2008, work had started on (and/or been completed on) all of the recommendations except for 7.5.2, which is scheduled to start in 2009 or later. Five recommendations were completed in the second year, bringing the total completed to ten.

The majority of recommendations pertain to water protection and improving information. Progress has been made in several areas. Examples include:

- Enhanced water well testing and analysis,
- Initiation of a groundwater inventory project,
- Completion of updates to the Base of Groundwater Protection database, and
- Improved access to and sharing of information with stakeholders and the public.

The government acknowledges that ten recommendations are behind the original schedule established in 2006. The government recognizes the importance of these recommendations and has taken steps to minimize the associated risk with any delays. A number of key initiatives are expected to be completed in 2008 to assist in addressing these recommendations. Work continues to ensure that a detailed and thorough analysis is completed.

Similar to last year, non-government members of the MAC II were provided an opportunity through a feedback questionnaire to give their opinions on the progress and to provide comments on draft versions of the report. In general, respondents were very satisfied with the MAC II process and believed it helped ensure the accountability of government in carrying out the MAC's recommendations. Other comments suggested that the process has been effective in providing a feedback mechanism, creating a good opportunity for all stakeholders to discuss progress and collaborate on issues, as well as an opportunity for stakeholders to identify issues and areas where progress has been slow. Some respondents commented that the style and format of the process has worked well, especially the clear documentation and department updates.

Most respondents did note with concern that some of the recommendations were falling behind schedule, particularly those recommendations related to scientific undertakings and information gathering (some water related recommendations). However, they acknowledged that ten recommendations were complete and a number of key reports were expected in 2008.

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The MAC II members also emphasized the need for government to ensure sufficient resources and completion of undertakings according to the original timelines.

Government remains committed to addressing the MAC recommendations. CBM is an important resource that holds considerable potential for Albertans. The ongoing work of the MAC II, government, and industry will help to ensure that CBM continues to be developed in a safe and responsible manner.

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# Background

The MAC was formed in November 2003 as part of a review and consultation initiated by the DOE on CBM. The purpose of the review was to determine if the existing policy and regulations governing CBM development continue to balance economic benefits with protecting Alberta's water, air and land resources, and minimizing landowner impacts. The MAC's role was to consult with stakeholders and develop recommendations to enhance the rules and regulations associated with CBM development.

MAC members represented environmental and agricultural organizations, landowners, local governments, the energy industry, and provincial government departments and agencies. The departments of Agriculture, Food and Rural Development (now Agriculture and Rural Development); Environment (AENV); Sustainable Resource Development (SRD); DOE and the Alberta Energy Resources Conservation Board (ERCB, formerly the EUB) collaborated in this process.

The MAC's Final Report, released to the public in May 2006, contained 44 recommendations. Some of the identified issues were unique to CBM, but many others related to broader energy development and may also be linked with other initiatives already underway. The MAC acknowledged there might be insufficient resources to take action on all the recommendations at once and technical reasons why the outcomes from the completion of one recommendation may be needed before moving ahead with another. To assist government, the MAC proposed nine recommendations for early action. These early action recommendations formed the basis of a cross-ministry implementation strategy. The strategy addressed the MAC's recommendations using four key areas to guide and coordinate work, as well as to report on progress:

- 1) Protecting water resources,
- 2) Enhancing information and knowledge,
- 3) Minimizing surface impacts, and
- 4) Communication and consultation.

Only two MAC recommendations, related to royalty and tax incentives, were not accepted by the Alberta government. Another recommendation, to include additional mineral rights information in the Land Titles Registry, is not being actioned based on a subsequent review of the liability and limitations associated with disclosing such information by Service Alberta, the department responsible for the Land Titles Registry.

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## Formation of the MAC II

One of the MAC recommendations called for a multi-stakeholder group to review progress towards addressing the Final Report recommendations. Recommendation 7.6.1 stated:

*As recommendations in this document are implemented, it is recommended a multi-stakeholder committee be established by the Assistant Deputy Ministers Sponsors' Committee to conduct a review with the following components:*

- *Annual reviews for three years to assess progress according to a monitoring plan.*
- *A second overall review in three years to assess:
  1. *The effectiveness of the recommendations,*
  2. *New issues or information, and*
  3. *An assessment as to whether additional recommendations may be needed.**

A multi-stakeholder group called the MAC II was formed in September 2006 to carry out this recommendation. The MAC II stakeholder membership is identical to the MAC, although individual stakeholder representatives may differ.

During the first year the MAC II met three times to review and monitor the progress achieved related to the recommendations. At the meetings, an action plan providing status and specific timelines for each recommendation was provided. This action plan was updated on a continual basis. Government representatives from the various involved departments were available to answer questions from members and provide supplemental background information. A Progress Update report was released publicly in June 2007, which highlighted the progress achieved in addressing the Final Report recommendations. The Progress Update report covered the period from when the Final Report was released in May 2006 to March 31, 2007 (the end of the government's fiscal year).

A similar process was used during the second year which covered the period April 1, 2007 to March 31, 2008. In preparation of the second annual Progress Update report, the MAC II met three times to review updates and provide feedback. This report is part of the MAC II's commitment to keep the public informed – one component of a number of communications activities being undertaken to inform Albertans about CBM.

The following sections contain progress highlights, as well as feedback from non-government members of the MAC II.

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# Progress Highlights

This section provides a high level summary of the key activities undertaken by various government departments, agencies and other groups in addressing the MAC's recommendations. It focuses on work undertaken during the second year of addressing the recommendations. While this section may reference some initiatives from the first year, please see Appendix B for a complete list of recommendations, status updates, and activities undertaken during the first year.

Overall, progress has been made on all but one of the 42 accepted recommendations, including all nine early action items. Work on recommendation 7.5.2 (ERCB and AENV should consolidate CBM data in a publicly accessible and user-friendly database) is scheduled to start in 2009 or later.

Five recommendations were completed in year two, bringing the total number of completed recommendations to ten, as follows:

## Completed in Year One:

Recommendation 3.3.4 – AENV should clarify and communicate the existing rules regarding how much drawdown is allowed during CBM depressurization in a confined, non-saline aquifer to ensure aquifer protection.

Recommendation 6.2.1 – The Alberta Government should make Crown lessees, freehold owners, and industry aware of the risks and associated impacts of split-title ownership.

Recommendation 7.5.3 - The ERCB should create an easy-to-understand public explanation for 'wells per section per pool' as it refers to CBM development.

Recommendation 8.1.1 - Industry, government, and other stakeholders should work together to develop, document, and implement best practices for CBM operations.

Recommendation 9.3.1 - The ERCB should continue to take into consideration the timing request of the surface rights holder/leaseholder during critical agricultural periods and not call a hearing at those times.

## Completed in Year Two:

Recommendation 5.2.3 – AE, in consultation with stakeholders, should consider the use of appropriate fiscal tools to encourage the use of saline water from CBM development to replace non-saline water for enhanced oil recovery and other industrial uses.

Recommendation 6.3.1 - AE should review and clarify the criteria for Section 18 Notices of Non-Productivity and aggressively serve these notices. Section 18 Notices on existing agreements should continue to be subject to deeper rights reversion.

Recommendation 6.5.1 – AE should allow companies an additional one-year continuation under Section 17 of the Petroleum and Natural Gas Tenure Regulation. This additional year would require industry to submit evidence of work conducted during the first continuation period.

Recommendation 9.4.1 – AE should review the full range of paper to electronic options of notification and should work with local government and other agencies to provide current petroleum and natural gas sales data in a user-friendly format (including map format) to local and/or rural offices such as county offices, agricultural offices, and public libraries.

Recommendation 9.4.2 - AE should provide instructions on its website on the process for conducting an information search by land or by mineral agreement.

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The government recognizes that ten recommendations are now behind the original schedule established in 2006 (including three of the nine early action items). The majority of recommendations that are behind schedule are related to water resources. Efforts are being made to ensure the timely delivery of work associated with these recommendations. In addition, the increased available information on CBM in Alberta, such as from the water well testing program, shows lower risk from CBM production than had originally been anticipated. Current regulatory processes and requirements in place have also required greater due diligence by industry and, in many cases, precluded CBM production in higher risk areas until the necessary information is available to address the issues raised by the MAC. The government remains committed to addressing the recommendations through a detailed and thorough review process.

The following discussion summarizes key 2007-08 activities in the four main focus areas.

## **1. Protecting Water Resources**

Thirteen recommendations in the MAC's Final Report were related to the management of CBM development to protect surface and groundwater quality and supply through coordinated, risk-based processes. Work is underway on all 13 recommendations - five recommendations are on schedule, seven recommendations are behind schedule, and one recommendation is complete.

### ***Regulation of Water Production***

CBM development involving the production of non-saline water must comply with AENV's water diversion application process under the *Water Act*. Two recommendations (3.3.1, 3.3.2) focused on ways to improve or strengthen this process by adopting a risk-based decision tree. In response to these recommendations, AENV is developing a three-tiered process to regulate non-saline produced water diversions. A key element of the system is the use of threshold water usage levels to determine whether an approval, a registration pursuant to a Code of Practice, or no authorization from AENV is required.

The following interim threshold levels developed by a sub-committee of the MAC will be used in the decision tree process until scientifically-based levels are determined:

1. AENV approval will be required for water diversions greater than 30 cubic metres ( $m^3$ ) /month per well – or when the cumulative discharge of all CBM wells in a section of land exceeds 100  $m^3$ /month.
2. Registration under a Code of Practice will be required for water discharges lower than 30  $m^3$ /month and greater than 5  $m^3$ /month.
3. No authorization will be required for water production volumes lower than 5  $m^3$ /month, given the small volume.

The Code of Practice was under development for most of 2007-08 and a draft version will be available for public review and feedback in the 2008-09 year. The Code of Practice and associated regulation changes are anticipated to be implemented by the end of 2008. The

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existing guideline for CBM Water Production will be amended to reflect the three-tiered process and is scheduled for completion at the same time as the Code of Practice.

Background information is currently being collected through groundwater inventory and monitoring projects (see Sub-section 2: Enhancing Information and Knowledge) to provide the necessary information for the development of scientifically based threshold levels.

### ***Water Sampling***

ERCB Directive 44, issued in October 2006, addressed surveillance of potential non-saline water production and water sampling procedures and analysis for all wells completed above the Base of Groundwater Protection (BGWP) (recommendation 3.3.5). For these wells, the company must segregate and sample the water, investigate the source of the water and provide a mitigation plan. This may result in abandoning wet zones for CBM production. Where a company wishes to continue to produce, AENV authorization is required. AENV is working with the ERCB to use this data to ensure companies acquire the appropriate AENV authorization. Additional staff resources have been allocated in year two to support this important surveillance function. To date, companies are deciding to abandon wet zones and not pursue diversion applications through AENV.

### ***Drilling and Completion Practices***

The MAC included recommendations in its Final Report to ensure the continued effectiveness of ERCB requirements to protect aquifers and water wells (recommendations 3.3.7, 3.4.1 and 3.4.2). In January 2006, in advance of the final MAC report, the ERCB issued Directive 27 on shallow fracturing, which initiated a multi-stakeholder technical committee to review current practices and information, and to advise on the need for new requirements. The committee is continuing its work and has retained the University of Calgary to review industry's technical evidence and provide a third-party assessment and estimate of fracturing propagation vertically and horizontally. The ERCB has imposed interim controls for shallow fracturing pending the conclusion of the review.

While there is an absence of field evidence or supporting technical literature to demonstrate any problems, another review by the University of Calgary is underway to address public apprehension in using untreated water for drilling and completion of wells (recommendation 3.4.2). The review will be concluded in 2009.

### ***Water Well Testing***

Effective surveillance is an important component of a regulatory framework along with strong technical requirements and a risk-based application process. In this regard, AENV issued a provincial baseline water well testing standard in May 2006 (recommendations 3.3.5 and 3.3.6). Under the standard, companies wanting to drill shallow CBM wells must offer testing to landowners on any active water well within a 600 metre radius of new or recompleted CBM wells above the BGWP. If no wells exist within the 600 metre radius, then one well must be tested within a radius of 800 metres.

These baseline tests must measure the water well's production capability, water quality (including routine potability and bacteriological parameters) and the absence or presence of

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gas (including methane gas). Baseline testing requirements are regulated by the ERCB according to Directive 35.

Application audits show high industry compliance. Non-compliance will be enforced in accordance with ERCB Directive 19. AENV is collecting and compiling the well testing results in a database and has conducted several refinements over the past year in an effort to make the database available to the public in 2008-09. The development of a large-scale, public, user-friendly data base is the long term goal.

There have been approximately 4,550 baseline water well tests since May 2006. The testing program continues to gather information and will provide further incremental input into the growing groundwater information available in Alberta.

The government committed to review baseline data on a regular basis to ensure the water well baseline testing standard is working. To that end, a Science Review Panel comprising of five experts in the fields of hydrogeology and isotope geochemistry was established in September 2006 to review the data and recommend areas for improving the baseline testing standard. The panel interacted continuously throughout 2007-08 and convened on three occasions to discuss the baseline standard. The panel is currently preparing a report that summarizes their findings and recommendations, and the report is expected to be submitted to the government in spring 2008. Outcomes from this review and information from the expanding database will be used to further study the potential for methane migration or release to water wells as a result of CBM depressurization (recommendation 3.6.1).

Evaluation of water sampling procedures continued outside the Science Panel review process this year, with completion of a study on the merits of free gas sampling versus dissolved gas sampling conducted by the University of Calgary. The report was completed in spring 2007 and identifies areas for future research.

#### ***Water Well Complaint Process***

Work is continuing to improve the government's response to all water well complaints, not only those involving CBM. A water well training workshop was held for AENV and SRD staff this year to increase their knowledge of water well issues and more training is planned for the upcoming year. In addition, further improvements to AENV's internal procedures for handling water well complaints were committed to this year by initiating the development of a new water well complaint manual for staff.

AENV commissioned the Alberta Research Council in 2007-08 to conduct an independent review of four water well complaints allegedly linked to CBM activity. The results show the wells were not likely to have been adversely affected by CBM activity but rather that the quality issues were predominantly due to naturally occurring methane. Other quality issues were associated with poor well construction and maintenance. A summary report of the Alberta Research Council findings can be found on the AENV website at [http://www.waterforlife.gov.ab.ca/coal/docs/Summary-Water Well Complaint Reviews.pdf](http://www.waterforlife.gov.ab.ca/coal/docs/Summary-Water_Well_Complaint_Reviews.pdf)

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### ***Beneficial Use of Produced Water***

The MAC agreed that the potential for treatment and use of non-saline and marginally saline produced water should be investigated (recommendations 3.5.1, 3.5.2, 3.5.3). AENV, in partnership with the Alberta Energy Research Institute, ERCB, Petroleum Technology Alliance Canada (PTAC) and DOE completed two scoping studies on beneficial use of produced water in 2007, one on high total dissolved solids (TDS) waters (June 2007) and the other on low TDS waters (August 2007). The reports are available at [www.ptac.org/etalk/dl/HighTDS.pdf](http://www.ptac.org/etalk/dl/HighTDS.pdf) and [www.ptac.org/etalk/dl/LowTDS.pdf](http://www.ptac.org/etalk/dl/LowTDS.pdf). The reports provide information on the quantity and quality of produced water disposal in the province for all energy developments and identify further actions that are required to increase beneficial use of produced water. It was noted in the reports that very little produced water from CBM activities has occurred to date.

The results of the study on the beneficial use of produced water, along with other relevant information, will be presented to multi-stakeholder workshops which will likely be held in the fall of 2008.

### ***Fiscal Tools for Saline Water***

In response to recommendation 5.2.3, the above mentioned scoping study, “Produced Water Beneficial Re-Use – High TDS Waters”, was undertaken. The report concluded that fiscal tools, including royalties and tax incentives, are not the appropriate mechanism to encourage the use of saline water from CBM development at this time. Any future work in this area will be directed by the Alberta Water Council.

Also, the government conducted a thorough review of Alberta's royalty and tax regimes related to oilsands, conventional oil and gas, and CBM in 2007. This review process included extensive stakeholder consultation and culminated with a new royalty framework announced by Premier Stelmach on October 25, 2007, which did not include new fiscal incentives to encourage the use of saline water.

### ***Methane Gas Migration***

Government regulators under recommendation 3.6.1 are investigating the potential for methane migration or release to water wells as a result of CBM depressurization. Data gathered under the baseline water well testing and groundwater inventory projects will provide useful information in this regard. In addition, AENV commissioned a groundwater consultant this year to provide background information on gas migration potential in relation to CBM activities in Alberta. The report is expected to be completed in 2008.

## **2. Enhancing Information and Knowledge**

The MAC recognized that Alberta-based CBM water information can help guide the future actions of regulators and industry. Considerable effort has been made in the second year to address this category of MAC recommendations. There are six recommendations in this category with three on schedule, one complete, two not accepted, and none behind schedule.

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### ***Mapping BGWP and Groundwater Inventory***

Alberta's groundwater is not as well-defined as its surface water and the MAC recommended that the BGWP mapping should be updated (recommendation 3.2.1). Groundwater mapping, especially in areas with shallow water-wet CBM potential, should be conducted in greater resolution (recommendation 3.2.1). This work complements the direction by the Alberta Water Council to conduct province-wide groundwater mapping.

The BGWP database provides depths where non-saline water is expected to occur. This information is used by energy companies, for example, to comply with the ERCB's resource well drilling and completion requirements to protect non-saline water.

The Alberta Geological Survey (AGS) was retained by AENV to update the BGWP database. An updated BGWP database was completed in year two with greater resolution (one legal subdivision (LSD) versus the previous one township (TWP)) and more consistent technical criteria. ERCB Bulletin 2007-10 publicly announced the new BGWP database in 2007-08. The BGWP is available on either the ERCB or AGS website.

In response to MAC recommendation 3.2.1, AENV initiated a project in the summer of 2006 in partnership with the ERCB and the AGS to increase the understanding of the shallow geology and the potential impacts from drawing water from Ardley coals on the water level of the overlying Paskapoo aquifer. The initial stage of the project involved gathering prior research and the data from hydrogeological/water well and geological/petroleum industry databases from which the stratigraphic framework will be constructed. The project will provide information on groundwater quality and quantity in the Ardley and overlying Paskapoo formations and be used to evaluate the risk of CBM development to groundwater quality and quantity in the area (recommendation 3.6.1). This project is scheduled to be completed by summer 2008.

The Edmonton-Calgary Corridor (ECC) project was initiated in 2007-08 to provide an inventory of aquifers and groundwater resources within this highly populated and developed region. AENV hired three new staff this year and they were placed in the AGS to be specifically dedicated to this project. Extensive airborne geophysical surveys were conducted in the fall of 2007 over large parts of the project area to gather valuable groundwater information. The project is scheduled to be completed in 2011.

To further expand available information, the ERCB issued Directive 43 in December 2006, requiring geophysical logging behind surface casing for all new wells (recommendation 3.3.6). This additional geophysical knowledge is being used in year two to support groundwater mapping and water well complaint assessments.

The ERCB also identifies and tracks all CBM wells in ERCB Bulletin 2007-05. The geology and well producing characteristics are analyzed to better understand the CBM resource, reserves, and its potential risk to water.

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### ***Groundwater Monitoring***

AENV maintains a province-wide groundwater observation well network to monitor groundwater levels and groundwater quality in aquifers that have a potential to be used for water supply purposes. This network consists of approximately 200 observation wells, ranging in depth from 60 to over 250 metres. In addition, groundwater is also monitored in the vicinity of reservoirs, rivers, lakes, dams and oil sand developments to determine impacts on local groundwater systems.

The MAC recommended that AENV expand its provincial groundwater monitoring program (recommendation 3.2.1.1). In this regard, AENV successfully met its commitment to complete five new groundwater observation wells. AENV continues to work with industry and other organizations to identify suitable industry-owned observation water wells that could be donated to the province for incorporation into the provincial system. It is anticipated that the network will be further expanded in the 2008-09 year.

There was also positive acknowledgement that the groundwater mapping project is now underway. An evaluation of the data gathered from 40 of the monitoring wells on the network in 2006-07 was completed by the University of Calgary in spring 2007, including gas sampling results. The number of wells sampled over 2007-08 was reduced from 50 to 30 due to temporary staffing constraints, which have since been rectified with the hiring and training of new AENV staff. A second sampling trailer was built in 2007-08 and is expected to be deployed for 2008-09's sampling target of 50 wells. A similar report is expected from the University of Calgary in spring 2008 capturing 2007-08 sampling data.

### ***CBM Review of Other Jurisdictions***

Reviewing CBM activities in other jurisdictions to ensure Alberta gains the benefit of studies and experience elsewhere is a practice often utilized by the Alberta government. For example, in spring 2007, AENV invited a guest speaker from the Wyoming Department of Environmental Quality to share experiences on CBM development and groundwater monitoring in that state with Alberta government staff.

### ***One Year Mineral Lease Continuations***

In response to recommendation 6.5.1, the DOE completed a review of the history of Alberta CBM production and an investigation of methods used by industry for mineral lease continuations. The review of the data and information supported the position that the current regulation, which allows for a one year continuation, is sufficient. In addition, there have been very few requests from industry for an additional one year continuation under Section 17. The conclusion that no changes to the existing Section 17 regulation are required at this time was also agreed to by the Petroleum and Natural Gas (P&NG) Tenure Industry Advisory Committee.

## **3. Minimizing Surface Impacts**

The MAC's recommendations on minimizing surface impacts range from activities associated with local improvements to looking at potentially major changes resulting from reviews of

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province-wide land use policy. There are a number of diverse activities that are advancing progress on recommendations in this area. All six recommendations in this section are on schedule.

### ***Integrated Land Management***

Work is currently underway on Integrated Land Management (ILM), a priority government-led policy initiative addressing all types of access on public lands (recommendation 4.3.1). Six multi-stakeholder working groups provided direction on key components of the proposed ILM program (principles, protocols, incentives, stewardship, governance, and measures). Interim results were presented at an ILM Workshop held January 22 to 24, 2007. Final recommendations were completed by July 2007.

A potential location has been identified for a project that will demonstrate the Integrated Land Management and Area Operating Agreement processes in a CBM area and key stakeholders are being contacted. More details on the area and project details will become available in the near future.

### ***Project-Based Planning***

The ERCB has initiated a pilot project for intense development, including CBM, in response to broad stakeholder feedback. The project is testing different ways of enhancing and promoting project-based planning and disclosure, early community engagement and other options to ensure appropriate development and land access. A series of pilot projects involving landowners, operators and local government is being conducted. The first two pilots addressed potential Horseshoe Canyon CBM development in two separate one-township blocks east of Carstairs and Innisfail. Year two efforts saw the public reports on the early pilots posted on the ERCB website and the findings applied by the participating CBM operators in areas of development beyond the pilot boundaries. Future pilots are being investigated to study reducing impacts on more environmentally sensitive lands and areas involving wet Mannville CBM. Recognition and inclusion of CBM in the land challenge project is the ERCB response to MAC recommendations 7.2.1 and 7.3.1. It also contributes to recommendations 7.5.1 and 4.2.1, both of which focus on how to minimize surface impacts due to CBM development.

### ***Addressing Cumulative Impacts***

A new format for SRD Area Operating Agreements (AOA) has been implemented and further work is being done on risk management, quality assurance and compliance. Approvals are being issued under the new format. A process for electronic submission of monthly status reports is currently being developed. The AOA process is being re-evaluated to reflect other changes occurring in the regulatory approval process.

The MAC also recommended that the ERCB, AENV and SRD review all of their regulatory processes to identify ways to minimize surface disturbance and reduce cumulative impacts associated with CBM development (recommendation 4.2.1). Early action taken on this recommendation is reflected in ERCB Bulletin 2006-44, which introduced new rules on commingling of different pools in the same wellbore. These new rules will promote both appropriate resource conservation and reduced surface impacts, as commingling generally

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minimizes the number of wells needed to recover resources from multiple stacked intervals. The changes also decrease the regulatory requirement for segregated pool tests, further reducing the need for companies to access land during general operations.

### ***Reclamation***

The University of Calgary completed a study on Foothills fescue reclamation (recommendation 4.3.2), which called for improvements to the technology used for remediation and reclamation of land in sensitive areas. The report provides information and background on current and possible future reclamation criteria. The report also contains key findings that can assist industry in planning and reclamation methods for rough fescue grasslands. The report (Restoration of Rough Fescue (*Festuca Campestris*) Grassland on Pipelines in Southwestern Alberta) can be found at <http://www.srd.gov.ab.ca/lands/managingpublicland/rangemanagement/monitoringreferenceareas.aspx>

Gap analysis was completed for reclamation and revegetation issues for prairie landscapes. Recommendations have led to the creation of the Foothills Restoration Forum, an initiative to bring researchers and the public together to discuss native prairie use and restoration issues. Boreal gap analysis will be completed by the spring of 2008. Draft criteria were presented at practitioners' workshop in February 2008 with implementation expected in summer 2009. Initiatives to revise the reclamation criteria for both grasslands and peat-lands are underway with expectations that these be finalized in 2009.

In addition, industry will continue to consult with SRD to minimize disturbance to wildlife habitat on a project-specific basis, as identified in recommendation 9.6.1. SRD consults and develops guidelines on a continuous basis as part of their day-to-day operations.

## **4. Communication and Consultation**

The focus of these recommendations is to increase opportunities for dialogue and public awareness on possible impacts of CBM development so that Albertans are better informed and engaged. Of the 18 recommendations in this category, eight are complete, five are on schedule, three are behind schedule, one is to start in 2009, and one was reviewed and will not be actioned.

### ***Public Awareness***

Government and industry have developed considerable Alberta-based CBM information, which is available on the DOE, ERCB, AGS and AENV websites (recommendation 7.5.1). Examples of the type of information available include extensive CBM geological, water and resource work by the AGS (e.g., ERCB/AGS Special Report 081: Water Chemistry of Coalbed Methane Reservoirs) and Alberta CBM activity tracking and annual reporting by the ERCB (e.g., Bulletin 2007-05: 2006 Alberta Coalbed Methane Activity Summary and Well Locations). The department continues to review website information and incorporate updates where appropriate.

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### ***Water Well Education***

AENV initiated a water well education program in partnership with Alberta Agriculture and Rural Development, Prairie Farm Rehabilitation Administration and local municipalities aimed at educating rural well owners on topics such as siting, construction, operation and maintenance. Approximately ten workshops were conducted in early 2008 and a similar number is scheduled for the spring. The workshops have been very well attended and received. Ongoing work continues to expand and improve the program into the future.

### ***Split-Title Facilitation***

As part of the government's new royalty framework the DOE will initiate a review in late 2008 of the freehold mineral rights tax program to ensure it is fulfilling its intended objectives. A second phase of the review will determine a course of action to address recommendation 6.2.2 (i.e., establishing a process to facilitate parties coming together to work towards the resolution of split-title issues).

### ***Non-Productivity Notices***

The DOE has also reviewed and validated the procedures and policy regarding the criteria for Section 18 Notices of Non-Productivity (recommendation 6.3.1) and determined that no changes are required. It was concluded that serving more Section 18 notices will not substantially increase the amount of rights for CBM plays which are generally found in shallower zones.

### ***Setback Information***

The issue of clarifying and communicating the requirements, roles and responsibilities related to setbacks (recommendation 7.5.4) has been referred to Municipal Affairs (MA). Following the conclusion of other related initiatives, MA will work with the ERCB and others to address this issue.

### ***Mapping Tools***

The DOE has developed an online mapping tool to display the results of the most recent P&NG sales and oil sands sales data (recommendation 9.4.1). In addition, the mapping tool will also provide information on existing P&NG and oil sands agreements. The mapping tool is found on DOE's website. Summary and detailed user manuals are part of the online Help functionality.

To make it easier for the public to find the information they need about the deposition and use of Alberta's mineral resources (recommendation 9.4.2), DOE's website has been revised to include quick links from all web pages under the "Our Business" tab to search services, interactive maps and related manuals. In addition, a detailed, step-by-step instruction manual for the interactive maps was updated on March 2, 2007 and can be found on Alberta Energy's website.

### ***Surface Land Agents***

On November 30, 2007 several amendments to the Land Agents Licensing Regulation came into effect. The changes to the regulation and related policies will improve the

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professionalism of land agents, make them more accountable, enhance their training, and ensure their continuous development. A consolidated copy of the regulation can be found at [http://www.qp.gov.ab.ca/documents/regs/2001\\_227.cfm](http://www.qp.gov.ab.ca/documents/regs/2001_227.cfm).

The amendments were a result of an extensive public review of the regulation over the past few years (recommendation 9.5.1). Valuable input from land agents, interest groups, associations and other government departments was considered in the development of the amendments. The Land Agents Advisory Committee was very instrumental in analyzing the input and providing recommendations to the Registrar.

The Canadian Association of Petroleum Landmen Surface Land designation program is in place for its members.

### **Other**

The MAC Final Report identified the need for sufficient financial and human resources to successfully address the recommendations (recommendation 7.7.1). The MAC also noted it would be impractical to begin work on all recommendations immediately. The government has placed a high priority on addressing recommendations through effective and efficient allocation of resources. The government will continue to evaluate progress and resource requirements to ensure appropriate levels of resources are available to action the recommendations.

The MAC II received information about the problem of clubroot, a disease of canola, mustard and other crops in the cabbage family. It was noted that this issue is not specific to oil and gas activities and out of scope for the MAC II. The MAC II was informed of the actions being taken to address clubroot and the MAC II was supportive of the efforts of the other committees.

A few years ago, SRD in conjunction with AENV undertook an initiative on “Weed Awareness for Reclamation”. This initiative promoted good practices to prevent the spread of disease, such as clubroot and other invasive species. Weed Awareness for Reclamation stressed the importance for all industrial operators to clean machinery completely before moving to a new site and to be aware of the potential for weed and disease transfer between sites. This requirement can become part of the approval process for any SRD approvals. In addition, Agriculture and Rural Development has created a clubroot management plan (including best practices), which is posted on their website at [http://www1.agric.gov.ab.ca/\\$Department/deptdocs.nsf/all/agdex11519](http://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex11519)

Agriculture and Rural Development has also developed a practice guide for machinery cleaning (entitled “Best Management Practices for Disinfesting Farm Machinery and Equipment to Prevent the Spread of Clubroot between Canola Fields”), which is posted on their website at [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/prm12120](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/prm12120)

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# Non-Government MAC II Members' Feedback

The following section reflects feedback from non-government MAC II members on the progress achieved to date in addressing the Final Report recommendations. This feedback was gathered through the distribution of a questionnaire and subsequent comments on draft reports. The input from non-government members who provided a response is summarized below in the following categories:

1. Protecting water resources
2. Enhancing information and knowledge
3. Minimizing surface impacts
4. Communication and consultation
5. Other recommendations
6. Comments about the MAC II process

The feedback is separated into two groups:

1. Feedback from non-industry members, such as landowner and environmental groups and
2. Feedback from the industry, which includes energy industry association members.

## Protecting Water Resources

The MAC's Final Report identified protection of water resources as a significant concern related to CBM development. Water-related recommendations include establishing a more rigorous regulatory process to address CBM operations that potentially pose a risk to non-saline water resources. The development of standard procedures and reporting requirements for sampling, analysis and monitoring of both saline and non-saline water quality and quantity for CBM wells and potentially affected water wells is also important. Protection of water resources continues to be a major concern and a priority for all respondents.

## Non-Industry Feedback

While stating that overall the progress has been good, respondents were generally less pleased with progress this past year compared to the previous year, noting a growing number of recommendations were behind schedule, for example, well monitoring and sampling for water related information. Some respondents said they were disappointed that five of AENV's new observation wells had to be decommissioned in 2007 due to construction problems, since there were so few wells to begin with. Another issue identified was AENV reducing the number of monitoring wells from 50 to 30, which was suggested by the respondent that it may be due to lack of staff or funding.

The ERCB was acknowledged for its commitment to implementing a number of MAC recommendations: Directive 43, for logging shallow groundwater, and Directive 44 for reporting produced non-saline water above a threshold of 5 cubic metres per month ( $\text{m}^3/\text{month}$ ). Failure to comply with the latter is now a "High Risk Enforcement Action", although one respondent questioned whether enforcement has been stringent enough.

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### **Industry Feedback**

Industry noted that while the commitment of the government at the Deputy Minister level has been strong, many AENV undertakings are a year behind and some undertakings have yet to be initiated, for example, the finalization of the water decision tree and the completion of beneficial use guidelines, regulatory frameworks and legislation. Industry expressed disappointment in the progress made to date on these undertakings and that seven recommendations are behind schedule in this area. One specific example noted was the delay in the provision of the Code of Practice to support the interim threshold (which could change). The lack of action on some recommendations has restricted the collection of necessary information for other recommendations.

Industry did note that AENV has established protocols for dealing with public water well complaints and the timeframes for investigations have improved significantly. Industry also expressed surprise that only five of the ten new observation wells were usable and were disappointed that the other five were abandoned.

### **Enhancing Information and Knowledge**

The MAC indicated in its Final Report that more information and knowledge are required in order to ensure the continued responsible development of CBM in the province. For example, there was an ‘umbrella’ recommendation to improve scientific information about the province’s water resources, including completion of a groundwater inventory and the BGWP mapping project, and obtaining baseline water data on quality and quantity in non-saline aquifers. As well, more scientific information is needed to develop a threshold volume of produced water below which a simplified Code of Practice will apply.

### **Non-Industry Feedback**

The non-industry sector had little to comment on this category, but noted that AENV appears to be making progress in completing the mapping of the province’s aquifers.

### **Industry Feedback**

One respondent indicated that if the proper scientific work is completed and acted upon, Alberta will have one of the best regulatory frameworks for CBM development in the world. However, there was concern expressed that a number of projects related to gathering scientific information have been delayed. This delay is affecting the interim measures that were put in place until standards based on scientific information are developed.

Some examples of delayed projects were: the scientifically-based threshold water withdrawal number for the water decision tree process; technical work to review drilling and completion practices related to groundwater protection; and scientific work to determine offset water well testing and radius standards.

Industry expressed disappointment with the fact that the threshold issue is behind two years and that this delay continues to cause extensive and unnecessary costs to industry. There is also concern that the delay will result in unrealistic expectations of operators.

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However, it was recognized that a study on gas movement and its impacts will be available to the MAC II members in spring 2008. Industry encouraged a stronger commitment to completing the scientific work, along with the development of a regulatory framework based upon the resulting sound scientific principles.

### **Minimizing Surface Impacts**

Concern about surface impacts related to CBM operations in the MAC Final Report focused on recommendations that addressed the need to protect the environment and minimize cumulative impacts. For example, the MAC recommended that the CBM regulatory process promote project-based planning to manage potential long-term surface impacts.

### **Non-Industry Feedback**

It was noted that a study conducted by SRD on the reclamation of Foothills fescue was useful, but the report on the Rumsey area, which lies in a CBM area, will be more useful in addressing recommendation 4.3.2.

There was concern expressed about some recommendations related to land use and surface impacts being stalled. SRD was encouraged to take action on recommendation 4.3.1 to protect the environment and minimize impacts from CBM development. It was noted that the department appears to be waiting for the implementation of its Integrated Land Management (ILM) Program, but an alternate approach should be considered, since this was considered a priority recommendation by the MAC. In addition, the MAC recommended baseline studies to be completed in areas where the ILM process may not be adequate, but this work does not yet seem to be underway.

It was noted that the ERCB has shown considerable commitment in implementing pilot projects to help reduce cumulative impacts of CBM development. One respondent indicated that strong legislation was needed to ensure that surface disturbances are reclaimed to the same condition as before industry activity.

### **Industry Feedback**

There was limited industry feedback in this category. One member noted that there should be acknowledgement from government that because companies are required to drill many observation or control wells, surface disturbance is greater.

### **Communication and Consultation**

The MAC Final Report addressed the need for enhanced communication and ongoing consultation on CBM-related topics with all stakeholders, including members of the public.

### **Non-Industry Feedback**

One respondent believed that the government response to recommendation 9.5.1, which was reviewed in 2007 and determined that no action was required, was inadequate. This recommendation related to the Land Titles Office ensuring transparency of information on a certificate of title to mineral rights. There was also concern expressed that the government should update its information related to Recommendation 6.2.1 (completed in 2006 - to make

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the public aware of the risks and associated impacts of split-title ownership) to reflect a recent ERCB decision.

Other respondents noted that the reporting and communication process with the MAC II was effective, commendable, is probably helping to maintain work on the recommendations, and allows members to inform stakeholders when progress has been too slow.

Regarding communication with the public, it was noted that the ERCB has issued several new directives that require companies to provide information about non-saline groundwater.

There was concern expressed about the lack of regulation governing agents dealing with freehold rights in Alberta.

A new concern was raised regarding clubroot, a very long lasting soil-borne disease that can devastate canola crops, and is easily transportable on soil particles. Not only does the disease reduce productivity, once the land is inflicted, canola production is restricted by law to a maximum frequency of one crop every 5 to 7 years, depending on individual county laws. While CBM operations are not the only potential transporter of this disease, the intensity of CBM operations in canola-growing areas is a concern.

### **Industry Feedback**

Industry felt the MAC process provides an opportunity to provide accurate information and knowledge exchange among stakeholders, including various government departments and agencies. Industry was pleased with the planned rural community outreach sessions intended to discuss water well testing and water well risks.

One respondent indicated that there might be a significant communication challenge once scientifically-based standards replace interim measures that have been in place for a while. For example, it may take significant effort for AENV to educate the public to move the regulatory framework to one based on sound scientific principles.

### **Other Recommendations**

Both industry and non-industry respondents continued to share a concern about delays in addressing some recommendations. It was acknowledged the delays may be due to insufficient resources in some government departments. The need for sufficient resources was identified in recommendation 7.7.1 which states:

*Appropriate government departments and agencies should have sufficient resources to be able to implement these recommendations effectively and efficiently.*

MAC II members confirmed the need for government to commit to ensuring sufficient resources and delivering on the original timelines to complete the scientific undertakings. This needs to be followed by a timely revision of regulations to match the outcomes of the scientific work.

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## **Comments on MAC II Process**

MAC II members were asked about the effectiveness of the MAC II process and whether it has met their expectations.

### **Non-Industry Feedback**

In general, non-industry members were satisfied with the level of information provided to MAC II members. Survey respondents believed that process has been effective, since there is a built-in reporting mechanism for government, as well as an opportunity for stakeholders to identify issues and areas where progress has been slow. This has been of core importance to the MAC II, helping to ensure that the government stays focused on addressing the recommendations. One respondent expressed frustration that issues deemed out-of-scope by MAC continue to be considered out-of-scope.

### **Industry Feedback**

Industry members were generally in agreement that the MAC II process has been effective in providing a feedback mechanism, creating a good opportunity for all stakeholders to discuss progress and collaborate on issues. The style and format of the process has worked well, especially the clear documentation and department updates. There was concern expressed about the need to keep discussion more focused on the recommendations and avoid out-of-scope issues. Receiving material well in advance of the meetings was requested in order to have sufficient time to thoroughly review all the documents. The renewed commitment by AENV and completion of a number of key reports/initiatives were anticipated in the remainder of 2008.

### **Summary of Feedback**

Respondents in general were very satisfied with the MAC II process, and believed it helped ensure the accountability of government in carrying out the MAC's recommendations. They did comment that some of the recommendations were falling behind schedule, particularly those recommendations related to scientific undertakings and information gathering. However, they acknowledged that ten recommendations were completed and a number of key reports were expected in 2008.

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## Next Steps

This public progress summary report provides an update on the second year of addressing the MAC Final Report recommendations related to CBM development in Alberta.

It reflects the ongoing commitment on behalf of the MAC II, government and industry to an open and transparent process. It is clear from the work completed and commitment to continue to address outstanding issues that all parties have placed a high priority on actioning the recommendations from the MAC process. The government anticipates there will continue to be a strong focus in the coming year on addressing water-related issues and the environmental impacts associated with CBM operations.

In an effort to continue to have an open and transparent process, further public updates will be provided as work continues to address the recommendations. The MAC II will continue to meet to monitor government and other stakeholder activities related to addressing the MAC's recommendations. For more information, please see Alberta Energy's website <http://www.energy.gov.ab.ca/NaturalGas/561.asp>

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# Acronyms and Glossary of Terms

## Acronyms:

AENV	Alberta Environment
AERI	Alberta Energy Research Institute
AGS	Alberta Geological Survey
AOA	Area Operating Agreements
BGWP	Base of Groundwater Protection
CAPL	Canadian Association of Petroleum Landmen
CAPP	Canadian Association of Petroleum Producers
CBM	Coalbed Methane
CoP	Code of Practice
DOE	Alberta Department of Energy (also AE – Alberta Energy)
ERCB	Energy Resources Conservation Board (formerly the EUB: the Alberta Energy and Utilities Board)
GSC	Geological Survey of Canada
ILM	Integrated Land Management
MAC	Coalbed Methane Multi-Stakeholder Advisory Committee
PTAC	Petroleum Technology Alliance Canada
P&NG	Petroleum and Natural Gas
SRD	Alberta Sustainable Resource Development

## Glossary of Terms:

**Abandonment:** The permanent dismantlement of an oil or gas well or facility in the manner prescribed by the regulations including any measures required to ensure that the facility is left in a permanently safe and secure condition.

**Appropriate Dispute Resolution (ADR):** A term that reflects a number of alternatives or means to resolve conflicts between parties. It can include direct negotiations, facilitated sessions, mediations, or arbitration between conflicting parties, as well as the public hearing process. The ERCB encourages conflicting parties to use available ADR options when conflict arises with respect to energy development.

**Aquifer:** As defined by the Alberta Government's Water Act, an underground water-bearing formation that is capable of yielding water.

**Best practices:** Management practices or techniques recognized to be the most effective and practical means to develop the resource, while minimizing adverse environmental and other effects.

**Casing:** A series of tubular pipes joined by threads and couplings that line a well bore to prevent water and rock from entering into the well bore. In oil and gas wells is also used for drilling control and wellbore integrity.

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**Coal:** A black or brownish-black solid combustible substance formed by the partial decomposition of organic matter without access to air.

**Coal seam:** Descriptive term for individual layers of coal found in the geological strata. It is also called a 'bed' in the coal industry.

**Coal zone:** A vertical extent of intermittent coal seams and intermingled shale or clay. The zone extends from the top of the uppermost seam to the bottom of the lowermost one.

**Coalbed methane (CBM):** Methane found in coal deposits.

**Commingling (oil & gas):** Mixing oil and or gas from two or more different pools in the same well bore.

**Commingling (water):** Mixing water from two or more different aquifers in the same well bore.

**Conventional natural gas:** Natural gas consisting of a mixture of hydrocarbon compounds, primarily methane, and small quantities of various non-hydrocarbons that exist in gaseous phase or in solution with crude oil in natural underground reservoirs.

**Crown:** Depending on jurisdiction, the Crown is either represented by the federal or Alberta government.

**Drilling fluid:** The circulating fluid (mud) used to bring drilling cuttings out of the well bore, cool the drill bit, and provide hole stability and pressure control. Drilling mud includes a number of additives to maintain the fluid at desired viscosities and weights. Drilling fluids are also needed to complete water wells.

**Formation:** A designated subsurface layer that is composed of substantially the same kind of rock or rock types.

**Fracturing:** A method of improving the permeability of a reservoir by pumping fluids such as water or carbon dioxide, and nitrogen into the reservoir at sufficient pressure to crack or fracture the rock. It is also known as 'fracing'.

**Freehold rights:** Mineral rights not owned by the Crown in right of Alberta. These mineral rights may be owned by the Crown in right of Canada, by corporations or individuals.

**Groundwater:** Water that occurs under the surface of the ground.

**Initial gas in place:** The volume of raw natural gas calculated or interpreted to exist in a reservoir before any volume has been produced.

**Landowner:** See 'Surface rights holder'

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**Lessee:** Defined in the Mines and Minerals Act as the holder according to the records of the Department of Energy of an agreement. The term ‘lessees’ may, therefore, refer to holders of leases or licences or both, depending on the context in which it is used.

**Methane:** The most prevalent component of most natural gas produced in Alberta. Its chemical notation is CH<sub>4</sub> and it is the most common hydrocarbon gas.

**Mineral rights:** Entitlement, through ownership or a leasing arrangement, to produce and sell the minerals in a parcel of land.

**Migration:** Movement from one place to another.

**Non-saline water:** Water with total dissolved solids content less than 4000 milligrams per litre (mg/L). See also ‘Saline groundwater’.

**Operator:** The company or individual responsible for managing an exploration, development, or production operation.

**Pool:** A natural underground reservoir containing an accumulation of oil or gas or both, separated or appearing to be separated from any other such accumulation.

**Produced water:** The water extracted from the subsurface along with produced oil and gas, including water from the reservoir, water that has been injected into the formation, and any chemicals added during the production/treatment process.

**Reclamation:** Process of restoring surface environment to acceptable pre-existing conditions.

**Recompletion:** A recompletion occurs when the producer re-enters a well to complete (i.e., perforate) a new formation in a previously completed well.

**Remediation:** Cleanup of an environmentally contaminated site.

**Saline groundwater:** Water that has total dissolved solids content exceeding 4000 mg/L as defined in the Water (Ministerial) Regulation.

**Section:** An area one mile square or as close as the convergence of the meridians permit.

**Sensitive areas:** Lands or associated features requiring protection, including critical wildlife habitat, rare and endangered plant species, native prairies, areas prone to erosion or other geotechnical failure, or cultural heritage sites.

**Split title:** Where subsurface rights are owned by different parties, e.g., the Crown owns the coal rights and the P&NG rights are freehold, or vice versa, or two separate freehold owners exist.

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**Subsurface:** Below the surface.

**Subsurface rights holder:** The owner or lessee of the mineral rights who has the right to explore for and produce oil, gas, and other minerals. The owner may be a freehold rights owner or the Crown.

**Surface rights holder:** The owner or lessee of the surface rights (the landowner) has control of the land's surface and the right to work it, in addition to any sand, gravel, peat, clay or marl which can be excavated by surface operations.

**Total Dissolved Solids (TDS):** A measure of concentration or how much substance is dissolved in a given sample.

**Tenure:** Term used to describe the system whereby mineral rights are managed by the Department of Energy and disposed to individuals and companies as agreements.

**Township:** A term used in the 'Alberta Township System'. Depending on the context in which it is used, it refers either to a six square mile area comprising 36 sections or to a row of townships spanning from north to south across Alberta. Township 1 lies at the southernmost boundary of Alberta and Township 126 lies at the northernmost boundary.

**Unconfined aquifer:** An aquifer containing water that is not under pressure. The water level in a well completed in an unconfined aquifer is the same as the water level (water table) outside the well.

**Water Act:** The Alberta Water Act protects the quality of water and manages its distribution. The legislation regulates all development and activities that might affect rivers, lakes, and groundwater.

**Water quality:** Refers to a set of chemical, physical, or biological characteristics that describe the condition of a river, stream, lake, or aquifer.

**Water well:** As defined in the Water Act, an opening in the ground, whether drilled or altered from its natural state, which is used for:

1. the production of groundwater for any purpose,
2. obtaining data on groundwater, or
3. recharging an underground formation from which groundwater can be recovered and includes any related equipment; buildings, structures and appurtenances.

**Well density:** The concentration of wells on the land surface (per unit area).

**Well spacing:** The distance between wells producing from the same reservoir with additional separation from lease lines of different ownership. Spacing is often expressed in terms of area (e.g., 40-acre spacing) and is usually established by regulatory agencies.

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**Zone:** Defined in the Petroleum and Natural Gas Regulation as a stratum or series of strata considered by the Minister to be a zone for the purposes of this Regulation. In many cases, zones may be geological formations or members but in some instances they are larger (geological groups) and include more than one formation (the Mannville zone, for instance, includes numerous formations).

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# Appendix A MAC II Membership

## *Non-Industry Members:*

- Alberta Association of Municipal Districts & Counties (AAMD&C)
- Alberta Environmentally Sustainable Agriculture Council
- Alberta Surface Rights Federation
- Butte Action Committee
- Freehold Owners Association of Alberta
- The Pembina Institute
- Alberta Beef Producers

## *Industry Members:*

- The Coal Association of Alberta
- Canadian Association of Petroleum Producers/Canadian Society for Unconventional Gas (CSUG)/Small Explorers and Producers Association of Canada (SEPAC) – representing two members on the MAC II
- Canadian Association of Petroleum Landmen

## *Provincial Government Members:*

- Alberta Agriculture and Rural Development
- Alberta Energy
- Alberta Energy Resources Conservation Board
- Alberta Environment
- Alberta Sustainable Resource Development

## *Facilitator:*

- Alberta Culture and Community Spirit

10 - complete  
 21 - on schedule  
 10 - behind schedule  
 1 - reviewed and not actioned  
 2 - not accepted  
 44 Total Recommendations

**Appendix B: Progress Table  
 MAC Recommendations  
 As of March 31, 2008**

**Note: Early Action Items Indicated in Bold Face Type**

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
<b>Protecting Water Resources</b>					
3.3.1	AENV should establish a multi-stakeholder technical committee to determine an appropriate, scientifically-based threshold volume for produced non-saline water below which a simplified approval under a Code of Practice for production or use of the water would apply.	2008	behind schedule	ARC report on developing a scientifically based threshold volume completed in March '06. Interim threshold volumes developed by a sub-committee of MAC have been adopted. Stakeholder workshop held Dec. 14/'06 to discuss CoP concepts. Process to review threshold limits also discussed at the workshop. Background information being collected (mapping, monitoring) to provide the necessary information for development of scientifically based threshold volumes.	
			behind schedule	CoP and associated regulation changes are currently being drafted and will be completed by the end of '08.	
				ERCB Directive 44 (Oct. 31'06) increases the surveillance of produced water for all wells with perforations above BGWP and enhances produced water sampling and procedures to provide more accurate information available to AENV. Monthly surveillance is identifying all wells producing water above BGWP. These are followed up with companies to	

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
				ensure accurate measurement and reporting, segregated water analysis is conducted and production plans established with links to AENV. Where water production occurs operators are choosing to abandon the wet zones in accordance with ERCB requirements. Audits are assisting operators to follow better water testing and reporting procedures.	
<b>3.3.2E</b>	<b>AENV and the ERCB should develop a 'decision tree' approach for reviewing CBM applications involving non-saline water production. This process should address the level of risk to aquifers and users by considering factors such as hydrogeological settings, existing users, salinity and expected volumes of water produced. The decision tree should be developed with stakeholder input and should:</b>				
3.3.2.1	Incorporate the threshold volume of produced non-saline water, below which the Code of Practice (CoP) would apply (See Recommendation 3.3.1).	2008	behind schedule	CoP and associated regulation changes are currently being drafted and will be completed by the end of '08. Interim threshold value to be used for draft CoP until scientifically based rate is determined.	
3.3.2.2	Consider geographical areas where the risk to the quality or quantity of water supplies might be greater than in other areas.	2008	on schedule	Ardley Coal Zone identified as the general area of greatest risk. AGS-AENV Ardley Project initiated in '06 to refine higher risk areas along this zone. To be completed by Q2 '08.  A workshop of groundwater experts was held in June '07 to discuss aquifer characterization requirements for groundwater mapping of the Edmonton-Calgary corridor (ECC). ECC Project will also help refine higher risk areas. ECC project to be completed in '11.	
3.3.2.3	Ensure that applications for CBM wells that would produce volumes of non-saline water in excess of threshold volumes trigger accelerated aquifer studies.	2009	on schedule	Any water diversion already requires an aquifer study. An updated version of the 2004 Guideline for CBM water diversion will be released with the CoP.  Ardley project results may identify areas for accelerated aquifer studies required in support of CBM groundwater diversion	

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
				applications. Ardley project to be completed by Q2 '08. No large CBM related groundwater diversions to date.	
3.3.2.4	Ensure appropriate compliance with the decision tree.	2008	on schedule	Activity to be coordinated with the ERCB production water surveillance. Directive 44 in place.	
3.3.3	AENV's Guidelines for Groundwater Diversion for CBM Development (April 2004) should be enhanced and required for a single well or group of wells where non-saline water is present or anticipated.				
3.3.3.1	The guidelines should be reflected in the risk-based decision tree process.	2008	behind schedule	The updated Guideline will be released when the CoP is implemented by the end of '08. Later, when a beneficial use policy is completed, the guideline and CoP will be re-examined. Interim threshold values will reflect qualitative risk.	
3.3.3.2	To ensure consistency, minimum conditions for approvals should be standardized across the province with additional site-specific conditions possible.	2008	on schedule	Interim threshold value will be used to determine when an approval is required. Site-specific conditions will be considered in the approval process.	All Water Act approvals already have standardized minimum conditions.
3.3.3.3	The components of the field-verified survey of all water sources should be reviewed to ensure their appropriateness and effectiveness with regard to the scale of the project.	2008	on schedule	Baseline water well testing tied to CBM well licensing process. Baseline testing will be identified in CoP and Guideline and will be re-visited upon development of scientifically-based threshold volume. Site-specific conditions will be considered in the approval process.	
3.3.3.4	A province-wide review of existing CBM wells should be undertaken to ensure all guidelines have been met.	ongoing	on schedule	ERCB surveillance and audit processes enhanced.	
<b>3.3.5 E</b>	<b>AENV and the ERCB should work with stakeholders, including the environmental service industry, to develop standard procedures and reporting requirements for the sampling, analysis, and monitoring of both saline and non-saline water quality and quantity for CBM wells and potentially affected non-saline water wells. Quality assurance and quality control measures should be developed, as well as a range of tests, depending on the type of water being tested, including:</b>				
3.3.5.1	Testing for a variety of metals and other impurities, as well as total dissolved solids.	2007	on schedule and ongoing	AENV reviewed its sampling protocol for wells in the provincial network (2007/08). Report completed by U of C in spring '07 made recommendations for future	Science Panel will provide recommendations on BWWT (baseline water well testing) standard by spring '08.

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
				sampling procedures. AENV has adopted recommended sampling procedures for wells in the provincial network.	
3.3.5.2	Testing for the presence of gas in water wells. The presence or lack of gas should be included on the water analysis report or file (See Section 3.6 for discussion on methane migration and release).	2007	on schedule and ongoing	Gas sampling requirements included in baseline water well testing (BWWT) standard.  Protocol for gas sampling completed in August '06 by AENV under BWWT standard.  U of C study on merits of "free" versus "dissolved" gas sampling completed in spring '07.	Science Panel established to review BWWT standard, including gas sampling protocol. Panel to provide recommendations by spring '08. The Standard for BWWT will be revised based on Science Panel recommendations.
3.3.5.3	Non-saline water produced from coal seams should be tested for its intended use or to determine what it can be used for.	2008	delayed pending data	Insufficient volumes of non-saline water produced to date to be tested or used for consumptive purposes.	
3.3.6	AENV should develop a water well testing program as follows:				
3.3.6.1	CBM operators should be required to offer baseline testing (as described in 3.3.5) of all nearby water wells within a specified distance of a proposed CBM well to be completed above the Base of Groundwater Protection. (No consensus was reached on an appropriate distance or depth of completion.)	2006	complete 2006	Standard for Baseline Water-Well Testing for Coalbed Methane/Natural Gas in Coal Operations implemented by ERCB May 1, '06.	Science Panel established to review standard. Companies are showing they are receptive to reasonable requests to test water wells in situations not covered by AENV policy. Standard may be revised based on Science Panel recommendations.
3.3.6.2	The information from the baseline testing should be filed by operators in an open, public registry to enhance understanding of Alberta's groundwater system.	ongoing	on schedule	Template developed and interim spreadsheet available to capture initial data. Work on a publicly accessible system is continuing. An online tool is expected to be accessible in mid '08.	
3.3.6.3	A clear process to address water well complaints should be developed and communicated to water well owners, surface rights holders and other stakeholders.	2007	complete 2007 – with work ongoing	Complaint number (1-800-222-6514) is posted on the AENV website under "Emergency Numbers". Complaint process communicated in June '06 CBM public information sessions. Training of AENV staff on water well issues is ongoing. Internal manual being developed by AENV to ensure consistency.	Complaints process fact sheet prepared and posted on AENV website at <a href="http://www.waterforlife.gov.ab.ca/coal/docs/Water_Well_Investigations.pdf">http://www.waterforlife.gov.ab.ca/coal/docs/Water_Well_Investigations.pdf</a> .

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
3.3.7	AENV and the ERCB should review drilling and completion practices for new and recompleted water and energy wells, ensuring regulations are appropriate for the purpose of the well. Topics to be addressed should include: drilling and completion fluids; well bore integrity/aquifer isolation; casing types; fracturing; and completions, etc. This review should include the drilling and abandonment of temporary water source wells.	2010	on schedule	The ERCB issued Directive 27 (Jan. 31'06) imposing constraints on shallow fracturing. A multi-stakeholder technical review committee has been established and continues to meet. Interim controls have been implemented. The ERCB issued an update to Directive 36 (Feb.'06) to address non-toxic components. Action is targeting higher risk components. The ERCB initiated a one-year field surveillance program specific to CBM in fall '05 to monitor compliance to identify if there are other areas requiring short-term reviews and change. Inspections showed consistent operational compliance with industry standards for both conventional gas and CBM development. A CBM control well system is in place to collect segregated data specific to production from coals.	
3.4.2 E	<b>The ERCB and AENV should, in cooperation with other organizations such as the ARC, investigate whether CBM drilling and completion practices such as using dugout water and untreated river water may affect aquifers, and review regulations to determine whether changes are needed.</b>	2007	behind schedule	An element of 3.3.7. A third party review initiated (microbiologist and hydrogeologist) with a public report expected in mid '08. Previous reviews have shown no potential for impact.	
3.5.1	AENV and the ERCB, with stakeholder input, should: Review existing requirements for deep well disposal of non-saline produced water and consider alternatives, if appropriate. Establish criteria for the beneficial use of non-saline produced water. Develop guidelines, including a requirement for a beneficial use assessment for non-saline produced water, and include them in the decision-tree approval process.	2008	behind schedule	Two scoping studies undertaken by AENV, PTAC, AERI and DOE, one on high total dissolved solids (TDS) (June '07 and one on low TDS (August '07). The reports can be found at <a href="http://www.ptac.org/etalk/dl/HighTDS.pdf">www.ptac.org/etalk/dl/HighTDS.pdf</a> and <a href="http://www.ptac.org/etalk/dl/LowTDS.pdf">www.ptac.org/etalk/dl/LowTDS.pdf</a> Meeting to be held with MAC II in Q3 '08 to present information from the study and other work completed regarding beneficial use of produced water.	Information from the study will be used as a resource for multi-stakeholder workshops held in spring '08 to discuss beneficial use of produced water.

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
	Revisit authorized diversions of non-saline groundwater for industrial use when CBM developments create new sources of water in the area.			Regulators have been approached by a number of parties proposing tests of other uses within or between industries. Where appropriate, having regard for waste management and environmental protection, approvals will be small scale pilots.	
3.5.2	AENV and the ERCB, with stakeholder input, should establish criteria for the beneficial use of marginally saline produced water. AENV and the ERCB, with stakeholder input, should then develop guidelines, including a requirement for a beneficial use assessment for marginally saline produced water, and include them in the decision tree approval process.	2008	behind schedule	Two scoping studies undertaken by AENV, PTAC, AERI and DOE, one on high total dissolved solids (TDS) (June '07 and one on low TDS (August '07). The reports can be found at <a href="http://www.ptac.org/etalk/dl/HighTDS.pdf">www.ptac.org/etalk/dl/HighTDS.pdf</a> and <a href="http://www.ptac.org/etalk/dl/LowTDS.pdf">www.ptac.org/etalk/dl/LowTDS.pdf</a> Meeting to be held with MAC II in Q3 '08 to present study information and other work on beneficial use of produced water.	
3.5.3	AENV, the ERCB, and AE should work with the water producing and environmental services industries to promote the development of new technology or the application of existing technology that can take advantage of saline and marginally saline produced water.	Ongoing  (Align with PTAC)	on schedule	Water Innovation Forums held Jun '06 and Jun '07 showcasing new produced water management technology and ideas. Report on Cost-Benefit Analysis of Treating Saline Groundwater (AMEC) completed in March '07.  Promoting and encouraging use of funding opportunities such as Environment Enhancement Fund to focus on produced water management technology, innovation and efficiency.	
<b>3.6.1 E</b>	<b>AENV and the ERCB should work with industry to investigate the potential for methane migration or release to water wells as a result of CBM depressurization.</b>	2009	on schedule	AENV complaint response to water well complaints is being enhanced. Provincial groundwater monitoring system is being enhanced. AENV has commissioned a consultant to provide background information on gas migration potential with a report by spring '08. Additional information is being gathered (Directive 35 and Directive 44) to support a future study.	Data to date does not show a provincial problem.
3.6.2	Based on the results of the previous	2010	on schedule	AENV response to water well complaints	

Rec #	Recommendation Description*	Targeted Year of Completion	Status	Action Taken	Comments
	recommendation, AENV and the ERCB should implement appropriate prevention, monitoring, and mitigation measures to address methane migration or release, if necessary.			is being enhanced. Provincial groundwater monitoring system is being enhanced. ERCB continues to review and enhance CBM well construction requirements.	
5.2.3**	AE, in consultation with stakeholders, should consider the use of appropriate fiscal tools to encourage the use of saline water from CBM development to replace non-saline water for enhanced oil recovery and other industrial uses.	2008	complete 2008	A scoping study "Produced Water Beneficial Re-Use – High TDS Waters" by AENV, PTAC, AERI and DOE was released in August '07. The study found there is insufficient data regarding characterization of the produced water and that fiscal tools are not the appropriate mechanism at this time. After extensive consultation this conclusion was agreed to by the Royalty Review Panel.	The report can be found at <a href="http://www.ptac.org/etalk/dl/HighTDS.pdf">www.ptac.org/etalk/dl/HighTDS.pdf</a> .
<b>Enhancing information and knowledge</b>					
<b>3.2.1E</b>	<b>The following actions should be undertaken in collaboration with stakeholders to improve the scientific information on the province's water resources:</b>				
3.2.1.1	AENV should expand its current monitoring network and data management systems.	2007 & ongoing	on schedule	AENV successfully met its obligation to complete five new groundwater observation wells. The network will be further expanded with the addition of approximately three to five more wells by 2008. Approximately 40 monitoring wells in the current provincial observation well network were sampled for gas and water analysis by March '07. The number of wells to be sampled for 2007/08 was reduced from 50 to 30 due to the loss of key staff resources. New staff has been hired and are currently being trained. A second dedicated sampling trailer is in the final stages of being built and will be ready for spring '08. AENV anticipates another 50 wells will be sampled in 2008/09.	
3.2.1.2	AENV should complete its inventory of groundwater in the province, beginning in areas that could experience intense CBM development.	2012	on schedule	AGS, in partnership with AENV and GSC, will complete the Ardley Coal Zone project by Q2'08. AENV partnered with the AGS to initiate a province-wide long-term GW mapping program starting with Calgary to Edmonton corridor. Long-term	ERCB issued Directive 43 (Nov. 1 '06) requiring shallow logging which will provide additional information on shallow geology to assist mapping.

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				commitment and funding to the program is key to the partnership.	
3.2.1.3	The ERCB and AGS should complete the Base of Groundwater Protection mapping project.	2007	complete 2007	The AGS has completed the updating of the BGWP database. ERCB Bulletin 2007-10 on the BGWP database, was posted on the ERCB website.	
3.2.1.4	AENV and the ERCB, with industry, should investigate the potential for unintended effects of CBM development on surrounding aquifers.	2011	on schedule	Provincial groundwater monitoring system is being enhanced to provide information on regional groundwater impacts. The AGS-AENV Ardley project is designed to identify potential risks of CBM development in the Ardley area and will be complete by Q2'08. AENV has contracted a consultant to prepare a scientific report on the potential for gas migration and other unintended effects of CBM development. The report is to be completed by April '08.	There are many current activities that provide insights into the potential effects of CBM activities on aquifers, such as: - Installation of additional monitoring wells - Enhanced monitoring of wells in the provincial observation well system - Increased use of investigative tools such as isotope analysis.
3.2.1.5	AENV should identify and characterize areas where CBM approval requirements need to be more rigorous due to potential impacts on non-saline aquifers, other water bodies, and other water users. Maps of these areas should be made available to regulators, industry, and stakeholders.	ongoing	on schedule	Water short areas identified through oilfield water injection study. AGS-AENV Ardley Project and Edmonton-Calgary Corridor Project will identify high risk areas which will help inform policy on where requirements need to be more rigorous. Ardley Project to be completed by Q2 '08. ECC Project to be completed in '11.	
3.2.1.6	Before drilling and production from a potentially non-saline aquifer where water volumes are anticipated to be above a threshold limit, CBM operators should obtain baseline data; including gas and mineral content and other indicators of water quality, flow rate/yield, and water levels.	2006	complete 2006	Standard for BWWT for CBM operations implemented by the ERCB – effective May 1, '06. Protocol for gas sampling finalized in Aug '06.	Standard may be revised based on Science Panel recommendations (see 3.3.5). Requirements for collection of baseline data for non-saline water diversions will be specified in Code of Practice (CoP) and Guideline (see 3.3.1). Panel expected to complete report in spring '08.
5.2.1 (non-consensus)	AE, in consultation with stakeholders, should determine an appropriate level of royalty reduction for a period of up to five years to encourage the drilling of saline CBM wells in the Mannville		not accepted		

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	formation for the purposes of acquiring information.				
5.2.2**	The Alberta and the federal governments should consider recognizing Canada's CBM potential through the adjustment of tax regimes, including corporate income tax and freehold mineral tax, to encourage a five year pilot-type drilling program for saline CBM wells in the Mannville formation for the purposes of acquiring information.		not accepted		
6.5.1	AE should allow companies an additional one-year continuation under Section 17 of the Petroleum and Natural Gas Tenure Regulation. This additional year would require industry to submit evidence of work conducted during the first continuation period.	2010	complete 2007	Internal consultation completed. Extension history for CBM reviewed. Based on both the technical review and the lack of requests for more time outside current continuation legislation, there is no need for a second year under Section 17. P&NG Tenure Industry Advisory Committee agreed at their May 17, '07 meeting.	
7.4.1	The ERCB, AENV, and SRD should improve the coordination of their CBM related application and surveillance processes, and develop electronic solutions to facilitate data exchange.	2011	on schedule	Alberta Environment and EUB Agreement to Strengthen Groundwater Protection" was issued on December 20, 2007. In association with this agreement, the ERCB and AENV developed a memorandum of understanding to enhance collaboration for the protection and management of groundwater with respect to the energy sector.	Expect a series of enhancements over this time period.
8.1.2	Regulators should review CBM activities in other jurisdictions to ensure Alberta gains the benefit of studies and experience elsewhere.	ongoing	on schedule	ERCB Directive 27 on shallow fracturing included a review of other jurisdictions.	Additional reviews will be conducted on a topic basis.
<b>Minimizing Surface Impacts</b>					
4.2.1	The ERCB, AENV, and SRD should review its regulatory process for ways to support minimal surface disturbance and reduced cumulative impact associated with CBM development.	2009	on schedule	Bulletin 2006-38 on commingling was issued December 16, 2006. Part of activities underway in 7.2.1.	

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4.3.1 E	<p>To protect the environment and minimize the cumulative impacts from CBM development, a government-led multi-stakeholder committee, such as that being set up under SRD Integrated Land Management (ILM) Program, if appropriate, should undertake the following sequentially:</p> <ol style="list-style-type: none"> <li>1. Review integrated land management principles, policies, and practices relating to CBM to ensure they maintain the integrity and function of the land, taking into account all uses.</li> <li>2. Identify environmentally sensitive and threatened areas (including areas not already designated) that are not appropriate for CBM development.</li> <li>3. Recommend needed baseline studies to identify any areas where the integrated land management process may not adequately protect environmentally sensitive areas and make appropriate recommendations for the protection of these areas. Implementation in their process.</li> <li>4. Provide any such recommendations or data gathered from baseline studies to the appropriate existing program/group for consideration and/or implementation in their process.</li> </ol>	2011	ongoing and in development	<p>SRD is currently looking for a new location for an ILM pilot. The key for this new pilot is that it be part of the AOA process to link ILM with the disposition approval process.</p> <p>From May'06 to July'07 six multi-stakeholder working groups (addressing principles, protocols, incentives, stewardship, governance, measures for an ILM Program) contributed to the development of recommendations towards an ILM Program. Interim results were presented at an ILM Workshop Jan 22-24<sup>th</sup>, '07 with final results reviewed at a workshop on July 31, '07. All working group recommendations have been evaluated by government and an ILM Program plan developed. The ILM Program plan will be rolled out in 2008-09.</p>	
4.3.2	Government and all relevant industries should work together to improve the science and technology for remediation and reclamation of the land in sensitive areas that could be impacted by CBM development.	2011	on schedule	<p>An SRD-sponsored study was completed by the U of C on foothills fescue reclamation. Implementation of study recommendations is being reviewed.</p> <p>Draft revised Forested Green Area Reclamation Criteria released for review and comments.</p> <p>Gap analysis was completed for reclamation and revegetation issues for prairie landscapes. Recommendations</p>	The reclamation report is posted at: <a href="http://www.srd.gov.ab.ca/lands/managingpublicland/rangemanagement/monitoringreferenceareas.aspx">http://www.srd.gov.ab.ca/lands/managingpublicland/rangemanagement/monitoringreferenceareas.aspx</a>

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				<p>have led to the creation of the Foothills Restoration Forum and initiative to bring researchers and public together to discuss native prairie use and restoration issues. Boreal gap analysis will be completed by spring '08. Draft criteria will be presented at a practitioners' workshop in Feb. '08 with implementation expected summer '09.</p>	
7.2.1E	<p><b>The ERCB and AENV should work with stakeholders to review the application processes for intense CBM/NGC developments to enhance and promote project-based planning and disclosure. This would allow:</b></p> <ul style="list-style-type: none"> <li>◆ <b>Definition of intense project developments.</b></li> <li>◆ <b>Full project disclosure</b></li> <li>◆ <b>Improved community consultation.</b></li> <li>◆ <b>Enhanced impact assessment.</b></li> <li>◆ <b>Review of mitigation measures</b></li> </ul>	2010	on schedule	<p>ERCB conducting a series of pilots with expanded consultation with community and industry in several locations. Reports on initial ERCB-led pilots on website. Next pilots may target more environmentally sensitive areas or wet coals.</p> <p>New format for SRD Area Operating Agreements was developed and approvals are being issued under the new format. Further work is being done on risk management, quality assurance and compliance. Process for electronic submission of monthly status reports currently being developed.</p>	
9.2.1	<p>Industry, regulators, and other stakeholders should develop and communicate practices and procedures to deal quickly with short-term noise complaints that are not currently covered under the ERCB's Guide 38.</p>	ongoing	on schedule	<p>CAPP's NGC/CBM Best Practices, developed with stakeholder input, was distributed to MAC members and posted to CAPP's website.</p>	<p>New BMP will be reviewed every few years to ensure practices are current and reflect any new issues.</p>
9.6.1	<p>Industry should continue to consult with SRD in consideration of minimizing disturbance to wildlife habitat and scheduling activities to address critical wildlife periods.</p>	ongoing	on schedule	<p>SRD's requirement for wildlife protection plans in certain situations remains. Consultation with SRD by industry on a project specific basis as well as development of guidelines to assist in reduction of disturbance is ongoing.</p>	

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<b>Communication and Consultation</b>					
3.3.4	AENV should clarify and communicate the existing rules regarding how much drawdown is allowed during CBM/ depressurization in a confined, non-saline aquifer to ensure aquifer protection.	2007	complete 2006	AENV has clarified drawdown rules at MAC meetings and at CBM info sessions in spring '06. Stakeholders were made aware of rules at CBM information sessions. Drawdown requirements already considered in approval reviews.	The policy will be communicated in the revised guideline when it is released in '08.
3.4.1	The ERCB and AENV should communicate with CBM operators, drilling contractors, and water well drillers regarding current and future requirements to protect non-saline aquifers.  Action should be taken if there is evidence that an existing well has not met AENV's updated Guidelines for Groundwater Diversion for CBM/NGC Development.	ongoing  ongoing	complete 2007  on schedule	ERCB Directive 27 summarized rules related to water protection. This stimulated numerous one-on-one discussions with companies to clarify requirements and confirm commitment to comply.  ERCB Directive 44 establishes enhanced surveillance of all produced water from wells with perforations above BGWP and establishes the compliance processes associated with water production above BGWP (all oil & gas wells).	
6.2.1	The Alberta Government should make Crown lessees, freehold owners, and industry aware of the risks and associated impacts of split-title ownership.	2006	complete 2006	Material posted to DOE's website on December 22, 2006.	Link to document: <a href="http://www.energy.gov.ab.ca/docs/NaturalGas/CBM_Pdfs/Split_Title_Mineral_Ownership.pdf">http://www.energy.gov.ab.ca/docs/NaturalGas/CBM_Pdfs/Split_Title_Mineral_Ownership.pdf</a>
6.2.2	The Alberta Government should set up a process to facilitate parties coming together to work toward resolution of split-title ownership issues.	2008	behind schedule	As part of the new royalty framework, a multi-stakeholder committee will be established in Q3 of '08 to review the freehold mineral rights tax program to ensure it is fulfilling its intended objective. The committee will also discuss how to address recommendation 6.2.2.	
6.3.1	AE should review and clarify the criteria for Section 18 Notices of Non-Productivity and aggressively serve these notices. Section 18 Notices on existing agreements should continue to be subject to deeper rights reversion.	2010	complete 2007	The extension history for CBM was reviewed. Serving more Section 18 notices will not release shallow rights (which CBM producers requested.)-Based on the technical review and the lack of requests for more time outside current continuation legislation, there is no need for a second	

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				year under Section 17. P&NG Tenure Industry Advisory Committee agreed at May 17, '07 meeting.	
7.3.1	The ERCB, AENV, and SRD, with stakeholder input, should review all guidelines that relate to public input opportunities and notification to ensure the guidelines are appropriate for CBM development.	2010	on schedule	The requirements of ERCB Directive 35: Baseline Water Well Testing Requirement for Coalbed Methane Wells Completed Above the Base of Groundwater Protection, issued on May 8, 2006, include expanded notification and water well testing opportunities for landowners with water wells in the vicinity of shallow CBM wells.	
7.5.1 E	<b>Industry, regulators, and other stakeholders should increase the opportunity for dialogue, education, and awareness of the public, surface and subsurface rights holders, leaseholders, and industry on the possible impacts resulting from CBM development, and how the use of the land will be affected.</b>	ongoing	on schedule	<p>Increasing number of presentations are being made by regulators.</p> <p>CAPP's NGC/CBM Best Management Practices issued to MAC &amp; posted to CAPP's website.</p> <p>AENV, ERCB, Farmers' Advocate &amp; CSUG held public information sessions on groundwater &amp; CBM in June '06. CSUG Conference Nov. '06 included sessions on stakeholder issues.</p> <p>Numerous industry reps. attended &amp; participated in Synergy Alberta conference October 2006 and October 2007 where stakeholder issues were discussed.</p> <p>CERI, CAPP, CSUG &amp; Alberta Economic Development collaborated on "Socio-Economic Impact of Horseshoe Canyon CBM Development in Alberta" report, released &amp; presented at CSUG conference.</p>	AENV and ERCB will partner to produce a joint provincial CBM/water report including results by year end '08.

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7.5.2	The ERCB and AENV should consolidate CBM/NGC data in a publicly accessible and user-friendly database that includes information on postings, wells (e.g., drill logs), applications and approvals, chemical analyses and water production rates, well location, coal formation, production intervals, and monitoring data. The availability of data should be subject to the normal provisions of confidentiality.	2012	on schedule		
7.5.3	The ERCB should create an easy-to-understand public explanation for 'wells per section per pool' as it refers to CBM development.	2007	complete 2007	The ERCB included a well density clause in spacing/holding applications effective fall 2005 to avoid misunderstanding of the number of wells approved.  FAQ was added to the Q & A's on the ERCB spacing initiative website.	Link to the FAQ: <a href="http://www.ERCB.ca/portal/server.pt/gateway/PTARGS_0_0_201_0_0_35/http%3B/ex tcontent/publishedcontent/publish/ERCB_home/news/current_projectspacinginitiative_q_a.aspx">http://www.ERCB.ca/portal/server.pt/gateway/PTARGS_0_0_201_0_0_35/http%3B/ex tcontent/publishedcontent/publish/ERCB_home/news/current_projectspacinginitiative_q_a.aspx</a>
7.5.4	The ERCB and Municipal Affairs, along with other stakeholders, should clarify and communicate the requirements, roles, and responsibilities related to setbacks.	2012	behind schedule – on hold	Requirements, roles and responsibilities related to setbacks will be impacted by the Land Use Framework (LUF). MA, in consultation with ERCB, will look at the approved LUF for policies relating to resource planning, municipal planning and how these will be coordinated.	
7.5.5	Government and industry should continue to work with stakeholders to develop and implement a communication plan to provide Albertans with better information on CBM issues, including potential effects on water supply.	2007 (and ongoing)	on schedule	AENV's Groundwater and CBM public information sessions were conducted at 13 locations across Alberta in June '06 Public info Fact Sheets were produced to coincide with sessions. In 2007/08 fiscal period, AENV is working in partnership with organizations including PFRA, Alberta Agriculture and various municipalities to provide rural Albertans with knowledge and support to properly construct, site and maintain their water wells. A water well education program is underway with over 15 workshops delivered over March/April '08.	
7.6.1	As recommendations in this document are implemented, it is recommended a multi-stakeholder committee be established by the	2010	on schedule	Multi-stakeholder advisory committee (MAC II) was established by Ministerial Order. First year meetings were held	

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	Assistant Deputy Ministers Sponsors' Committee to conduct a review with the following components: Annual reviews for three years to assess progress according to a monitoring plan. A second overall review in three years to assess: - The effectiveness of the recommendations, - New issues or information, and - An assessment as to whether additional recommendations may be needed.			Sept.'06, Dec'06 and Mar. 2'07. Public report on status of recommendations for first year was released June '07. Second year meetings were held on October 31, '07, Jan. 23 '08 and April 11 '08.	
8.1.1 E	<b>Industry, government, and other stakeholders should work together to develop, document, and implement best practices for CBM operations.</b>	2007	complete 2006	CAPP's NGC/CBM Best Management Practices (BMP), developed with stakeholder input, was distributed to MAC members and posted to CAPP's website. CAPP hosted four public information sessions in May 2007 to educate stakeholders about the BMP document.	New BMP will be reviewed every few years to ensure practices are current and reflect any new issues.
9.3.1	The ERCB should continue to take into consideration the timing request of the surface rights holder/leaseholder during critical agricultural periods and not call a hearing at those times.	2007	complete - ongoing commitment	ERCB commits to maintain its current practices.	
9.4.1	AE should review the full range of paper to electronic options of notification and should work with local government and other agencies to provide current petroleum and natural gas sales data in a user-friendly format (including map format) to local and/or rural offices such as county offices, agricultural offices, and public libraries.	2008	complete	The DOE has developed an online mapping tool to display the results of the most recent P&NG sales and oil sands sales data. In addition, the mapping tool will also provide information on existing P&NG and oil sands agreements.	The mapping tool is found at <a href="http://www.energy.alberta.ca/">http://www.energy.alberta.ca/</a> . Scroll down and click on "People Services" → On the "Interactive Maps" page, scroll down and click on "Sales Results Map". Summary and detailed user manuals are part of the online Help functionality.
9.4.2	AE should provide instructions on its website on the process for conducting an information search by land or by mineral agreement.	2008	complete 2007	To make it easier for the public to find the information they need, Alberta Energy's website has been revised to include quick links from all web pages under the "Our Business" tab to search services, interactive maps and related manuals. In addition, a detailed, step-by-step instruction manual for interactive maps was updated March 2, 2007 and can be	The links are found in the left hand menu under "Services" i.e. <a href="http://www.energy.gov.ab.ca/">http://www.energy.gov.ab.ca/</a> → "Our Business" tab → "Services" menu item → "Searches" menu item <a href="http://www.energy.gov.ab.ca/">http://www.energy.gov.ab.ca/</a> → "Our Business" tab → "Services" menu item → "Interactive Maps"

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				found on the website.	menu item. If a person needs to have a search completed, the site includes information on how to contact Crown Land Data Support at <a href="http://www.energy.gov.ab.ca/OilSands/1069.asp">http://www.energy.gov.ab.ca/OilSands/1069.asp</a>
9.5.1	The Alberta Government, including Human Resources and Employment (HRE) should expedite the industry initiative to improve the continuing education/certification of land agents, including periodic recertification, and if necessary, amend legislation to provide for same.	2011	behind schedule - on hold	The Land Agents Licensing Regulation was amended November 30 '07. The amendments include post-secondary education entry requirements, improved licensing procedures, continuing competency and more stringent standards of conduct.  CAPL's Professional Surface Land designation program is in place for its members.  The Canadian Association of Geophysical Contractors (Alberta) has applied under the Professions and Occupations Associations Registration Act for self regulation. If approved, the regulation would include the regulation of seismic permit agents.	A copy of the regulation can be found at <a href="http://www.qp.gov.ab.ca/documents/regs/2001_227.cfm">http://www.qp.gov.ab.ca/documents/regs/2001_227.cfm</a>
9.7.1	The Government of Alberta should require Alberta Land Titles to ensure as much transparency of information as possible is included on certificates of title to mineral rights.	2007	reviewed - no action	Service Alberta advised that Land Titles Registry cannot require leaseholders to disclose lease terms and is not the vehicle to adjudicate or solve this issue.	
<b>Other</b>					
7.7.1	Appropriate government departments and agencies should have sufficient resources to be able to implement these recommendations effectively and efficiently.	ongoing		See all other recommendations for implementation details.	