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Selected Legal and Policy Issues Related to Coalbed Methane Development

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Summary

Coalbed methane (CBM) has rapidly become a significant source of natural gas in the United States. With growing consumer demand, high natural gas prices, and significant political support for development, the CBM production industry has grown exponentially. Pending legislation, such as the omnibus energy bills, S. 2095 and H.R. 6, would provide additional production incentives. Increased CBM interest has had significant consequences, leading to frequent disputes over CBM ownership, the adequacy of federal leasing process, and federal and local environmental regulation.

The federal government owns significant amounts of the economically recoverable CBM mineral estate. Portions of this federally owned resource are, however, contained within "split estates," where a non-federal entity owns the rights to the surface estate. Additionally, the federal land disposal statutes that created these split ownership situations did not always retain all mineral rights. Thus, determining if the federal government owns CBM can be a complicated issue with significant ramifications. Even when ownership is clear, development rights may conflict. Several proposed federal laws, including H.R. 3698, would address many of these issues.

When the federal government owns CBM, it is generally available for leasing under the Mineral Leasing Act of 1920 and the Federal Onshore Oil and Gas Leasing Reform Act. These laws establish a complex decision making process that must be accommodated before drilling of federally owned CBM can take place. These laws require a several stage planning and decision making process, which is also subject to the environmental review procedures required by the National Environmental Policy Act. Recent lawsuits have challenged the adequacy of the BLM's compliance with federal leasing requirements, although the few that have reached decision have found BLM's practices to be sound.

Environmental impacts attendant to CBM production have received the most widespread attention. CBM production results in extraction of large quantities of water. By depleting underground aquifers, CBM production could have significant impacts on regional water supplies, and state water rights law would not appear to currently require the safeguards some argue are necessary. The disposal of produced water is also controversial. It is typically of low quality and has recently been held to constitute a pollutant that must be regulated under the Clean Water Act. Other activities associated with CBM production are equally contentious. In particular, the extraction process known as hydraulic fracturing has been claimed by some to pollute water supplies. At least one federal court has held that the process must be regulated under the Safe Drinking Water Act, although proposed federal legislation would exempt the process from coverage.

This report will address the major legal issues outlined above as well as the recent cases and pending legislation that may impact CBM development. It will be updated as necessary.

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Introduction

Coalbed methane (CBM) is natural gas that is trapped within coal seams and held in place by the pressure of the ground water above it.[1] Until the 1980s, CBM was considered little more than a hazardous byproduct of coal mining and was purposefully extracted in order to prevent explosions. Since CBM development became economically feasible, the number of producing wells has grown exponentially and most forecasts predict even greater increases. The U.S. Geological Survey estimates that there may be over 700 trillion cubic feet of CBM in the U.S. with more than 100 trillion cubic feet economically recoverable.[2] Natural gas provides 24% of the nation's total energy supply. Current market conditions have led to high prices. Projections indicate that the U.S. will require 50% more natural gas than it currently consumes to meet the increasing demand of the next two decades.[3] The Bush Administration's national energy policy and other policy statements emphasize expanding U.S. sources of natural gas, including a number of recommendations applicable to CBM development, and have cited CBM as the most promising short term supply of natural gas.[4] To encourage CBM development, the Bureau of Land Management (BLM), the agency in the Department of the Interior that supervises mineral leasing and manages many federal lands in the West, has streamlined the permit process for new leases. Similarly, pending energy legislation also addresses CBM development, providing tax incentives and clarifications of legal questions that arguably have hindered investment in additional extraction.[5]

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[1] Major areas of CBM development include the San Juan Basin, the Powder River Basin, the Uinta Basin, the Raton Basin, the Piceance Basin, the Green River Basin, the Black Warrior Basin and the Denver Basin.

[2] U.S. Geological Survey, "Coal-Bed Methane: Potential and Concerns," USGS Fact Sheet, FS123-00, October 2000.

[3] National Energy Policy Group, "National Energy Policy: Reliable, Affordable, and Environmentally Sound Energy for America's Future," 1-7, 1-8, 5-3, 5-18, 5-19 (2001); National Petroleum Council, *Natural Gas: Meeting the Challenges of the Nation's Growing Natural Gas Demand* (1999); Mark Hand, "The Golden Age: How Long Will It Last," *Public Utilities Fortnightly* 12 (March 1, 2002).

[4] James Coffin, Interior Puts its Natural Gas Eggs in CBM Basket, For Now, 27 Pub. Lands News 15 (2002); *see also* Gale Norton, Secy., Dept. of the Interior, Address at the Rocky Mountain Mineral L. Found. (July 26, 2002).

[5] Two provisions of the current Senate version of the energy bill, S. 2095, would encourage CBM development. First, the bill would provide a tax credit to CBM developers. S. 2095,

(continued...)

Despite the benefits associated with a domestically plentiful source of clean-burning fuel, CBM development raises a unique set of legal and environmental concerns. Ownership of CBM and the rights to develop it can become a complicated issue as various property rights often conflict. Also, the extraction process has caused concern among environmental protection advocates, Indian tribes, and other groups. CBM can be captured for use by drilling wells, removing the ground water above the coal seam, and allowing the methane to flow through coal seam fractures to the well. This process involves the extraction of unusually large amounts of water. Whether this water should be treated, disposed of, re-injected, or extracted at all has become the subject of considerable debate.

This report will provide an overview of the major legal issues surrounding CBM development, and will address ownership of CBM, the federal leasing process, the major environmental laws impacting development, and provisions of pending federal legislation relevant to CBM development. It will be updated as necessary.

Ownership and Development Rights

CBM development on the federal public lands is expected to grow. In order to encourage more rapid development, BLM is reducing the processing time for applications for permits to drill. Certain public lands are generally closed to CBM development; however, review of land withdrawals is continual and changes always remain possible. Generally, significant portions of federal lands in CBM rich areas remain open to exploration and development.[6]

Split Estates. Where BLM owns the surface estate as well as the underlying mineral estate, federal leasing laws as well as additional environmental laws apply to leasing and development. A large portion of CBM development, however, takes place on split estates, where owners of surface rights do not own subsurface mineral rights. In these situations, those same leasing and environmental laws applicable to the federal government will also apply. This ownership arrangement is most often the product of federal land disposal statutes designed to encourage settlement of the West. Most of these 19th and 20th century laws transferred only surface rights to settlers, reserving some or all of the mineral estate to the United States.[7] Ownership of CBM on these lands is controlled by the language of the applicable land grant

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[5] (...continued)
108th Cong. § 1359 (2004). This is an extension of the 1980 Section 29 tax credit to encourage domestic production of unconventional energy sources. Crude Oil Windfall Profit Tax Act, Act of April 2, 1980, Pub. L. No. 96-223, 94 Stat. 229 (codified at 26 U.S.C.A. § 29) (repealed). The tax credit expired on December 31, 2000. Additionally, the energy bill provides for an unconventional natural gas resources program, in which the Secretary of the Interior is directed to carry out an unconventional natural gas research program S. 2095, 108th Cong. § 941 (2004). It also authorizes the Secretary to make grants to "research consortia." *Id.* at § 943. These same provisions are contained in the current energy bill's still active predecessor, H.R. 6.

[6] *See* U.S. Dep't of Energy, Office of Fossil Energy, *Policy Facts: Natural Gas Resources and Federal Lands* 1-2 (2003).

[7] *See, e.g.*, 43 U.S.C. §299(a).

statute. For example, in *Amoco Production Company v. Southern Ute Indian Tribe*,[8] the Supreme Court addressed CBM ownership under the Coal Lands Acts.[9] These disposal statutes reserved only coal to the United States.[10] The Court ruled that CBM is not by implication included in a coal reservation; that CBM is instead a part of the gas estate.[11] Many other land disposal statutes, however retained the entire mineral estate, including CBM.[12] Determining the type of mineral ownership can thus be as difficult as it is integral to determining applicable law.

The current version of the energy bill addresses split-estate issues and calls for a report on the impact of split estates on federal oil and gas leases. The bill also would require the Secretary of the Interior to review current policies relating to "management of the federal subsurface oil and gas development activities and their effects on the privately owned surface" and report to Congress any need for legislative or administrative action.[13]

Pooling. Ownership conflicts can also arise between different development interests. Congress has previously attempted to deal with conflicts over CBM ownership by enacting forced pooling legislation.[14] Based on similar state law, forced pooling provides mineral developers the option of obtaining a pooling order, which allows continued development in the face of unclear ownership. The federal statute: (1) allows any person claiming ownership to develop CBM; (2) limits a developer's liability in the event that it is determined they do not own the CBM; and (3) establishes an escrow fund to hold profits until ownership is conclusively determined.[15]

The federal statute applies only in "Affected States," which are those determined by the Secretary of the Interior to have limited CBM development due to ownership conflicts.[16] The list is currently comprised of only Kentucky and Tennessee, and

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[8] Amoco Production Co. v. Southern Ute Indian Tribe, 526 U.S. 865 (1999).

[9] Coal Lands Act of 1909, 35 Stat. 844, 30 U.S.C. §81; Coal Lands Act of 1910, ch. 318, 36 Stat. 583, (codified at 30 U.S.C. §§83-85).

[10] Southern Ute Indian Tribe, 526 U.S. at 867-68.

[11] *Compare* Caballo Coal Co. v. Fidelity Exploration & Production Co., --- P.3d ----, 2004 WL 234875, (Wyo. 2004) (In interpreting a contract, the court found a conveyance of "all other minerals, metallic or nonmetallic, contained in or associated with the deposits of coal conveyed hereby or which may be mined and produced with said coal" included CBM even though the rest of the deeds did not mention CBM or any gas).

[12] *Compare* Stock Raising Homestead Act of 1916, ch. 9, § 9, 39 Stat. 862, 864 (codified as amended at 43 U.S.C. § 299).

[13] S. 2095, 108th Cong. § 1603 (2004); H.R. 6, 108th Cong § 1603 (2003).

[14] 42 U.S.C. § 13368.

[15] 42 U.S.C. § 13368(g), (h).

[16] 42 U.S.C. § 13368(b).

"affected states" can opt out under a number of mechanisms.[17] A provision of the pending energy bill would reinforce this ability.[18]

Priority. Another frequently recurring conflict involves priority of development between coal and CBM leaseholders. Often the rights to extract these minerals are held by different parties, each of whom wishes to proceed first. There are few judicial decisions regarding priority of development rights, and most often these disputes have been settled by private agreement, settling such issues as priority, mitigation measures to prevent damage to the other party's mineral reserves, and cost allocation for any such measures. BLM has attempted through lease restrictions to prevent these disputes from occurring. Typically, BLM embraces a "first in time, first in right" approach based on the applicable lease dates.[19] When conflicts do arise outside the contemplation of a given lease agreement, BLM policy is to encourage private agreements. BLM policy also states that the agency should use its leasing authority to pressure uncooperative parties, although its authority in this respect appears to be limited. BLM may take steps to encourage swift, efficient production and assess certain penalties, such as lease suspension, for taking actions harmful to other lessees. However, BLM has stated that its authority and flexibility on these matters is limited by the specific terms and rights contained in applicable leases.[20]

Federal legislation to aid in conflict resolution has been introduced several times in previous Congresses, each with similar provisions.[21] The process contemplated in these bills would require negotiations between CBM and coal lessees. Unlike the current system, if negotiations failed, a district court could suspend the lease that would produce the lower economic benefit and assess lost net income on the successful developer. More often than not, this would favor the coal industry over CBM development as coal resources are typically more valuable. The current version of the pending energy bill also addresses coal and CBM development priority disputes, requiring the Secretary of the Interior to review conflict resolution authorities and report to Congress on the need for legislative or administrative action.[22]

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[17] Removal from the list may be accomplished when either: (1) a state passes a law or resolution requesting removal; (2) during a legislative session, the governor of a state petitions for removal after giving the legislature six months notice of his intention to submit the petition; or (3) the state legislature implements its own program encouraging CBM development.

[18] S. 2095, 108th Cong. § 358 (2004).

[19] Jeanine Feriancek, *Coal and Coalbed Methane Development Conflicts: No Easy Solution*, 14 NAT. RESOURCES & ENV'T 260, 261 (Spring 2000).

[20] BLM Instruction Memorandum No. 2000- 081 (Feb. 22, 2000).

[21] S. 1950, 106th Cong (1999); H.R. 4297, 106th Cong. (2000); H.R. 1710,107th Cong. (2001); S. 675, 107th Cong. (2001); H.R. 2952, 107th Cong. (2001); S. 675, 107th Cong. (2001).

[22] S. 2095, 108th Cong. § 1604 (2004).

Federal Leasing

As CBM development continues, production is increasingly on federal lands, especially in the Powder River Basin where over 50% of recoverable CBM reserves are located on the federal public lands.[23] Thus, the federal laws governing mineral leasing on the public lands affect the impact CBM development will have on the environment and water supplies.[24] Additionally, new agency policy seeking to expedite development whenever possible is shaping the federal leasing process.[25] Similarly, Executive Order 13,212 directs the federal agencies to expedite energy-related permitting processes and creates an interagency task force to aid in review coordination.[26] The basic leasing process and recent challenges to expedited review are addressed below.

The Mineral Leasing Act of 1920 (MLA)[27] provides the basic framework for leasing and managing certain minerals, including CBM, on the federal public lands and requires lessees to pay the federal government royalties based on the value of the resource produced. In addition to the MLA, the Federal Land Policy and Management Act[28] (FLPMA) governs leasing decisions on BLM lands.[29] Under these laws, most federal lands are open to CBM development.

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[23] Peggy Williams, *Western Coalbed Methane*, OIL AND GAS INVESTOR at 36 (November 2001). States facing major CBM development each have oil and gas commissions. These commissions regulate the location and number of drill sites in order to protect the rights of landowners, avoid waste of the resource, encourage efficient recovery, protect the rights of multiple development right owners, regulate waste disposal and prevent adverse environmental impacts. These regulations apply to state, private, and federal lands. Until the Supreme Court decided *California Coastal Commission v. Granite Rock Company* in 1987, many believed state law was preempted by the extensive federal regulation of mineral development on the federal public lands. In that case, the Supreme Court held that federal regulation under the General Mining Act of 1872 did not preempt state regulation in all situations. State regulation that does not mandate particular uses of lands, but instead regulates environmental effects resulting from federal land uses is generally permissible. 107 U.S. 1428 (1987). However, federally authorized drilling projects cannot be frustrated by contrary provisions found in state or local law. *See* ANR Pipeline Co. v. Iowa State Commerce Comm'n, 828 F.2d 465, 466 (8th Cir. 1987); Algonquin LNG v. Loqa, 79 F. Supp. 2d 49, 49-50, 53 (D. R.I. 2000).

[24] S*ee* Morgan Stanley Dean Witter, *Coal Bed Methane: Worth the Time* 14 (2000).

[25] Bureau of Land Mgmt., U.S. Dep't of Interior, Information Bulletin No. UT 2002-008 (2002) (Oil and gas production on federal lands is BLM's "number one priority").

[26] Exec. Order 13,212, 66 Fed. Reg. 28,357 (May 18, 2001).

[27] 30 U.S.C. §§ 181-287 (2003).

[28] 43 U.S.C. §§1701 *et seq*.

[29] Development on federal lands managed by the Forest Service must comply with a similar process, including consistency with Land and Resource Management Plans (LRMPs), developed pursuant to the National Forest Management Act (NFMA). 16 U.S.C. §§ 1600 *et seq*.

These laws mandate a complex permitting process that must precede drilling on the public lands. The process consists of three primary levels of decision-making: 1) land use plans, 2) leasing decisions, and 3) Plan of Development/Application for Permit to Drill. Each of these primary stages requires the agency to take some level of environmental considerations into account.

FLPMA and RMPs. Land use plans, called Resource Management Plans or RMPs in the BLM context, are developed under FLPMA and are meant to insure multiple use and sustained yield of resources on the public lands.[30] Land use and management practices, including mineral development, on BLM federal lands must conform with these RMPs, either through explicit coverage or clear consistency with RMP terms.[31]

The level of CBM development allowable on the federal lands, thus depends, in part, upon the level anticipated and provided for within RMPs. Development of an RMP is a "major Federal action significantly affecting the quality of the human environment" and thus requires compliance with the National Environmental Policy Act (NEPA).[32] NEPA requires federal agencies to take a "hard look" at the environmental impacts of "major federal action[s] significantly affecting the quality of the human environment."[33] If it is unclear whether the proposed action will have a significant effect on the environment, the agency may prepare an Environmental Assessment (EA).[34] Based on the EA, an agency may make a finding no significant impact (FONSI), thereby concluding the NEPA process, or may find it necessary to prepare an Environmental Impact Statement (EIS).[35] An EIS, among other things, must address the environmental impact of the proposed action, alternatives to the proposed action, and any irreversible commitments of resources which would be involved should the proposed action take place.[36] The Council on Environmental Quality (CEQ) regulations implementing NEPA contemplate a public role in the decision making process, providing for public notice and comment and requiring BLM to take appropriate actions to provide for both.[37]

Changes to RMPs to accommodate anticipated uses of BLM lands can be made through amendment or revision. Both processes require compliance with NEPA and thus, may necessitate preparation of an environmental assessment or EIS.[38] On the other hand, BLM has *supplemented* various RMPs through "maintenance," in which the agency has addressed CBM related issues through internal memoranda and NEPA

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[30] 43 U.S.C. §§ 1712(a), 1732(a); 43 C.F.R. § 1601.0-5(k)(1)-(8) .

[31] 43 C.F.R. §§ 1610.5-3(a), 1601.0-5(b).

[32] 43 C.F.R. § 1601.0-6.

[33] 42 U.S.C. § 4332(2)(C).

[34] 40 C.F.R. § 1501.3.

[35] 40 C.F.R. § 1508.13.

[36] 42 U.S.C. § 4332(2)(C).

[37] 40 C.F.R. §§ 1500.1(b), 1500.2(d), 1506.6.

[38] 43 C.F.R. §§ 1610.5-3, 1610.5-5, 1610.5-6.

documentation without expressly amending RMPs. "Maintenance" is "limited to further refining or documenting a previously approved decision incorporated in the plan. Maintenance shall not result in expansion in the scope of resource uses or restrictions, or change the terms, conditions and decisions of the approved plan."[39]

The recent upsurge in CBM interest and leasing applications had initially caught BLM unprepared, with many of its RMPs providing little or no guidance on CBM development.[40] In response to demand and expedited energy permitting policies, BLM developed a list of time-sensitive RMPs for amendment to allow for significantly higher levels of oil, gas and particularly CBM development.[41] Subsequently, BLM has amended and revised several RMPs to adequately address CBM development and has provided notice of intent to alter many others.[42]

Leasing Decisions. BLM must also make individual leasing decisions. Additional federal law impacts the leasing decision process. The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA)[43] mandates competitive bidding for federal oil and gas leases. Standard lease terms allow for exploration, drilling, and extraction, and often include application of federal environmental law and other mitigation measures as required. FOOGLRA also requires notice to the public of any

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[39] 43 C.F.R. § 1610.5-4.

[40] *See* U.S. DOI, Budget Justifications and Annual Performance Plan Fiscal Year 2001: Bureau of Land Management III-23, III-96, III-99 (2000) (stating "BLM could face additional legal challenges to land and resource allocation decisions, since impacts to public land resources and the environment are not adequately documented in the current land use plans and associated NEPA documents."); *see, e.g.*, Wyoming BLM, U.S. DOI, Buffalo Resource Management Plan/Record of Decision (1985); Wyoming BLM, U.S. DOI, Final Environmental Impact Statement, Buffalo Resource Management Plan (1985).

[41] See Bureau of Land Mgmt., U.S. Dep't of Interior, Instruction Memorandum No. 2002-081, Time Sensitive Plans, National Planning Support Team and Action Plan for Time Sensitive Plans (2002).

[42] *See, e.g.*, Bureau of Land Management Notice of Intent To Revise the Platte River Resource Management Plan and Prepare an Associated Environmental Impact Statement, 68 Fed. Reg. 37020 (June 20, 2003); Bureau of Land Management Notice of Intent To Revise the Kemmerer Resource Management Plan and Prepare an Associated Environmental Impact Statement, 68 Fed. Reg. 35690 (June 16, 2003); Bureau of Land Management Notice of Availability of the Record of Decision for the Montana Statewide Oil and Gas Final Environmental Impact Statement and Plan Amendments of the Powder River and Billings Resource Management Plans (RMPs), 68 Fed. Reg. 23159 (April 30, 2003); Bureau of Land Management Notice of Availability of the Final Environmental Impact Statement for the Powder River Basin Oil and Gas Project and Proposed Resource Management Plan Amendments; Johnson, Sheridan, Campbell, and Converse Counties, WY, 68 Fed. Reg. 2570 (January 17, 2003); Bureau of Land Management Notice of Availability of the Draft Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans (RMPs), 67 Fed. Reg. 6943 (February 14, 2002).

[43] Federal Onshore Oil and Gas Leasing Reform Act of 1987, Act of December 22, 1987, Pub. L. No. 100-203, Title V, Subtitle B, 101 Stat. 1330-256 (codified at 30 U.S.C. §§ 187a-b, 188, 199, 195, 226, 226-3).

decision to offer lands for lease.[44] Individual leasing decisions may again trigger NEPA review. It is BLM's stated policy to perform NEPA review prior to the leasing decision.[45] Tiering–incorporating or building upon a previous NEPA document that analyzes the environmental consequences of a proposed action–can be used at this stage, so long as an adequate NEPA analysis has previously been performed.[46] The adequacy of RMPs and the NEPA review conducted pursuant to their development, amendment, or revision thus determines if NEPA review is again necessary at this stage.

APD/POD. Under BLM regulations, an application for a permit to drill (APD) must include a "drilling plan" and a "surface use plan of operations."[47] These are submitted to the BLM, which then distributes APDs to other relevant land management agencies. A plan of development (POD) is required when more than one well is proposed in a designated area. This allows the agencies to review cumulative drilling impacts. The surface use plans developed under these regulations must address a myriad of issues, including road construction, drilling locations, waste disposal, and surface reclamation, as well as water supply, management, discharge and quality issues. Plans are reviewed by the applicable land management agencies prior to drilling operations, who may approve, approve with stipulations, or deny the application. The agencies monitor activities during operations to ensure compliance with plan specifications. Pre-approval review of APDs/PODs is also the last stage for NEPA review involving the public and must account for site- specific considerations not previously addressed in broader RMP/leasing level NEPA documents.

Federal Leasing Suits. There have been multiple cases filed challenging the adequacy of the federal leasing process with respect to recently approved CBM development, although few of the cases have progressed beyond the filing of a complaint and many of these have been settled privately by the parties. Currently pending challenges argue that RMPs are inadequate or that BLM has failed to perform its obligations under NEPA.[48]

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[44] 30 U.S.C. § 226(f).

[45] BLM, U.S. DOI, Instruction Memorandum No. 99-149 (1999) at 1.

[46] BLM, U.S. DOI, Instruction Memorandum No. 99-149 (1999) at 1.

[47] 43 C.F.R. § 3162.3-1 (2003).

[48] RMP-related allegations include failure to revise or amend RMPs when necessary to cover new development and failure to provide for compliance with applicable environmental laws in RMPs. *E.g.*, Northern Plains Resource Council v. U.S. Bureau of Land Management,—F.Supp.2d—, 2003 WL 23157772 (2003). NEPA-related allegations include failure to review cumulative impacts of CBM development, failure to address alternatives to the development proposed, failure to prepare a supplemental EIS, failure to allow for adequate public involvement in the NEPA process, and failure to perform a pre-leasing EIS. *E.g.*, *id*.; NPRC V. BLM, Cause No. CV-03-69-BLG-RWA (D. Mont.) (complaint filed 2003); American Lands Alliance v. BLM, Cause No. CV-03-71-BLG-RWA (D. Mont.) (complaint filed May 1, 2003); Western Org. of Resource Councils v. BLM, Cause No. CV-03-70-BLG-RWA (D. Mont.) (complaint filed May 1, 2003); *see also* San Juan Citizen's

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In *Northern Plains Resource Council v. Bureau of Land Management*, a federal district court in Montana addressed the adequacy and effect of BLM's leasing program in one specific setting. Plaintiffs claimed leasing decisions were made in violation of FLPMA and NEPA because of BLM's failure to revise or amend RMPs and its failure to prepare a new EIS before issuing leases and approving APDs. The RMP in question was developed in 1994 and contemplated limited exploratory CBM drilling. BLM subsequently approved 40 APDs for CBM drilling, and BLM prepared an EA prior to each APD approval. The court determined that BLM's leasing and approval of APDs under question were appropriate but limited in scope. Each lease contained language stating that rights granted under it were subject to all other applicable laws and regulations. FLPMA and its implementing regulations require development in conformance with RMPs. Because the pertinent RMP contemplated exploratory drilling only, the court reasoned, the leases did not convey an absolute right to develop the mineral estate, but only to perform exploratory activities.[49]

In *Pennaco Energy Co. v. U.S. Department of the Interior*,[50] a federal district court in Wyoming heard a challenge to BLM's NEPA compliance and determined that BLM had acted appropriately. In April 2002, the Interior Board of Land Appeals had found that three leases issued by BLM violated NEPA by relying on a 1985 RMP/EIS and a subsequent EIS prepared in 1999. BLM issued the leases in 2000. The IBLA determined that the 1985 RMP/EIS was inadequate because it did not address CBM at all.[51] The IBLA also held that the 1999 EIS was insufficient in that it was a *project level* EIS that did not consider pre-leasing concerns, such as the possibility of including lease stipulations.[52] Thus the IBLA held that the documents did not provide BLM with the information necessary to take the requisite "hard look" at environmental impacts. However, the district court found that the IBLA acted arbitrarily and capriciously by basing its holding on the form of the NEPA documents and not their content. The court held that the two documents, taken together, do

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[48] (...continued)
Alliance v. Babbitt, 228 F.Supp.2d 1224 (D. Colo. 2002)(preliminary ruling separate from merits in case involving challenge to CBM-related NEPA compliance).

[49] Additional complaints state that revised or amended RMPs violate FLPMA because they fail to ensure compliance with applicable environmental laws. FLPMA does prevent RMPs from contravening environmental law. 43 U.S.C. § 1712. It is not immediately apparent what arguments the plaintiffs in these pending cases will make, and it is beyond the scope of this report to analyze each amended RMP. However, for illustrative purposes, BLM's Record of Decision and Resource Management Plan Amendments for the Powder River Basin does indicate that permits, APDs, and PODs will not be approved without substantial information ensuring compliance with applicable federal and state air and water standards. BLM, Record of Decision and Resource Management Plan Amendments, WY-070-02-065, 2-4, 19-20 (April 2003). Similar requirements are contained in the RMP amendments for the portion of the Powder River Basin in Montana. BLM, Record of Decision and RMP Amendments, BLM/MT/PL-03/011, 14-15 (April 2003).

[50] Pennaco Energy Co. v. U.S. Department of the Interior, 266 F. Supp.2d 1323 (D. Wyo. 2003).

[51] Wyoming Outdoor Council, 156 IBLA 347, 357-58 (2002).

[52] *Id*. at 358-59.

provide the information necessary to adequately inform its decision.[53] According to the court, while the RMP/EIS did not address CBM, it did address pre-leasing alternatives and the 1999 EIS sufficiently addressed CBM issues. In conjunction, the documents allowed the agency to base its decision on an appropriate knowledge of the environmental consequences. Thus a separate, pre-leasing NEPA document on CBM was not required.[54]

Water Issues

Water within a coal seam must be removed before CBM gas can be extracted, a process referred to as dewatering. The amount of water produced during the CBM extraction process is much greater than that produced during other drilling operations. Each well produces an average of 12,000 gallons of water per day.[55] The drilling in the San Juan basin has produced over 36 billion gallons of water.[56] An estimated 51,000 wells in the Powder River Basin are expected to produce over 1.4 trillion gallons.[57] The impact of dewatering on water supplies is of central concern, especially in the more arid western states. Dewatering on such large scales may lead to surface subsidence and could limit future supplies of drinking and irrigation water. Some estimate that aquifer recharge to current levels will take anywhere from one hundred to over one thousand years.[58]

Disposal of produced water is also a central issue. The water can be, and has been reinjected, but is often disposed of by dumping it on the ground or in area ponds and rivers. Each area of CBM production has its unique characteristics associated with water issues. In some areas water quality is relatively poor, with contaminant concentrations too high for most uses.[59] Given the low quality of much CBM produced water, it may pollute otherwise useable water sources, harm vegetation and wildlife, and cause significant soil damage.

The Clean Water Act. State water quality standards established pursuant to the federal Clean Water Act, set water quality goals for a specific waterbody and are

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[53] Pennaco Energy Co., 266 F. Supp.2d at 1330.

[54] *Id.*

[55] Gary C. Bryner, Coalbed Methane Development: The Costs and Benfits of an Emerging Energy Resource, 43 NAT. RESOURCES J. 519, 538 (2003).

[56] *Id.*

[57] *Id.*; U.S. Dept of the Interior, BLM, DEIS and Draft Planning Amendment for the Powder River Basin Oil and Gas Project, vol. 1 at 2-24.

[58] *See* Thomas F. Darrin, Waste or Wasted?–Rethinking the Regulation of Coalbed Methane Byproduct Water in the Rocky Mountains: A Comparative Analysis of Approaches to Coalbed Methane Produced Water Quantity Legal Issues in Utah, New Mexico, Colorado, Montana and Wyoming, 17 J. ENVT'L L. & LITIGATION 281 (Fall 2002).

[59] CBM water typically contains elevated levels of suspended solids, calcium, magnesium, sodium, potassium, bicarbonate, carbonate, sulfate, chloride, fluoride, aluminum, arsenic, barium, beryllium, boron, copper, lead, iron, manganese, strontium, and radium.

the basis for establishing treatment controls and strategies.[60] Water quality standards are implemented and enforced through the section 402 national pollution discharge elimination system (NPDES) permit program which regulates the amount of acceptable pollution that a discharger may lawfully release into the nation's waters. Water produced during CBM extraction has recently been held to constitute a pollutant under the CWA and is exempted from CWA regulation only when injected or disposed of in a well in a manner that will not result in degradation of ground or surface water resources.[61] Dischargers of produced water must obtain a NPDES discharge permit. The CWA charges the EPA with carrying out the NPDES permit system, although states have taken primary responsibility for setting water quality standards, issuing approval permits, and enforcing the requirements of the CWA.[62] State water quality standards must be approved by the EPA Administrator for compliance with federal law and regulations and cannot be less stringent than federal regulations.[63] Highlighting this point, in *Northern Plains Resource Council v. Fidelity Exploration and Development Co.*, the Court of Appeals for the Ninth Circuit recently held that the state of Montana could not exempt water produced during CBM development from regulation under the CWA, as EPA regulations and the statute itself clearly intended to regulate produced water.[64] Currently, EPA has not promulgated CBM-specific effluent limitations and has decided against doing so in its most recent notice of preliminary effluent limitations plan.[65] In the absence of industry-specific CWA regulations from EPA, permit writers utilize "best professional judgment" to determine specific discharge limitations to be included in permits for individual facilities. For many CBM projects, EPA and state regulators have instead applied discharge standards applicable to run-off water from the coal-mining industry, which has similar pollutants, and not the more stringent regulations applicable to onshore oil and gas category standards, which were promulgated before the CBM industry existed.[66]

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[60] 33 U.S.C. § 1251.

[61] Northern Plains Resource Council v. Fidelity Exploration and Development Co., 325 F.3d 1155, 1160-62 (9th Cir. 2003). The court held that CBM-produced water is "industrial waste"–a "useless byproduct derived from the commercial production and sale of goods and services"–which did not require chemical or other alteration. *Id.* Industrial waste is a category of pollutant the CWA explicitly regulates. 33 U.S.C. § 1362(6). Because the CWA defines pollution as "man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water," and because it is the additions to the receiving body of water, not the discharge itself, relevant to determining if pollution has taken place, the CWA necessarily applied to CBM water. *See* 33 U.S.C. § 1362(19).

[62] 33 U.S.C. §1342.

[63] 33 U.S.C. §§ 1342(c), 1370; 42 C.F.R. § 435.32.

[64] Northern Plains Resource Council, 325 F.3d at 1165.

[65] Environmental Protection Agency, Preliminary Effluent Guidelines Program Plan for 2004/2005, 68 Fed. Reg. 75515(December 31, 2003).

[66] Industry-specific standards must consider industry-specific factors. 33 U.S.C. § 1314(b)(1)(B). *See* Legal Environmental Assistance Foundation, Inc. v. Pegues, 717 F. Supp. 784, 787 (D. Ala. 1989).

Section 401 of the CWA is also applicable to CBM development on federal mineral estates. Section 401 states:

> Any applicant for a Federal license or permit . . . which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates . . . that any such discharge will comply with [the CWA] . . . .[67]

Section 401 also requires EPA to notify states that may be affected by discharges contemplated in the permit application and provide these states with an opportunity to object and request a public hearing.[68] Thus, the required certification potentially gives states a powerful tool to control or limit activities that could adversely affect waters of the state.

Proposed federal legislation, H.R. 3698, would address certain water pollution issues related to CBM development. It would amend the Mineral Leasing Act to require that a water management plan addressing steps to protect water supplies accompany any lease application.[69] It would also amend the CWA to require permit stipulations to "minimize adverse effects on any lands or waters that would be affected by disposal or other uses of such extracted waters."[70]

Safe Drinking Water Act. The Safe Drinking Water Act[71] (SDWA) generally governs the "subsurface emplacement of fluids by well injection"[72] and applies to re-injection of water produced from CBM extraction. The SDWA requires a permit before re-injection can take place. The SDWA and its regulations set up five classes of injection wells, based on the type of fluid injected and the area of injection. CBM water is most often injected into class II wells, which are for fluids brought to the surface in connection with oil and gas development or used to enhance the recovery of oil and gas.[73]

While reinjection of produced water at the conclusion of CBM extraction has received some attention, underground injection becomes particularly contentious with regard to hydraulic fracturing. Hydraulic fracturing occurs during the extraction process and is used to facilitate CBM recovery. By using high pressure injections of

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[67] 33 U.S.C. § 1341(a)(1).

[68] 33 U.S.C. § 1341(a)(2).

[69] H.R. 3698, 108th Cong. § 101 (2003).

[70] *Id*. at § 102.

[71] 42 U.S.C. §§ 300f-300j-25.

[72] 42 U.S.C. § 300h(d)(1).

[73] 40 C.F.R. § 144.6(b)(2).

various fluids[74] to break open coal seams, hydraulic fracturing releases gas deposits. This process has been alleged to pollute drinking water supplies.

EPA is charged with protecting underground sources of drinking water, although states administer underground injection control programs after receiving EPA approval.[75] States, therefore, are most frequently the permitting authority for underground injections.[76] Many states expecting large scale CBM development do not regulate hydraulic fracturing under the SDWA. However, in *Legal Environmental Assistance Foundation v. EPA*, the Court of Appeals for the Eleventh Circuit held that hydraulic fracturing must be regulated under the SDWA, although its decision was applicable only to Alabama.[77] Thus, it is unclear if the SDWA will apply to hydraulic fracturing in other states. EPA is currently studying the environmental impacts of the practice and has completed a draft report concluding the threats to water supplies posed by hydraulic fracturing are minimal and do not warrant further study.[78] EPA expects to issue a final report in the first half of 2004. Pending energy policy legislation would amend the SDWA to specifically exempt hydraulic fracturing from coverage.[79]

State Law-Based Water Rights. Separate from water quality issues, CBM development also raises questions as to the water rights of those who may be impacted by CBM's massive dewatering process. Most states facing major CBM development have adopted the prior appropriation approach to water rights law. Under this framework, water rights are created when water is diverted and appropriated for a beneficial purpose. There is no general limit on the amount of water that may be used, so long as right-holders can show it is not wasted. The date of appropriation establishes priority of use. Junior right holders are entitled to water not used by senior right-holders, although senior right-holders may not change the purpose of their use, method of diversion, or place of use if that change harms juniors. Typically water rights are certified by state authorities. That water is put to a beneficial use is the crux of this approach to water rights. Beneficial use is broadly defined and includes domestic, agricultural, industrial, stock watering, recreation, preservation and mining purposes.[80] However, most state law does not accept

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[74] Hydraulic fracturing often makes use of "guar gel, nitrogen or carbon dioxide gases, gelled oil, diesel oil, sodium hydroxide, hydrochloric acid, sulfuric acid, fumeric acid, as well as other additives." Legal Environmental Assistance Foundation, Inc. (LEAF) v. EPA, 118 F.3d 1467, 1471 (11th Cir. 1997).

[75] 42 U.S.C. §§ 300hh-8; 300h-1.

[76] 40 C.F.R. § 145.11(a)(5).

[77] LEAF, 118 F.3d at 1478.

[78] 67 Fed. Reg. 55249 (August 28, 2002)

[79] S. 2095, 108th Cong. § 327 (2004).

[80] *See generally* J. David Aiken, Ground Water Mining Law and Policy, 53 U. Colo. L. Rev. 505 (1982); Thomas F. Darrin, Waste or Wasted?–Rethinking the Regulation of Coalbed Methane Byproduct Water in the Rocky Mountains: A Comparative Analysis of Approaches to Coalbed Methane Produced Water Quantity Legal Issues in Utah, New Mexico, Colorado,

(continued...)

production of water in association with mining as a beneficial use. Rather, it is the use the water is put to after production that is relevant. Wyoming is a major exception to this standard, deeming the dewatering process itself a beneficial use, which is especially important considering its vast CBM reserves.[81]

CBM water in other states is generally defined as byproduct water and is therefore exempted from the beneficial use requirement.[82] Thus, disposal of produced water is allowed through the various methods each state authorizes. Typical disposal methods authorized are disposal in lined or unlined pits, underground injection, and discharge into surface waters subject to section 402 of the Clean Water Act.[83] As indicated earlier, Wyoming also allows for disposal by dumping produced water onto the ground.

Thus state water rights law currently may be of limited effect on the extraction and disposal of CBM produced water. Significant legislative changes would be required to effect a different scheme of regulation and protection. Proposed federal legislation would address certain water supply issues. H.R. 3698 would amend the Mineral Leasing Act to require reinjection of produced water when drilling activities have affected a water user's supply.[84] It would also require lease applicants under the MLA to submit a water management plan detailing steps taken to protect the quantity and quality of the water supply.[85]

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[80] (...continued)
Montana and Wyoming, 17 J. ENVT'L L. & LITIGATION 281 (Fall 2002).

[81] Wyo. State Engineer's, Form U.W. 5 (1999).

[82] *See, e.g.*, 2001 Mont. Laws, ch. 578, § 5.

[83] *See, e.g.*, Utah Admin. Code §§ R649-9-3.1-2, R649-9-3.4.2, R649-5-2.1 (2002); N.M. Admin. Code tit. 19, §§ 19.15.9.701, 19.15.9.701.E(2), 19.15.S.7.2(b), 19.15.S.9.1(a) (2000); Mont. Code Ann. § 85-2-521(2)(a)-(c).

[84] H.R. 3698, 108th Cong. § 101 (2003).

[85] *Id.*