



Chapter 4

The New AAPL Form 610 JOA Coalbed Methane Checklist:¹ Making the List and How to Check It Twice²

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§ 4.01. Introduction.

Coalbed methane (CBM) was long considered to be a very dangerous nuisance. We all have heard the stories of the canaries in the coal mines and of the tragic loss of life due to CBM induced explosions. However, beginning in the 1980s, CBM's value as a viable hydrocarbon resource was recognized and companies began exploration and development to extract it as the primary recoverable resource. Estimates of CBM reserves in the continental United States are conservatively placed at more than 700 trillion cubic feet (TCF), with perhaps 100 TCF recoverable with today's existing technology.³ As of 2004, proved CBM reserves were 18,390 billion cubic feet (BCF), and accounted for nine percent of all domestic dry gas production.⁴ Is it any wonder, particularly given the recent increase in natural gas prices, why CBM exploration and development continue to burgeon?

The American Association of Petroleum (now Professional) Landman (AAPL) sanctioned the drafting of a uniform joint operating agreement first in 1956, known as the "Form 610." It quickly became adopted as the industry standard. As a consequence of issues arising over the intervening years, and in an attempt to improve its contents, the Form 610 was revised by AAPL in 1977, 1982 and most recently in 1989.⁵ However, the Form 610 and all revisions thereto were drafted generally with conventional oil and gas exploration and development in mind. As outlined below, CBM exploration

³ "Coalbed Methane: Potential and Concerns," *United States Geological Survey Fact Sheet FS-123-00*, October 2000.

⁴ "Advanced Summary: U.S. Crude Oil, Natural Gas and Natural Gas Liquids Reserves Annual Report," *Energy Information Administration DOE/EIA-0126 (2004)*, September, 2005.

⁵ There are numerous articles addressing the history and development of the AAPL Form 610. *See, e.g.*, Young, "Oil and Gas Operating Agreements: Producers 88 Operating Agreements, Selected Problems and Suggested Solutions," 20 *Rocky Mtn. Min. L. Inst.* 197, 198-202 (Matthew Bender 1975); Wigley, "AAPL Form 610-1977 Model Form Operating Agreement," 24 *Rocky Mtn. Min. L. Inst.* 693. (1978); and Reeves, "Significant Cases Governing the Onshore Operating Agreement," 49 *Inst. on Oil & Gas L. & Tax'n*, Sec. 2.02 (Sw. L. Fdn. 1998).

and development have unique and distinct differences from conventional exploration and development.

Recognizing those differences, the AAPL in 2004 created a task force to make recommendations on how the Form 610 should be modified to address CBM exploration and development. This chapter addresses the Task Force's efforts and resulting documentation ultimately adopted by AAPL's governing Board of Directors.

§ 4.02. "Coalbed Methane (or CBM) 101."

To understand why modifications to the Form 610 to address CBM were deemed necessary, the fundamentals of CBM and its extraction must be understood. Methane is bonded and held to the coal matrix by hydrostatic pressure. In order for the methane to be released from the matrix (desorption), the hydrostatic pressure must be reduced, *i.e.* the coal seams must be dewatered.⁶ In some fields, the pressure must be reduced to less than half of its original state.⁷

The defining difference between conventional and CBM development is therefore the required infrastructure. As one CBM expert has stated, expenditures for the infrastructure necessary to simply produce CBM wells, let alone determine their profitability, account for up to two-thirds of a prospect's total costs.⁸ Another CBM expert has identified three infrastructure elements crucial to a successful CBM development: dewatering (subsurface communication), water disposal, and compression.⁹

The dewatering element is self-explanatory in light of the discussion above. Many wells must be drilled and strategically patterned to allow communication for quick and efficient dewatering. A large gap between wells

⁶ Allen, "Coalbed Methane Primer, 47 *Landman* No. 2 at Pg. 26 (March/April 2002)(hereinafter cited as *Allen*).

⁷ Testimony of Joseph McHenry, Senior Petroleum Engineer, Texaco Exploration and Production Inc., *In Re* Huntington (Shallow) CBM Unit, Docket No. 2001-007, Cause No. 245-2, Utah Board of Oil, Gas & Mining (March 28, 2001).

⁸ *Id.*

⁹ See *Allen*, *supra* note 6, at 28.