

January 2004

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Recommended Citation

Throne, Mary A. (2004) "Air Quality Issues in Coalbed Methane Development," *Wyoming Law Review*. Vol. 4: No. 2, Article 6.

Available at: <https://scholarship.law.uwyo.edu/wlr/vol4/iss2/6>

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WYOMING LAW REVIEW

VOLUME 4

2004

NUMBER 2

AIR QUALITY ISSUES IN COALBED METHANE DEVELOPMENT

*Mary A. Throne*¹

INTRODUCTION

In the development of coalbed methane (CBM) reserves, concerns about disposal and management of water produced by the facilities often overshadow other environmental regulatory issues. But in order to plan for the development of the resource, relevant air quality regulations, particularly permitting, must be taken into consideration. Any required air permits for engines needed to produce and transport the methane must be in place in advance. Although the permitting requirements for major sources under the federal Clean Air Act are generally similar from state to state, the requirements for minor sources, such as the majority of the engines used in CBM production, vary from state to state.

The purpose of this paper article is to review the effect air quality issues can have on the development of CBM. The paper provides an overview of the federal Clean Air Act and an in-depth review of air quality issues in the Powder River Basin. The focus on the Powder River Basin in Wyoming is intended to demonstrate the types of issues that may arise in areas of concentrated CBM development.

OVERVIEW OF THE FEDERAL CLEAN AIR ACT

State Implementation Plans, Preconstruction Review, Non-attainment and Tribal Jurisdiction

The Basics of State Regulation

1. An earlier version of this article was presented as a paper for the Rocky Mountain Mineral Law Foundations' program on the Regulation and Development of Coal Bed Methane in November 2002. Ms. Throne is a partner in the law firm of Hickey & Mackey. She received her J.D. from Columbia Law School in 1988.

Under the Clean Air Act (CAA),² as adopted in the 1970s and as amended in 1977 and 1990,³ the states and local governments bear the primary responsibility for implementing the federal requirements for stationary sources of air pollution.⁴ Sections 107 and 110 of the CAA require states to develop an implementation plan for attaining and maintaining compliance with primary and secondary national ambient air quality standards (NAAQS).⁵

State Implementation Plans or "SIPs" contain the regulations and other miscellaneous requirements adopted by the state and approved by the Environmental Protection Agency (EPA) for maintaining compliance with national ambient air quality standards.⁶ States have flexibility in developing their plans and EPA does not have the authority to mandate specific requirements, provided that the state demonstrates that its plan will maintain or achieve compliance with the NAAQS.⁷ Once approved by EPA, the terms of SIPs are enforceable not only by the relevant state or local authority, but by EPA, as well.⁸

Preconstruction Review

An integral part of all SIPs is the preconstruction review program.⁹ Section 110 of the CAA requires states to include in their SIPs a program for regulating the modification and construction of any stationary source as may

2. 42 U.S.C. §§ 7401-7642 (2000).

3. Arnold W. Reitze, Jr., *The Legislative History of U.S. Air Pollution Control*, in AIR QUALITY REGULATION FOR THE NATURAL RESOURCES INDUSTRY 2000 (Rocky Mountain Mineral Law Foundation, Mineral Law Series, Vol. I., 2000). Air quality regulation predates the 1970 Clean Air Act amendments, but the framework that the states operate under today, began primarily with the 1970 legislation. *Id.*

4. The CAA provides "that air pollution prevention . . . and air pollution control at its source is the primary responsibility of States and local governments." 42 U.S.C. § 7401(a)(3). The federal government retains control, however, of mobile sources of air pollution, under Title II of the Clean Air Act. 42 U.S.C. §§ 7521-7590.

5. 42 U.S.C. §§ 7407, 7410.

6. The process for establishing primary and secondary standards is found in Section 109 of the CAA. 42 U.S.C. § 7409. EPA is obligated to review the adequacy of NAAQS every five years. 42 U.S.C. § 7409(d). Primary NAAQS are designed to protect public health while secondary standards are public welfare standards. 42 U.S.C. § 7409(b). *See also* Reitze, *supra* note 3, at 1-16-17. The six criteria pollutants currently regulated by the NAAQS are particulates, sulfur dioxide, carbon monoxide, ozone, nitrogen oxides, and lead. Reitze, *supra* note 3, at 1-16-17.

7. EPA can issue a SIP call to challenge deficient SIPs under 42 U.S.C. § 7410(k)(5), find that a SIP is inadequate under 42 U.S.C. § 7410(k)(3), or give conditional approval under 42 U.S.C. § 7410(k)(4), but does not have the authority to dictate the terms of the SIP. *See, e.g.,* Virginia v. Environmental Protection Agency, 108 F.3d 1397, 1414-15 (D.C. Cir. 1997). Section 110 of the CAA does not allow EPA to force particular measures on states. 42 U.S.C. § 7410.

8. 42 U.S.C. § 7413.

9. Preconstruction review and the PSD program described below are all broadly treated as part of New Source Review (NSR).

be necessary to assure compliance with the NAAQS.¹⁰ The preconstruction review focuses on major stationary sources that emit or have “the potential to emit, one hundred tons per year or more of any air pollutant.”¹¹ In contrast, minor sources are those that emit or have the potential to emit less than 100 tons.¹² Because state implementation plans are not uniform and the CAA gives states some authority to develop state-specific plans for attainment and maintenance of the NAAQS, permitting requirements for minor sources that are not otherwise required by the CAA, may vary significantly from state to state.

Thus, an engine at a CBM facility with emissions below 10 tons per year that may be deemed of significant concern by one state, may not receive the same level of concern in a second state. As a result it is necessary to become familiar with each individual state’s requirements. An entity operating in a number of states needs to be prepared for the differing requirements and recognize that local conditions may dictate a different approach from state to state.

Permitting in Nonattainment Areas

Additional permitting requirements and other control strategies come into play in nonattainment areas. An area is in “nonattainment” if it fails to meet a primary or secondary national ambient air quality standard or if the area contributes to the ambient air quality in a nearby area that does not meet the standards.¹³ States face additional hurdles when developing implementation plans for nonattainment areas, as do the facilities operating in those areas.¹⁴

Nonattainment plans must include provisions for implementing all reasonably available control measures, including reasonably available control technology for existing sources.¹⁵ The plan must require reasonable further progress, defined as incremental pollutant reductions in order to reach attainment by the relevant date.¹⁶ In nonattainment areas, the require-

10. 42 U.S.C. § 7410. The CAA defines a “stationary source” as “any building, structure, facility, or installation which emits or may emit any air pollutant. Nothing in subchapter II of this chapter relating to nonroad engines shall be construed to apply to stationary internal combustion engines.” *Id.* § 7411(a)(3). “Nonroad engines” are defined in 42 U.S.C. § 7550(10).

11. *Id.* § 7602(j). Fugitive emissions from a source may count towards the 100 ton total if determined by EPA rule. *Id.*

12. A “small source” is a source that emits less than 100 tons of regulated pollutants per year or a class of sources determined by EPA rule to lack the knowledge of EPA regulations. *Id.* § 7602(x).

13. *Id.* § 7407(d)(1)(A)(i).

14. A “nonattainment area” designated under 42 U.S.C. § 7407(d) subjects the area to the SIP requirements found in 42 U.S.C. § 7502.

15. *Id.* § 7502(c)(1).

16. *Id.* §§ 7502(c)(2), 7501(1).

ments for permits for new major stationary sources and modifications of those sources are much more onerous than those for attainment areas. A new major stationary source or modification of a major source must obtain offsets for any proposed increase in emissions and must meet the lowest achievable emission rate.¹⁷ Finally, a nonattainment SIP must contain other control measures or emission limitations, as well as compliance timetables that may be necessary to reach attainment.¹⁸ Once an area is redesignated as attainment, the state must submit a revised SIP to assure maintenance of the ambient standard for a ten year period.¹⁹

The burdens on sources in nonattainment areas, as is typical of the CAA, fall more heavily on the major sources, particularly the CAA's permitting requirements. Yet, in general, the broad requirements to adopt any control measures that will lead to attainment also have the potential to impact minor sources, such as CBM facilities. For this reason, permitting CBM facilities in or near nonattainment areas may be more difficult. Because of the increased burdens associated with operating in a nonattainment area, CBM operators should consider cooperating with their state agencies to avoid any exceedances of the NAAQS that could lead to a nonattainment designation, to the extent that CBM emissions may be a cause for concern.

Tribal Jurisdiction

Under the CAA, EPA "is authorized to treat Indian tribes as states."²⁰ Tribes that establish eligibility thus have the authority to develop tribal implementation plans (TIPs) for the "protection of air resources within the exterior boundaries of the reservation or other areas within the tribe's jurisdiction."²¹ In the absence of a tribal program, EPA is responsible for permitting on tribal lands.²² At this time, EPA only has a program in place to permit major sources. The practical impact of this is that on tribal lands there is no regulation of minor sources because the states lack authority within the boundaries of a reservation. In the summer of 2002, EPA sent a letter to tribal leaders acknowledging the need to develop a Tribal NSR rule

17. *Id.* § 7503(a)(1), (2). Lowest achievable emission rate, or LAER, is defined as the most stringent emission limitation for a source category found in the SIP or the most stringent emission limitation achieved in practice for a source or source category. *Id.* § 7501(3).

18. *Id.* § 7502(c)(6).

19. *Id.* § 7505a.

20. *Id.* § 7601(d)(1)(A). EPA promulgated its rule for treating tribes as states for purposes of air quality management in 1998. 63 Fed. Reg. 7254 (Feb. 12, 1998).

21. 42 U.S.C. § 7601(d)(2)(B). The CAA gives EPA authority to promulgate rules to establish the elements of TIPs. *Id.* § 7601(d)(3). This Tribal Authority Rule is found at 40 C.F.R., part 49. The eligibility requirements for tribes are found at 42 U.S.C. § 7601(d)(2) and 40 C.F.R. § 49.6. *See also* 42 U.S.C. § 7410(o) (EPA will use the same criteria to review tribal plans as for state plans unless different regulations are promulgated under 42 U.S.C. § 7601(d)(3)).

22. 42 U.S.C. § 7601(d)(4).

that would address small or minor sources not covered by a federal permitting program in order to more fully protect air quality in Indian Country.²³ The letter requested information from the tribes in order to begin the consultation process.

The scope of tribal jurisdiction, and by extension EPA, over any particular reservation is a complex question. In 40 C.F.R. § 71.4(b), as part of the regulations for the Title V federal operating permit program, EPA attempted to assert jurisdiction over areas where there was a dispute of jurisdiction.²⁴ The D.C. Circuit found that this provision was outside the scope of EPA's authority and that the agency could not simply extend its jurisdiction to disputed areas.²⁵ Thus, in disputed areas, EPA will not assert its permitting authority, but operators will need to consult with the state agency to determine whether, as a matter of state law, the state continues to exercise jurisdiction over the area. The states are also likely to want to continue to regulate minor sources pending resolution of any jurisdictional disputes. In areas where jurisdiction is not disputed, EPA is the main contact in the absence of approved TIPs. As tribes develop implementation plans, operators should participate in that process to help insure that tribes develop a permitting scheme that is workable for the industry. Operators should also monitor and participate in EPA's plans to develop a Tribal Minor Source NSR rule. Until this gap is filled, there will not be federal minor source permitting on tribal lands.

PSD and Visibility

The Prevention of Significant Deterioration program (PSD) and visibility programs were added to the CAA as part of the 1977 amendments.²⁶ The purpose of the PSD program was to prevent degradation of air quality in areas that were already in attainment with the NAAQS or in other words to prevent deterioration to the NAAQS.²⁷ The 1977 amendments established Class I, II, or III areas allowing different degrees of deterioration or increments of pollution beyond baseline levels.²⁸ Class I areas are the most pristine and thus, subject to special protection. They include primarily

23. Tribal Consultation Letter from Thomas C. Curran, Acting Director Office of Air Quality Planning and Standards, June, 28, 2002 available at www.epa.gov/air/tribal/announce/tribal_ann_062802.html (last visited May 13, 2004).

24. 40 C.F.R. § 71.4(b).

25. *Michigan v. Environmental Protection Agency*, 268 F.3d 1075 (D.C. Cir. 2001).

26. For a discussion of the history of the 1977 amendments see Reitze, *supra* note 3.

27. For a general discussion of the PSD program's purpose and a comparison with the nonattainment provisions see E. Harris, *Fugue and Variations: Prevention of Significant Deterioration and New Source Review*, in AIR QUALITY REGULATION FOR THE NATURAL RESOURCES INDUSTRY 2000 (Rocky Mountain Mineral Law Foundation, Mineral Law Series, Vol. I., 2000).

28. 42 U.S.C. §§ 7472, 7473 (2000).

national parks and wilderness areas.²⁹ The provisions define the roles the federal land managers play in both state permitting and the visibility process.

The PSD permitting program itself is not likely to apply to CBM facilities in most circumstances. A PSD preconstruction review permit is required for a major emitting facility or a major modification of a major emitting facility. Compressor engines or stations are not listed facilities subject to the PSD program and will not require a PSD permit unless they have the potential to emit more than 250 tons.³⁰ In areas where CBM development is tapping into older transmission facilities, there may be a greater chance for a major modification that would trigger PSD applicability.³¹

The PSD permitting requirements are extensive and tend not to vary significantly from state to state. A PSD source must utilize best available control technology³² and must demonstrate, through modeling, that its emissions will not have an impact greater than the increment established for each pollutant for the applicable air quality PSD class.³³ In other words, a PSD facility must demonstrate that it will not exceed the increment of deterioration established for its area of impact. Extensive monitoring gathered over a year before submission of a permit application is generally required to establish compliance with the relevant increments and ambient air quality standards. This time frame can be reduced to a minimum of four months if it can be shown that an adequate analysis is possible with data from a shorter period of time.³⁴

One of the more significant aspects of the PSD permitting program in the West, is the role of federal land managers in the permit review proc-

29. More specifically, Class I areas include international parks, national wilderness areas greater than 5000 acres in size, and national parks that exceed 6000 acres in size. *Id.* § 7472.

30. *Id.* § 7479(1). The listed facilities include such things as coal-fired power generation, Portland Cement plants, and petroleum refineries. Listed facilities are not major sources if they have a potential to emit less than 100 tons per year.

31. A major modification is defined as "any physical change that would result in a significant net emission increase of any pollutant subject to regulation under the [CAA]." 40 C.F.R. § 51.166(b)(2)(i) (2003). In a controversial rulemaking on October 27, 2003, EPA promulgated rules to establish new rules for when routine replacement or planned replacement of equipment will trigger a PSD modification. 68 Fed. Reg. 61,248 (October 27, 2003) (to be codified at 40 C.F.R. pts. 50, 51). These rules were immediately challenged and then stayed pending federal court review. *State of New York, et al. v. United States Environmental Protection Agency*, No. 03-1380 (D.C. Cir.). The State of Wyoming has intervened in this case on behalf of EPA. *See Motion of the State of Wyoming for Leave to Intervene, State of New York, et al. v. United States Environmental Protection Agency*, No. 03-1380 (D.C. Cir.).

32. Best available control technology is defined in the statute as the "maximum degree of reduction of each pollutant" determined on a "case-by-case basis, taking into account energy, environmental and economic impacts and other costs," which the permitting authority determines is "achievable" through available controls. 42 U.S.C. § 7479(3).

33. *Id.* § 7475(a)(3).

34. *Id.* § 7475(e); 40 C.F.R. § 51.166(m)(1)(iv).

ess. Section 165 of the CAA states that the federal land managers have an “affirmative responsibility to protect air quality related values (including visibility) of any such lands within a Class I area and to consider . . . whether a proposed major emitting facility will have an adverse impact on such values.”³⁵ Yet, the ultimate decision of whether to issue the permit remains with the permitting agency, generally the state.

Permitting authorities must consult with federal land managers and provide notice to the relevant federal land managers of any major emitting facility or major modification that may affect a federal Class I area.³⁶ The general rule is that federal land managers must receive notice of any application for a PSD facility within 100 kilometers (62 miles) and may receive notice of permitting actions by very large sources located more than 100 kilometers away from a Class I area.³⁷ If a federal land manager demonstrates to the satisfaction of the state permitting authority that the proposed PSD facility will have an adverse impact on air quality related values, particularly visibility, even if there is no violation of the applicable increment, the permit will not be issued.³⁸ Although this provision and others in the CAA do give a significant role to the federal land manager, the federal agency must still convince the state of the adverse impact. Implicit in this provision is the state’s right to disagree with the federal determination.³⁹

The visibility program under the 1977 amendments, although implemented in principle, did not result in comprehensive efforts to achieve the statute’s goals of enhancing visibility. The CAA states “as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I federal areas which impairment results from manmade air pollution.”⁴⁰ At the time EPA adopted visibility regulations in 1980, it chose to defer development of regulations to address regional haze impairment.⁴¹ Regional haze impairment is more diffuse and

35. 42 U.S.C. § 7475(d)(2)(B).

36. *Id.* § 7475(d)(2)(A).

37. Memorandum from David G. Hawkins, Assistant Administrator for Air, Noise, and Radiation to Regional Administrators I-X, *Notification to Federal Land Manager Under Section 165(d) of the Clean Air Act* (Mar. 19, 1979) (on file with author).

38. 42 U.S.C. § 7475(d)(2)(C)(ii). The statute outlines a series of possible results based on the federal land manager review. It is possible that if an applicant persuades the federal land manager that its facility will have no impact on AQRVs (Air Quality Related Values) the permit may be issued even if it will cause the increment to be exceeded. 42 U.S.C. § 7475(d)(2)(C)(iii).

39. The limitations on the role of the federal land manager in the permitting process are discussed in D. Arfmann & B. Tracy, *Regional Haze and Visibility: State and Federal Roles*, in *AIR QUALITY REGULATION FOR THE NATURAL RESOURCES INDUSTRY 2000* (Rocky Mountain Mineral Law Foundation, Mineral Law Series, Vol. I., 2000).

40. 42 U.S.C. § 7491(a)(1).

41. 45 Fed. Reg. 80,084 (Dec. 2, 1980); see also Arfmann, *supra* note 39; E. Harris, M. Kite & M. Throne, *Visibility: A Critique of the National Program; A Review of the Impacts in*

defined as impairment "caused by the emission of air pollutants from numerous sources located over a wide geographic area."⁴² The primary pollutants of concern are sulfur dioxide, oxides of nitrogen (NOx), and particulate.

The 1990 CAA amendments placed increased emphasis on the regional aspects of visibility protection, established the Grand Canyon Visibility Transport Commission, and required expanded research efforts to monitor and assess visibility impacts.⁴³ It is an understatement to say that the 1990 amendments revitalized visibility as a concern and resurrected the issue of regional haze. On July 1, 1999, EPA promulgated regulations outlining the requirements for state implementation plans to address regional haze.⁴⁴ Implementation of the regional haze rules will require a comprehensive effort on the part of the states and has the potential to impact all sources of emissions, regardless of their size.

The emphasis in visibility regulation prior to the adoption of the 1990 amendments was on what is generally termed "plume blight" or visibility impairment that is "reasonably attributable" to a single pollution source or small group of sources.⁴⁵ Federal land managers or the state, acting independently, may certify visibility impairment in a Class I area.⁴⁶ Following certification of impairment, the state must determine whether the impairment is "reasonably attributable" to a particular source.⁴⁷ Source attribution leads to the imposition of best available retrofit technology (BART) as a requirement for the offending stationary source.⁴⁸ The typical candidates for attribution have not been a collection of minor sources, typical of oil and gas development in general, or CBM development in particular, but major stationary sources.

The regional haze rules have put more definitive requirements into the visibility program and have established more specific targets for demonstrating progress towards achieving the national visibility goal. The rules provide two avenues for developing state implementation plans for most of the states where CBM development is occurring, including Colorado, Utah, Wyoming, and New Mexico, states that were part of the Grand Canyon

Southwest Wyoming, 33 LAND AND WATER L. REV. 3 (1998) (discussing of the history of visibility regulation).

42. 40 C.F.R. § 51.301(2004).

43. 42 U.S.C. § 7492.

44. 64 Fed. Reg. 35714 (July 1, 1999) (codified at 40 C.F.R. pt 51).

45. See Arfmann, *supra* note 39, at 4-2; Harris & Throne, *supra* note 41, at 8.

46. 40 C.F.R. § 51.302(c)(1).

47. *Id.* § 51.302(c)(4)(i).

48. *Id.* § 51.302(c)(4)(i), (ii). BART is determined by taking into "consideration the costs of compliance, the energy and nonair quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." 42 U.S.C. § 7491(g)(2).

Visibility Transport Commission (GCVTC).⁴⁹ Under 40 C.F.R. § 309, those states have the option of accepting the recommendations of the GCVTC as supplemented by the “annex” developed by the Western Regional Air Partnership (WRAP) to address impairment for the sixteen Class I Regions of the Colorado Plateau.⁵⁰ If states submit a SIP that implements the emission reductions and milestones developed by the WRAP, the SIP will be found in compliance with the reasonable progress targets of the regulations for the period 2003-2018.⁵¹ The initial “annex,” however, only addresses sulfur dioxide emissions and the WRAP must still consider NO_x and particulate. Under the Section 309 approach, initial SIPs were due by December 31, 2003, but the states will have additional time to develop SIPs for the other relevant pollutants.⁵²

The Section 309 approach is the most attractive to those states with Class I areas on the Colorado Plateau.⁵³ For Utah, all of its Class I areas are covered by the GCVTC. States proceeding under Section 309 with Class I areas in addition to the sixteen on the Colorado plateau may still use the Section 309 approach, but must amend their SIPs to address other Class I areas and may build on the recommendations and approach for Colorado plateau areas.⁵⁴ In fact, modeling by the WRAP has demonstrated that the emissions reductions embodied in its approach should also satisfy the regional progress goals for other Class I regions in the transport states.

The traditional SIP approach for regional haze is found in 40 C.F.R. § 51.308.⁵⁵ The comprehensive requirements listed in Section 308 highlight

49. The GCVTC states include, in addition to those listed, Arizona, California, Idaho, Nevada, and Oregon, plus 211 tribes.

50. The annex is required under 40 C.F.R. § 51.309(f). The initial annex from the WRAP contains milestones through 2018 and a backstop emissions trading program in the event that milestones are not reached. EPA proposed its approval of the annex as an addition to the haze rules in 2002. 67 Fed. Reg. 30,418 (May 6, 2002).

51. 40 C.F.R. § 51.309(a).

52. *Id.* § 51.309(c).

53. In this region, Wyoming and Utah have selected the 309 approach. See WYO. RULES & REGS., DEP'T OF ENVTL. QUALITY, AIR QUALITY Ch. 14 (Emissions Trading Program); *Id.* at Ch. 10 (Smoke Management); UTAH RULES AND REGS., AIR QUALITY § 307-250 (Western Backstop Sulfur Dioxide Program); *Id.* § 307-204 (Smoke Management). Colorado has opted to proceed under Section 308 as discussed at www.cdhp.state.co.us/ap/regionalhazeplan.html (last visited May 13, 2004).

54. 40 C.F.R. § 51.309(d)(10). This provision requires transport states to make periodic reports to EPA demonstrating reasonable progress towards attaining the national visibility goal in all Class I areas within their states. *Id.*

55. The D.C. Circuit Court invalidated Section 308's BART provisions for improperly restricting the state's authority to determine BART under 42 U.S.C. § 7491(g)(2). *American Corn Growers v. EPA*, 291 F.3d 1 (D.C. Cir. 2002). Initially, there was concern that this decision could also apply to provisions of the Annex. EPA has concluded, though, that the annex does not contain BART provisions subject to the court's analysis. Letter from Jeffrey R. Holmstead, Assistant Administrator Office of Air and Radiation to Rick Sprott, Director Utah Division of Air Quality (July 22, 2002) (on file with author).

the potential reach of the regional haze program. A Section 308 SIP must establish reasonable progress goals that provide for visibility improvement in the most impaired days during the period of the SIP and insure no degradation of visibility for the least impaired days.⁵⁶ The SIP must consider both Class I areas within and outside a state's boundaries. To define the most and least impaired days and to develop its targets, the state must establish baseline visibility in Class I areas and compare it with natural visibility.⁵⁷ The targets must insure enough progress in visibility improvement to reach natural conditions by 2064. SIPs under Section 308 may be due as early as 2005.⁵⁸ States must develop long term strategies, covering a ten to fifteen year period as part of the SIPs and these must be subject to a periodic review.⁵⁹

What does this increasing emphasis on visibility mean for CBM development? First, it is not an area that CBM operators should ignore. The emissions inventories that states are conducting in order to develop their strategies for visibility and regional haze in particular will include all sources of emissions. The focus will not just be on the traditional sources of concern, such as power generation, but will also need to take into consideration minor sources of emissions. In order to meet the ambitious goal of the regional haze program to reach natural conditions by 2064, all sources may have to play a role in emission reductions. While it is a long-term process, CBM engines and generators, collectively may represent a large source of NOx emissions with a potential to impact visibility in Class I areas. For this reason, the CBM industry should take part in any state or regional efforts to develop SIPs to address regional haze so that it can participate in the development of any NOx control or emission reduction strategies that may affect the industry.

A second effect of the increased emphasis on visibility under the CAA is that it has brought the role of federal land managers into play in the regulation of air quality. Because of the land managers' affirmative responsibility to protect Air Quality Related Values (AQRV),⁶⁰ and because visibility is perhaps the primary value at issue, the federal agencies, such as the

56. 40 C.F.R. § 51.308(d). These rules also include a process for regional SIP coordination at *Id.* § 51.308(c). Opting for this approach has the effect of deferring some of the SIP requirements of *Id.* § 51.308.

57. *Id.* § 51.308(d)(1). The process for determining the least and most impaired days, baseline visibility and other key features of the regional haze rule is technically complex and beyond the scope of this paper.

58. The due date for the SIPs depends generally on when an area is classified as attainment or nonattainment for particulate. *Id.* § 51.308(b).

59. *Id.* §§ 51.308(d)(3), 51.306. The long-term strategy under the haze rule must include emission limitations, compliance schedules, and other controls necessary to achieve the reasonable progress goals set by the states. This open-ended requirement gives states flexibility but does not provide much guidance on what might be required in a SIP.

60. See *supra* notes 36-39 and accompanying text.

United States Forest Service, the United States Fish and Wildlife Service, and the National Park Service, over the last several years, have developed their own internal policies and procedures for evaluating visibility impacts in Class I areas. Since the 1977 amendments, federal land managers have, by statute and regulation, participated in the development of visibility programs. The regional haze regulations continue this involvement. The federal land managers, as discussed above, have the ability to certify impairment, which in turn, is likely to trigger enhanced visibility requirements and to consider the visibility impacts of proposed major emitting facilities.⁶¹ More generally, the CAA and the regulations require the states to consult with federal land managers in developing their SIPs and the accompanying long-term strategies.⁶²

Despite the increasing concern for visibility, the federal land manager role remains advisory under the CAA. The states retain the authority and the responsibility for developing and implementing programs to protect air quality in Class I areas within their region. Federal land managers, in recent years, have arguably turned this advisory role into a quasi-regulatory function. The Federal Land Managers Air Quality Related Values Work Group (FLAG) has developed a massive protocol for evaluating the potential effects of PSD permitting actions and evaluating visibility concerns. The FLAG Report states that its objective is to “develop a more consistent approach for the Federal Land Managers (FLMs) to evaluate air pollution effects on their resources.”⁶³ The FLAG Report acknowledges the limited role of the federal land managers in that they have no permitting authority and no authority to create standards.⁶⁴ The report stresses that it is a guidance document, separate from federal regulations, and will only be used to assist federal land managers in fulfilling their responsibility to consult with the relevant state agencies.

In practice the FLAG report may easily become an additional regulatory overlay that will indirectly impose additional or different visibility requirements on sources.⁶⁵ In order to insure that the relevant federal land manager will have no concerns about a proposed major emitting facility, the applicant has little choice but to follow the FLAG protocol. The FLAG protocol has also become a tool for commenting on visibility concerns that may

61. *Id.*

62. 40 C.F.R. § 51.306 (2004).

63. Federal Land Managers Air Quality Related Values Work Group, Phase I Report (Dec. 2000) at iii, available at <http://www2.nature.nps.gov/air/permits/FLAG--FINAL.pdf> (last visited May 13, 2004) [hereinafter FLAG Report].

64. *Id.* at 5.

65. The FLAG Report states that its “recommendations are complimentary to the Regional Haze rule” and its intended use is for permitting and NEPA applications. *Id.* at 28. The focus is on visibility caused by new sources. *Id.* Nonetheless, to the extent the document influences visibility analysis by the FLMs, it is likely to play a role in how the FLMs consult with states as they develop their regional haze SIPs or address other visibility issues.

be evaluated in an Environmental Impact Statement. For example, the EPA in its critical comments on the Powder River Basin Draft EIS stated that the document's visibility analysis was "apparently" not "consistent with the protocol adopted by Federal Land Managers (FLM) for Class I areas."⁶⁶ This EPA comment seems to ignore the fact that the FLM protocol is guidance without any regulatory weight. Given that the states and their air agencies have the primary responsibility for addressing visibility concerns, the FLAG Report should not be an indirect source for additional visibility requirements. It does not seem consistent with the structure of the CAA for the EPA to rely on guidance prepared by federal land managers; nor, should the states be bound by the guidance.⁶⁷ The FLAG Report is an internal working document for the FLMs, not a requirement of the CAA.

Title V and Hazardous Air Pollutants

The CAA amendments of 1990 established two additional programs that may have minimal impact on CBM sources. The first is the Title V⁶⁸ operating permit program and the second is the program for hazardous air pollutants.⁶⁹ Since both focus on major sources, most CBM facilities will not be subject to the requirements.

Title V requires that all major sources apply for an operating permit that will include all applicable requirements for the facility.⁷⁰ Title V did not establish new pollution control requirements or replace or alter existing pollution control requirements. It does require a source to pay a per ton fee, contains enhanced compliance requirements, including compliance certifications by a responsible corporate official and in many cases, enhanced monitoring requirements. A major source for Title V purposes is defined primarily as a source that is major under Section 302 of the Act, meaning a stationary source or group of stationary sources that emit or have the potential to

66. U.S. EPA REGION VIII DETAILED COMMENTS FOR THE WYOMING DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE POWDER RIVER BASIN OIL AND GAS PROJECT 39 (May 19, 2002) (on file with author). Although, EPA does not refer directly to the FLAG Report, its implication is that the FLM protocol may be determinative.

67. The State of Wyoming and the oil and gas industry challenged the role of the federal land managers in two IBLA appeals related to southwest Wyoming. *Cabot Oil and Gas Corp. v. Bureau of Land Management*, No. 97-27 (I.B.L.A. filed Nov. 15, 1996); *Wyoming v. Bureau of Land Management*, Nos. 97-308, 309 (I.B.L.A. filed May 12, 1997). Before these appeals were heard, the BLM agreed that its efforts to control NO_x emissions through its Records of Decision exceeded the agency's authority. For a detailed discussion of these appeals see Harris, *supra* note 27, at 20-31.

68. 42 U.S.C. § 7661a-7661f (2000).

69. *Id.* § 7412.

70. Applicable requirements are broadly defined to include any SIP requirements, any preconstruction review permit requirements, any requirements for hazardous air pollutants, any new source performance standards, and a number of other miscellaneous requirements. 40 C.F.R. § 70.2 (2004). The purpose of the broad definition is to insure that an operating permit truly contains all the air requirements for a given facility.

emit more than 100 tons per year of any pollutant.⁷¹ A source that is major for hazardous air pollutants under Section 112 of the Act is also subject to Title V requirement.⁷² A major source of hazardous air pollutants is a stationary source or group of stationary sources that have the potential to emit ten tons per year or more of any single hazardous air pollutant⁷³ or twenty-five tons per year or more of any combination of hazardous air pollutants.⁷⁴

The major source definition for hazardous air pollutants contains an exception to grouping for oil and gas exploration and production facilities that limits the potential that CBM facilities will become major sources of hazardous air pollutants. The statutory and regulatory definitions for major source provide,

Emissions from any oil or gas exploration or production well (with its associated equipment) and emissions from any production well (with its associated equipment) and emissions from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources.⁷⁵

For CBM facilities, the pollutants that are most likely to trigger a major source concern are NO_x and formaldehyde. Because of the increased burdens associated with a major source determination under Title V and the hazardous pollutant program, if a CBM facility is near the major source threshold, it should consider seeking an enforceable limit, known as a synthetic minor to bring emissions below the major source level. This typically can be achieved through a state permit modification.

A major source for hazardous air pollutants is also required to utilize maximum achievable control technology (MACT) to limit emissions.⁷⁶ Thus, if CBM facilities have the potential to emit more than ten tons per year of formaldehyde, they are subject to the MACT requirements. EPA has finally promulgated the MACT standards for reciprocating internal combus-

71. 40 C.F.R. § 70.2. A group of stationary sources are those "located on one or more contiguous or adjacent properties, and are under common control of the same person (or persons under common control) belonging to a single major industrial grouping." *Id.*

72. *Id.*

73. Hazardous air pollutants are listed at 42 U.S.C. § 112(b).

74. 42 U.S.C. § 7412(a)(1); 40 C.F.R. § 70.2.

75. 42 U.S.C. § 112(n)(4); 40 C.F.R. § 70.2.

76. Title 42 of the U.S. Code, § 7412(d) explains in detail the strict level of control required. For existing sources, controls cannot be less stringent than the "average emission limitation achieved by the best performing 12 percent of the existing sources." 42 U.S.C. § 7412(d)(3).

tion engines (RICE), after having missed the statutory deadline for doing so.⁷⁷

COALBED METHANE AND AIR QUALITY IN THE POWDER RIVER BASIN IN WYOMING

When CBM development dramatically increased in the Powder River Basin in Wyoming in the mid to late 1990s, it came into one of the most heavily regulated air quality environments in Wyoming. Since the 1980s, the Air Quality Division and industry with oversight from EPA Region VIII have been dealing with the combined impacts of surface coal mines and power generation facilities with the attendant concerns about emissions of NO_x and particulate (PM). The addition of compressor engines and portable diesel generators for CBM development has led to what can best be described as a permitting traffic jam.

Basic Permitting Requirements

In Wyoming, there is no emission threshold for a preconstruction permit requirement. Construction of any new source⁷⁸ or modification of an existing facility or source requires an application for an air quality permit.⁷⁹ Chapter 6, Section 2(a)(i) of the Wyoming Air Quality Standards and Regulations (WAQSR) requires,

[A]ny person who plans to construct any new source, modify any existing facility or source, or to engage in the use of which may cause the issuance of or an increase in the issuance of air contaminants into the air of this state shall obtain a construction permit . . . before any actual work is begun on the facility.⁸⁰

77. Title 42 of the U.S. Code, § 7412(e) required EPA to promulgate all source category emission limits within ten years of passage of the CAA amendments of 1990. 42 U.S.C. § 7412(e). The RICE MACT, which is signed and final but has not yet been published in the Federal Register will be codified at 40 C.F.R. part 63, subpart ZZZZ. See <http://www.epa.gov/ttn/atw/rice/ricepg.html> (last visited May 14, 2004).

78. “‘New source’ shall mean any stationary or portable source, the construction or modification of which is commenced after the effective date of regulations prescribing a standard of performance applicable to such source.” WYO. RULES & REGS., DEP’T OF ENVTL. QUALITY, AIR QUALITY Ch. 1, § 3(a) (Weil’s 2003). The only “grandfathered” sources in Wyoming are those facilities that were constructed prior to the 1974 adoption of Chapter 6, section 2, and have not been modified since.

79. Wyoming Statute creates the statutory framework for air and water construction permits. WYO. STAT. ANN. § 35-11-801 (LexisNexis 2003).

80. WYO. RULES & REGS., DEP’T OF ENVTL. QUALITY, AIR QUALITY Ch. 6, § 2(a)(i). “‘Air Contaminant’ shall mean dust, fumes, mist, smoke, other particulate matter, vapor, gas or an combination of the foregoing, but shall not include steam or water vapor.” *Id.* at Ch. 1, § 3(a).

Although there is no exemption for de minimis sources, the Administrator of the Wyoming Air Quality Division (WAQD) has the discretion to waive permitting requirements when he determines that a minor source is “insignificant in both emission rate and ambient air quality impact.”⁸¹ The waiver must be requested and granted prior to construction.

The regulations state that the WAQD will do a completeness review of the application within thirty (30) days and notify the applicant of the determination.⁸² A complete application is defined as one that includes “all materials and analyses” necessary for the WAQD to review the facility.⁸³ The regulations require that each application include site information, plans and description of the facility, the type and amount of emissions, the planned manner for controlling and operating the facility, and a construction schedule.⁸⁴ In addition, the applicant must supply ambient air quality monitoring data, as deemed necessary by the WAQD Administrator, to establish existing concentration levels for “affected pollutants.”⁸⁵ The WAQD may authorize portable sources, however, to utilize a “self-issuance” permit for new locations, provided that the portable source operates in accordance with the previously issued permit, provides some limited additional information to the WAQD, and provides notice to the WAQD prior to operation at the new location.⁸⁶

An incomplete application is deemed inactive until all requested additional information is supplied. If the application is complete, the technical analysis under the regulations is intended to be complete within sixty (60) days of the completeness determination.⁸⁷

Following the Administrator’s proposed decision to issue a permit, there is a thirty (30)-day public comment period and opportunity for a public hearing.⁸⁸ A public hearing “may be called if sufficient interest is generated or if any aggrieved party” requests the hearing during the public comment period.⁸⁹ The decision to hold the hearing is discretionary with the Adminis-

81. *Id.* at Ch. 6 § 2(k)(viii). Section 2(k) also contains a limited list of seven permit exemptions, including installation of an air pollutant detector, fuel burning equipment with a heat input of not more than twenty-five million BTU per hour, mobile internal combustion engines, laboratory equipment for physical or chemical analysis, installation of pollution control equipment which is not part of a construction permit, and retail gasoline storage tanks. *Id.*

82. *Id.* § 2(g).

83. *Id.*

84. *Id.* § 2(b)(i).

85. *Id.*

86. *Id.* § 2(b)(ii). Some of the additional information includes expected duration at the new location and production rate at the new location. *Id.*

87. *Id.* § 2(g).

88. *Id.* § 2(m).

89. *Id.* Although CBM air permitting has not generated the same public interest as water quality permitting, it is sometimes more efficient for the operator to request a hearing as part

trator.⁹⁰ Because the public hearing will also have to be noticed, it can significantly delay the issuance of a permit. Assuming no public hearing, the regulations set up a likely minimum of 120 days process for obtaining a permit, including the ninety (90)-day WAQD review and thirty (30)-day public comment.⁹¹ Under the permit, construction of the facility must begin within twenty-four months or the permit becomes invalid, unless extended for good cause by the Administrator.⁹²

The WAQD will not issue a permit unless the applicant has demonstrated that the facility: (1) will comply with all requirements of the Wyoming Environmental Quality Act and accompanying regulations; (2) will not prevent attainment or maintenance of any ambient air quality standard; (3) will not cause significant deterioration of existing ambient air quality; (4) will be located in accordance with proper state or local land use planning requirements; (5) will use Best Available Control Technology (BACT); (6) will have provisions for measuring significant air contaminants (as required by the Administrator); (7) will satisfy the performance set forth in the permit application; (8) and will not prevent attainment of any other state's requirements to prevent significant deterioration or to protect visibility.⁹³ Finally, the applicant will also be assessed a fee for processing the application, which must be paid prior to permit issuance.⁹⁴

Of these requirements, the most significant for minor sources is the requirement to utilize BACT to limit emissions from the facility. In Wyoming's regulations, BACT is determined based on the "consideration of the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility."⁹⁵ BACT, as applied in Wyoming and in the CAA, is a technology forcing process that leads to reduced emissions from newer facilities as controls become more technologically and economically feasible. In Wyoming, since there are no emission thresholds for permitting, BACT, in theory, is applied no matter the level of uncontrolled emissions from the facility. This is broader than the federal requirements and the BACT application in many other states. In application, for similarly situated sources, the BACT analysis is not created anew for each source.

of the original public notice in those circumstances where there is the possibility of a hearing that could significantly delay permit issuance.

90. *Id.* § 2(m).

91. *Id.* § 2(a)(iii).

92. *Id.* § 2(h).

93. *Id.* § 2(c)(i) - (viii).

94. *Id.* § 2 (o).

95. *Id.* § 2(c)(v).

Basic Permitting Requirements Applied to CBM Facilities

Between January 1, 1999 and December 31, 2003, the WAQD issued 1080 permits or waivers for CBM facilities, including portable generators and compressor engines.⁹⁶ The primary pollutant of concern is NO_x. The WAQD estimates that it has permitted approximately 22,000 tons per year of NO_x for CBM facilities, but believes that only forty to fifty percent of what is permitted has actually been constructed.⁹⁷ In addition, there is also concern about formaldehyde, a hazardous air pollutant, produced by lean-burn engines.

The volume of CBM applications has made it more difficult for the WAQD to complete a full permit review in the 120 day time frame contemplated by the WAQSR. The WAQD now estimates that it may take up to 180 days to receive a permit.⁹⁸ This administrative burden on the agency of the permitting process and the attendant delays for the applicant raise the question of whether it is really necessary to have a system that requires the agency to review every single permit application. Although the application of BACT is a process, not a specific number, current BACT analysis is yielding permit limits of .9 grams / horse power hour (gr/hp-hr) of NO_x for larger engines and in general is 1.0 gr/hp-hr for other engines and this number has been relatively steady.⁹⁹ The WAQD requires an oxidation catalyst as BACT on all lean burn engines.¹⁰⁰ Because the BACT for engines has been consistent over a period of time and the individual review of each application does not yield a stricter number, it seems that it would be possible and more efficient to develop permit rules that are less dependant on process but achieve the same level of environmental protection.

To date the WAQD has not proposed any rule changes to modify the permitting process, but has issued extensive guidance to aid the applicant. The guidance for CBM permitting includes detailed requirements for demonstrating compliance with the NAAQS for NO_x. This information should

96. Interview with Bernie Dailey, New Source Review Manager for the WAQD (Apr. 1, 2004) (notes on file with author). Dehydrators and small heaters may also be part of the production facility, but are not significant sources of emissions. *Id.*

97. Interview with Dan Olson, WAQD Administrator (May 8, 2004). Because many of the permitted engines have not been constructed during the twenty-four (24)-month time frame required by Wyoming regulations, the WAQD is taking steps to notify permittees that those permits are no longer valid so that the agency can better quantify the NO_x emissions. In order to establish a NO_x emissions inventory for the state, the WAQD must include all permitted emissions whether or not the facilities have been constructed. *Id.* See WYO. RULES & REGS., DEP'T OF ENVTL. QUALITY, AIR QUALITY Ch. 6, § 2(h) (Weil's 2003).

98. Interview with Bernie Dailey, *supra* note 96.

99. *Id.* Mr. Dailey reports that while these numbers have been in effect for some time, one type of engine is permitted at .7 gr/hp-hr.

100. This requirement for all lean burn engines, regardless of whether they are a major source, makes Wyoming's requirements more stringent than the federal requirements in 40 C.F.R. Part 63

be submitted with any application to expedite the permitting process and to avoid a finding that the application is incomplete. In addition to other requirements, the guidance describes the model that must be used, requires one year of on-site meteorological data and specifies that, as part of the design of the facility, all exhaust stacks for compressors must be "1.5 times higher than the tallest building at the facility under consideration."¹⁰¹

In February 2002, the WAQD added an additional requirement for CBM gas gatherers to provide proof that the company has notified any private landowner that it has applied for an air quality permit for a location on their property.¹⁰² The directive from the WAQD does not require any acknowledgement that the landowner has agreed to the location, only that the landowner has received notice.¹⁰³ The WAQD memorandum cites Chapter 6, Section 2(b)(i) of the air quality regulations as the authority for the additional information.¹⁰⁴ This provision does not contain any specific authority for notice requirements, but simply requires the applicant to provide "any additional information, plans specifications, evidence or documentation that the Administrator of the Division of Air Quality may require . . ."¹⁰⁵ While this notice requirement may be an inconvenience for gas gatherers and not a clear regulatory requirement, it is important to satisfy the WAQD request for the landowner notice because the application will not be deemed complete until the notice is provided and the WAQD will not begin processing the application.¹⁰⁶

The WAQD has also provided detailed guidance to address the issue of portable diesel and gas generators. Under a strict reading of the Wyoming permitting requirements, as explained in December 2000 correspondence to CBM operators, portable generators, like all other potential sources of emissions would require an air quality permit or waiver prior to construction.¹⁰⁷ The WAQD informed CBM operators that a number of portable generators in use were not authorized under the WAQSR. This initial treatment of generators and a strict application of Wyoming's permitting requirements

101. Wyoming Department of Environmental Quality/Air Quality Division, Requirements for Submitting Modeling Analyses for Coal Bed Methane Facilities (June 28, 2000) (on file with author). Wyoming's CBM Guidance on Air Issues available at <http://deq.state.wy.us/aqd/coalbed.asp>. (last visited May 14, 2004). The guidance also highlighted the WAQD's concerns with formaldehyde and stated that the agency is "evaluating the associated incremental unit risk due to long-term exposure" from those emissions. As previously stated, the WAQD has since determined that controls are required to control these emissions.

102. Memorandum from Dan Olson, WAQD Administrator, to Coal Bed Methane Gas Gatherers, re Landowner Notification (Feb. 8, 2002).

103. *Id.*

104. *Id.*

105. WYO. RULES & REGS., DEP'T OF ENVTL. QUALITY, AIR QUALITY Ch. 6, § 2(b)(i) (Weil's 2003).

106. Memorandum from Dan Olson (Feb. 8, 2002), *supra* note 102.

107. Memorandum from Dan Olson, WAQD Administrator, to Coal Bed Methane Operators, re Operation of Diesel Fired Generators (Dec. 29, 2000).

caused significant concerns for the industry. From industry's perspective, the need to be able to place generators quickly and to be able to move them from location to location until electric power is available at the well site was essential to an efficient operation. The WAQD was concerned about the proliferation of portable generators that individually were not a significant source of emissions, but collectively could cause impacts comparable to large engines. Recognizing that industry would not be able to respond immediately, the WAQD stated that it would not apply the strict permitting requirements for new construction until March 1, 2001.¹⁰⁸

This result did not address all of the operators' concerns and a meeting was held between the WAQD and the operators on March 16, 2001. Following this meeting, the WAQD acknowledged that "CBM activities, like many traditional oil and gas production activities, can't operate within a very narrow interpretation of the procedural requirements of the regulation," and that in other similar circumstances the agency has developed guidance to adjust the procedural aspects of Wyoming's permitting regulations, provided that the "intent of the law," was preserved.¹⁰⁹ Thus, the WAQD agreed to an "application shield" for generators that would allow continued operation of the engines, provided that the operator completed the appropriate WAQD application.¹¹⁰ Under this approach, the operators would not be required to wait until the application was processed in order to continue operations. The WAQD agreed to leave this system in place until it completed more formal guidance for generators.¹¹¹

On October 15, 2001, the WAQD issued the Permitting Guidance for Generators Operating at CBM Wellsites, which remains in effect.¹¹² The guidance provides detailed requirements for diesel and gas generators and provides the most flexibility for gas generators smaller than 300 horsepower (hp).¹¹³ Small gas generators meeting the BACT requirement of 1.0 to 2.0 gr/hp-hr for NO_x will receive waivers for the eight county Northeastern region of the state that will allow the engine to be moved from location to location without notice to the agency.¹¹⁴ The operator must receive the permit or waiver prior to placing the engine into operation.¹¹⁵ Large gas generators

108. *Id.*

109. Memorandum from Dan Olson, WAQD Administrator, to Coal Bed Methane Portable Generator Owner/Operators (Apr. 25, 2001).

110. *Id.*

111. *Id.*

112. Memorandum from Dan Olson, WAQD Administrator, to Coal Bed Methane Portable Generator Owner/Operators (Oct. 15, 2001).

113. *Id.*

114. *Id.*

115. Generators in existence at the time of the guidance could continue to operate, while new generators – those purchased after October 31, 2001 – would require a waiver or permit prior to operation. *Id.*

also enjoy flexible permit requirements, but on a temporary basis.¹¹⁶ Larger generators can receive a waiver to operate at any one location for six months.¹¹⁷ If the gas generator operates at one location longer than six months, it will be deemed permanent and must obtain a permit.¹¹⁸ Both small and large gas generators will be subject to some testing to verify the NOx emissions.¹¹⁹

The requirements for diesel generators, because they are a more significant source of emissions, are more stringent than for gas generators. New diesel generators, those installed after October 31, 2001, must meet, at a minimum, EPA/California certified emissions as BACT.¹²⁰ The diesel generators may only operate at one location for six months or less.¹²¹ If the generators meet these conditions, the engines will receive a permit waiver.¹²² If at the location for longer than six months, the engines will be considered permanent and must apply for a permit.¹²³ The permit or waiver must be in place prior to operation for new diesel engines.¹²⁴ As with gas engines, some testing will be required to verify the NOx emissions.¹²⁵ All waivers for diesel engines, unlike those for gas generators, were originally intended to expire on December 31, 2003, but have been extended to December 31, 2004.¹²⁶ During this interim period the WAQD has been assessing ambient air quality in northeast Wyoming, taking into account all NOx sources, and may adjust the requirements for diesel generators depending on the outcome of the analysis.¹²⁷

While the primary concern for operators is obtaining the necessary permits or waivers for compressors and generators, receiving the permit is just the beginning. CBM operators must have systems in place to insure that they operate the engines in compliance with the terms of the permits or the waivers. Under the WAQSR, a source must notify the WAQD of the anticipated start-up of the facility not more than sixty days or less than thirty days prior to the start-up.¹²⁸ Within fifteen days of actual start-up, notice must also be provided to the WAQD.¹²⁹ In addition, the operator must conduct

116. *Id.*

117. *Id.*

118. *Id.*

119. *Id.*

120. *Id.*

121. *Id.*

122. *Id.*

123. *Id.*

124. *Id.*

125. *Id.*

126. *Id.* Interview with Dan Olson, *supra* note 97.

127. See Memorandum from Dan Olson (Oct. 15, 2001), *supra* note 112.

128. WYO. RULES & REGS., DEP'T OF ENVTL. QUALITY, AIR QUALITY Ch. 6, § 2(i)(i) (Weil's 2003).

129. *Id.* § 2(i)(ii).

performance testing within thirty days of achieving maximum design production rate, but no later than ninety days after initial start-up, unless the WAQD approves a different schedule.¹³⁰ A standard permit condition also requires sources to provide access to their facilities for purposes of inspections.

Failure to comply with the requirement to obtain the appropriate permit or waiver or failure to comply with the terms of those documents may result in enforcement from the WAQD, including penalties. The Wyoming Environmental Quality Act provides for penalties of up to \$10,000 per day for each violation.¹³¹ While the penalties actually imposed are much less than the maximum, they can still be significant. Failure to permit penalties are often assessed at \$5,000 per engine or more for larger engines, while penalties for failure to follow permitting or waiver requirements have been assessed at \$250 to \$ 500 per violation per engine.¹³²

CBM Emissions and Basin-Wide Issues

Emissions from CBM facilities in conjunction with the existing sources in the Powder River Basin have caused concerns for the WAQD both for particulate and NOx emissions. The particulate concerns are informally resolved, while ongoing monitoring and ongoing development of an emissions inventory for NOx have somewhat alleviated pressing concerns about NOx.

Under Wyoming's regulations, the Powder River Basin is essentially defined as a separate attainment area for particulate. This is accomplished through a modified definition of "ambient air" for the Powder River Basin.¹³³ The effect of this is that the state must demonstrate compliance with the NAAQS for particulate within the boundaries of the defined area. The state and EPA agreed to the boundaries for this area in order to address the unique particulate issues associated with the large scale coal mining in the Basin. Because it is difficult to show compliance with ambient standards and other air quality requirements by modeling coal mine emissions, the separate area is heavily monitored to demonstrate compliance with the NAAQS.

The addition of CBM development in the same area as the coal mines and the accompanying increase in road dust combined with the extreme drought conditions in northern Wyoming caused a significant increase

130. *Id.* § 2(j).

131. WYO. STAT. ANN. § 35-11-901(a)(i) (LexisNexis 2003).

132. The WAQD does not have a specific penalty policy in place for these types of violations. These penalty estimates are based on the author's experience, review of WAQD files, and interviews with WAQD staff.

133. WYO. RULES & REGS., DEP'T OF ENVTL. QUALITY, AIR QUALITY Ch. 2, § 2(c).

in particulate emissions. The resulting exceedances of the PM₁₀¹³⁴ NAAQS could provide a basis for EPA to find that the area is in nonattainment. The WAQD has issued individual enforcement actions against three coal mines where the exceedances were monitored and has worked with the CBM operators to encourage them to water roads to minimize dust.¹³⁵ Although there is still a possibility that EPA may find the area is in nonattainment, the agency is trying to resolve the matter with EPA through other means. Those discussions are ongoing and have not yet resulted in any changes to Wyoming's permitting program, although the WAQD has agreed informally to review its provisions for dust control.¹³⁶ This result is far more preferable than a finding of nonattainment. As discussed above, a finding of nonattainment would require WAQD to develop specific measures for all sources to minimize particulate emissions. Additional particulate control requirements would add to already significant air quality burdens for the CBM industry in the Basin.

As the CBM boom hit the Powder River Basin, the WAQD began to be concerned that the allowable NO_x increment – or allowable deterioration authorized under the PSD program – had been consumed. The state is obligated to track this consumption as part of its PSD obligations. There are many sources of NO_x in the Powder River Basin, in addition to that from CBM facilities. The trains for the coal transport, the power generation facilities, off-road vehicles at the coal mines, and the blasting operations for the coal mines all contribute to large NO_x emissions. The trains and the off-road vehicles are federally-controlled and the state can do nothing to limit those emissions. In the last two years, WAQD has completed a preliminary NO_x inventory for northeastern Wyoming and for the near term it appears that NO_x increment consumption is not an issue.¹³⁷ The question of whether PSD increment has been consumed may not be an immediate issue for the WAQD, but until the question is answered, it should be monitored by the regulated community.

Questions about the potential visibility impacts of NO_x from CBM production have been and will be an issue for the CBM industry, the

134. PM₁₀ is defined as "particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers" as determined under the federal regulations. WYO. RULES & REGS., DEP'T OF ENVTL. QUALITY, AIR QUALITY Ch. 1, § 3(a).

135. See In the Matter of the Notice of Violation Issued to Jacob's Ranch Coal Company, No. 3351-02 (WDEQ filed Feb. 11, 2002); In the Matter of the Notice of Violation Issued to Thunder Basin Coal Company, No. 3350-02 (WDEQ filed Feb. 11, 2002); In the Matter of the Notice of Violation Issued to Triton Coal Company, No. 3329-01 (WDEQ filed Dec. 12, 2001).

136. Interview with Dan Olson, *supra* note 97.

137. *Id.* However, environmental groups challenging the Final BLM EIS for the Powder River Basin assert that increment consumption remains a concern. See Opening Brief of Western Organizations of Resource Councils at 33-34, Western Organization of Resource Councils v. Clarke, No. 04-CV-00018-J (D. Wyo filed May 1, 2003).

WAQD, and the public as the development continues. The BLM's Final EIS for the Powder River Basin has been challenged, in part, by environmental groups for its alleged inadequate visibility analysis and failure to adequately evaluate the impact of the development on Class I area.¹³⁸ The WAQD's ongoing monitoring program for NO_x in the area will help gather hard data to evaluate NO_x emissions.¹³⁹ The hard data is necessary to refute modeling which may be overestimating impacts. The data will also assist the state agency in developing its plans for implementing the regional haze rules as they apply to NO_x.

Given the CBM development's proximity to Class I areas, such as the Badlands National Park and the Wind Cave National Monument, NO_x emissions cannot be ignored by the WAQD or the regulated community. As Wyoming moves forward with development of its Regional Haze SIP, the CBM industry needs to begin participating in the early stages to comment on any proposals that could impact future CBM development in the Basin.

LESSONS LEARNED FROM THE POWDER RIVER BASIN AND ANTICIPATING FUTURE CAA DEVELOPMENTS FOR THE INDUSTRY

The experience in the Powder River Basin has shown that the fact that most CBM facilities are minor sources does not alleviate concerns about their emissions. Wyoming had strict permitting requirements in place and still has struggled to address air quality concerns associated with the development. It is also clear that Wyoming's program is burdened by requiring a full scale permitting process for most engines and some generators. The CBM industry should work with the WAQD to develop a streamlined process that achieves the same level of environmental protection with fewer procedural requirements. For minor sources, the CAA provides this flexibility as long as the state can demonstrate continued compliance with CAA requirements. In other states or tribal areas where concentrated development may cause broad air quality concerns, the CBM industry needs to anticipate at the outset the possible impacts of its development. This will assist the industry in working with relevant state agencies to minimize burdens associated with minor source permitting.

Upcoming regulatory developments under the CAA may also have a dramatic impact on the air quality requirements for the CBM industry. For the few major CBM sources, the requirements are fairly clear. For minor sources, the landscape has the potential to change. As EPA moves forward with tribal representatives to develop Minor NSR rules for tribal lands, the industry is likely to face new requirements where none currently exist. The

138. Opening Brief of Western Organizations of Resource Councils at 31-33, *Western Organization of Resource Councils v. Clarke*, No. 04-CV-00018-J (D. Wyo filed May 1, 2003).

139. Interview with Dan Olson, *supra* note 97.

industry, as a whole, should track this process and as at the state level, work with EPA and the tribes to develop an efficient permitting process that maximizes environmental benefits without creating unnecessary burdens.

The potential impact of regional haze rule development should not be underestimated or ignored. The broad and open-ended requirements of that program are likely to have an effect on the majority of sources in the West. Most natural resource development occurs in areas with the potential to impact Class I areas. The ambitious goal of the program to reach natural visibility conditions by 2064, if it is to be achieved, will not ignore any industry sector, even one composed of mostly minor sources.

On the whole, the public may initially focus on the water quality concerns associated with CBM development. They are more obvious and dramatic to the average individual. Over the long term, industry will also need to allocate significant resources to addressing potential air quality concerns. This will help insure that industry can continue to produce the CBM resource without unreasonable controls or delays.

University of Wyoming
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WYOMING LAW REVIEW

VOLUME 4

2004

NUMBER 2

GENERAL LAW DIVISION

This section of the WYOMING LAW REVIEW is dedicated to developing and understanding jurisprudence in Wyoming and in other jurisdictions.

