INTRODUCTION

With the interests in expanding the supply of domestic petroleum in a time of "peak oil" and in avoiding the transfer of vast amounts of wealth to possibly unfriendly regimes, renewed attention is being given to the legal framework controlling oil and gas exploration and production (E&P). This report documents the efforts of more than 30 states that regulate the oil and gas industry, although many of the state regulatory schemes date from earlier waves of resource extraction, and have not kept pace with changed technologies, nor with a deepening concern for public health and the environment.

In regulating any extractive industry, regulators balance production needs against the interest in protecting public and ecosystem health. This report helps reveal the choices state regulators make in protecting the public from the array of detrimental environmental and public health side effects that accompany oil and gas drilling operations. The interests implicated include industry compliance costs, the costs of enforcement, public health, ecosystem health, wildlife protection, and risk mitigation, while the regulatory postures must choose between being flexible or specific; and geographically uniform or locally variable.

I. THE FEDERAL-STATE RELATIONSHIP

As a general matter, U.S. EPA and state governments collaborate on environmental protection. In many cases, states enforce federal standards, or standards that must be as rigorous as federal standards. The states now conduct between 80% and 90% of all environmental enforcement actions, while more than 75% of the major delegable environmental programs have been delegated to or assumed by the states.[1] The justification for this devolution of enforcement authority largely stems from the simple matter of proximity to the local environment. States typically can respond more quickly to local pollution problems, better understand environmental conditions, have more everyday interaction with the regulated community, and can be more innovative and flexible in their solutions.[2] Moreover, the federal government may facilitate state experimentation by giving states freedom to design their own plans, and then reviewing and financing approved plans.[3]

This report looks at a different aspect of this "collaborative federalism," namely, state environmental enforcement in those instances when the major federal environmental statutes expressly provide the oil and gas industry with either qualified or complete exemptions from federal regulation. At the same time, most of those statutes expressly permit states to regulate these activities, preventing the possibility of federal pre-

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[1] Joel Mintz, "Scrutinizing Environmental Enforcement: A Comment on a Recent Discussion at the AALs," 17 J.Land Use & Envtl. L. 127, 130 (2001).
[2] David R. Hodas, "Environmental Federalism: Enforcement of Environmental Law in a Triangular Federal System: Can Three Not Be a Crowd When Enforcement Authority Is Shared by the United States, the States, and Their Citizens?" 54 Md. L. Rev. 1552, 1571 (1995).
[3] *See infra* note 132, and accompanying text.

emption.[4] The policy considerations for this de facto delegation to the states are similar, however, in that state and local government can be more responsive to oil and gas industry stakeholders, and tailor regulatory regimes more closely to account for regional population patterns (see, e.g., New Mexico's ambient hydrogen sulfide standards, below) and smaller pollution sources. The regulations may respond to local conditions, as well as customize an intensity of regulation commensurate with the level of industry activity (see, e.g., South Dakota with its 213 producing wells). The report notes that delegation does not end at the state level: for example, the state of California assigns local air districts responsibility for regulating emissions from stationary sources.

The Clean Air Act (CAA) exemption for air pollution emanating from oil and gas production illustrates the point: the CAA regulates large stationary sources through a permitting program, but leaves smaller "area sources" unregulated unless they are close to major metropolitan areas.[5] Similarly, the CAA's aggregation rule, grouping sources under common control, does not apply to oil and gas emissions.[6] The states, however, are left to make the determination whether the sources' cumulative environmental impact is a threat to the state's population.

Similarly, the Resource Conservation and Recovery Act (RCRA) provides that the byproducts of oil and gas exploration and production are not "hazardous" and therefore not covered by the statute. RCRA allows states to regulate exploration and production waste more restrictively, protecting the environment more rigorously than its standards. Of course, industry groups bring the same lobbying pressure against state regulatory efforts; the federal exemption may simply fractionate and localize the battle to set appropriate and sustainable levels of regulation of oil and gas pollution.

II. SURVEYING STATE STATUTES AND REGULATIONS

The following topics in an admittedly vast regulatory landscape were selected for the survey: hydrogen sulfide emissions, hazardous waste, and drillings and casings. These topics were chosen to present the wide variety of possible environmental effects of oil and gas exploration and production. Likewise, the topics selected demonstrate the range of issues and regulatory responses posed by the lifecycle of the oil and gas industry, from exploration, preliminary drilling, and disposal of drilling byproducts.

The write-ups, particularly in the appended charts, attempt to present the breadth of the state regulatory approaches, although we cannot vouchsafe the comprehensiveness of the results. The narratives themselves focus on states presenting noteworthy

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[4] See, e.g., Clean Air Act (CAA), section 7416 providing that states may "adopt or enforcement (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution."

[5] CAA, section 7412(n)(4)(B).

[6] CAA, section 7412(a)(1) defining a "major source" as any "stationary source or group of stationary sources located within a contiguous area and under common control" that emits threshold amounts of pollutants. The CAA's stationary source rule only applies to "major sources" per 7412(d)(1), hence non-aggregation of oil and gas emissions amounts to a substantial exemption, in view of the natural, geography-based clustering of exploration and production sites.

regulatory approaches by isolating the values that the various approaches advance. The primary research ended in June 2008, so regulations and legislation subsequent to that date will not appear in the summaries or charts.

Some of the themes developed in this report include:

1. States respond to the federal regulatory gap with widely discrepant intensity and rigor

The drillings and casing section evidences a spectrum of regulation, from Texas's comprehensive regulations with multiple safeguards to New York's "disappointingly sparse" regulations. When permitting drilling sites and pits, some states are more stringent than others in how close these sites may be to sources of drinking water or natural waterways. Pennsylvania requires that drill pits be more than 100 feet from a body of water, whereas New Mexico only requires that such sites not be in a watercourse or wetland (although it is considering more stringent regulations).

Michigan and Wyoming are stricter than other states on what kinds of waste may not be placed in open pits. California is the only state that regulates the content and toxicity of produced water (an oil and gas production byproduct) before the disposal step. Even when deciding on how stringent regulations should be (*e.g.* must pits be lined?), regulators may choose to be even more specific and name precisely what kinds of materials at what thickness those liners must be.

2. States serve as proving grounds for best practices in regulation

Unlike instances where the U.S. EPA's regulations have taken on a nearly talismanic influence and choked off state innovation (see, *e.g.* supplemental environmental projects[7]), the states have fulfilled their promise for regulatory diversity in regulating the oil and gas industry. The hydrogen sulfide section points out three different ways of regulating hydrogen sulfide pollution. For example, Joseph points out distinctions between regulating oil and gas emissions based upon attainment of certain ambient pollution levels, and within that mode, states or regions employ many different possible ways of setting and monitoring those levels. Other jurisdictions place restrictions on where oil and gas activity can occur, for example, forbidding certain activities within a certain zone around residential areas. Or, pollution can be regulated through permits that monitor pollution from point sources. (e.g., Michigan) However, choosing any one of these approaches may be less effective than choosing all of these approaches to offer maximal safeguards to human health. In the context of drilling and casing regulations, Texas distinguishes itself by not relying upon one mode of safeguard, but by requiring multiple safeguards at various stages of the drilling process.

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[7] See, *e.g.*, Public Law Research Institute, *Supplemental Environmental Projects* (2007), *available at* www.uchastings.edu/cslgl/SEPs.html (last visited Dec. 1, 2008). This report notes that the states have oft adopted the EPA's guidelines for settling environmental enforcement actions with environmentally beneficial projects in place of the full measure of civil penalties, despite the fact that the states are not bound by the same Constitutional and statutory strictures as the federal government.

The survey also uncovered instances where states have further delegated standard-setting and enforcement authorities, to regional authorities. For instance, the California Air Resources Board sets ambient air quality standards for hydrogen sulfide, but local air quality control districts have the primary enforcement responsibility. This flexible approach allows the regional authorities to achieve air quality standards through alternative mechanisms, in keeping with the chemical characteristics of the local petroleum.

3. Given that pollution emanates from the many stages of production, and has the possibility of affecting both humans and nonhumans, regulators may be forced to prioritize regulatory efforts to minimize compliance costs

For example, hydrogen sulfide may be released at various stages of oil and gas production, and policymakers must decide which stages to regulate. To require safeguards on wellheads, pipelines, separators, and tanks would raise costs at every step of production, possible driving producers out of business. In addition, practices to protect public health may complement practices that protect wildlife or natural systems, but sometimes extra (expensive) steps may be necessary to accomplish both goals.

4. Regulatory tradeoffs take unexpected turns in the states

While the general tradeoff between industry groups (looking to lower their costs of compliance) and the affected community (seeking to minimize the health and environmental effects of exploration and production) parallel battles seen at the federal and state levels, other, less obvious regulatory skirmishes play out. Particularly in the hydrogen sulfide context, the interests of densely populated urban areas are set against those of rural populations. In addition, given the press of residential development onto former ranchland, the regulatory priorities between urban and rural have become ever more difficult to account for.

Finally, in protecting human health, regulators must oftentimes settle on a single parameter: in regulating the placement of hazardous sites by creating buffer zones, are they to be disallowed near population centers, waterway, sensitive sites (such as schools or hospitals) or any building at all?