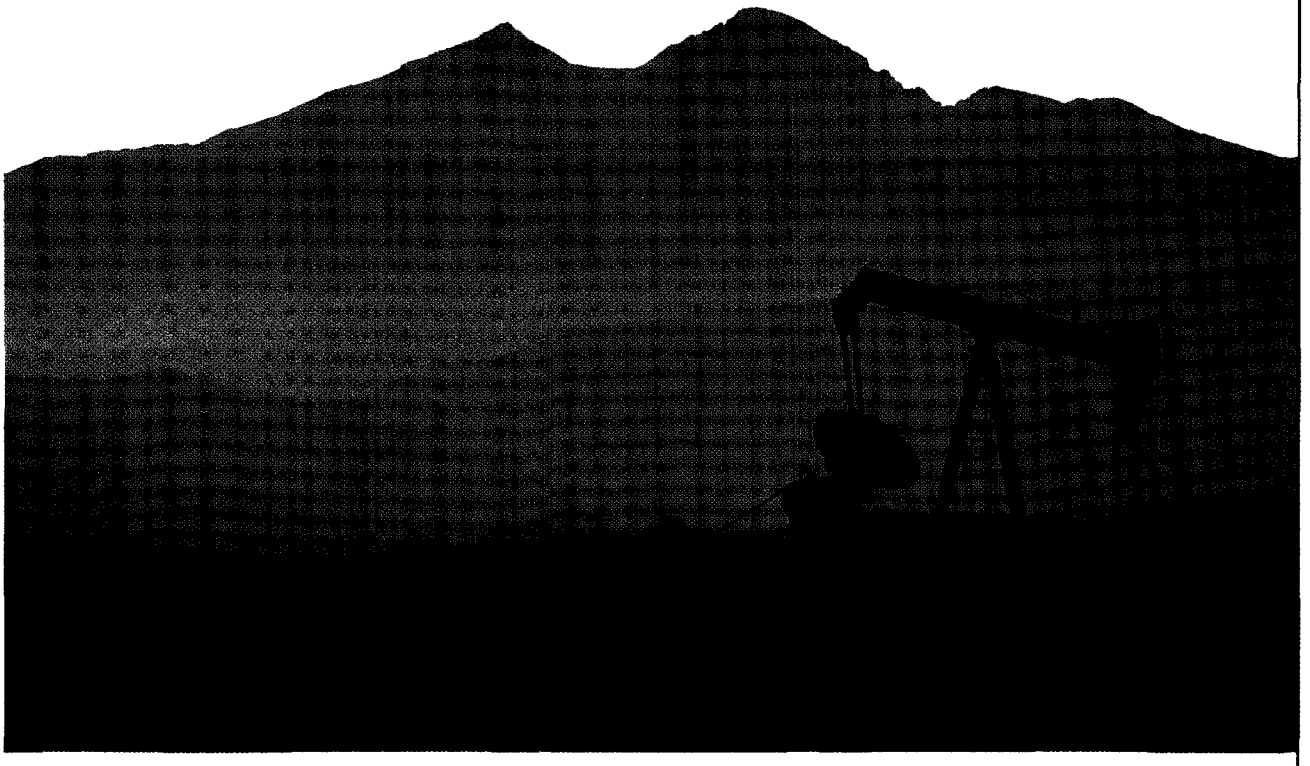
American Petroleum Institute

Achieving Common Sense Environmental Regulation:

Oil and Gas Exploration & Production



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Executive Summary

The domestic oil and gas exploration and production industry produces 40 percent of the energy that powers the economy and fuels the quality of life Americans enjoy. The industry is committed to meeting America's energy needs while operating in an environmentally sound manner and protecting the health and safety of employees and the public.

Our goal is to achieve a balanced regulatory approach that protects the environment as well or better than the current system, and does the job more efficiently. Our goal is not, and never has been, to roll back environmental regulations. However, consideration of the costs and benefits of regulatory proposals, the use of risk assessment, compliance flexibility, decision-making based on sound science and rules that get something accomplished other than paperwork are *common sense goals.* These principles will help create a better balance allowing our nation to enjoy the benefits of domestic oil and gas production, as well as the economic activity it creates, without compromising environmental protection or the quality of life Americans have come to expect.

State environmental regulatory programs have a track record in achieving common sense regulation. State regulations, along with industry practices and technology, are based on more than a century of experience that includes the drilling of over three million wells. But that doesn't mean either the industry or regulators are standing still—it just provides a base of experience for better regulation of the diverse needs of the oil and gas exploration and production industry in 33 producing states. E&P operations—and their environmental impact—are worlds away from the first well drilled in 1859. With extensive regulation already in place, experience bears out the obvious: significant environmental gains have already been made.

The logical question is, where do we—industry and regulators—go from here? How much cleaner can, and should, the industry become—and how much are Americans willing to pay for marginal progress? And how can all of us—industry, regulators and the public—ensure that the course chosen buys the most environmental progress for the money?

These are timely questions. Many of the federal efforts now under consideration would cost a great deal while adding little additional environmental protection. Many federal programs duplicate existing state efforts to no apparent advantage. Many merely increase costly paperwork instead of achieving results. And many would limit industry flexibility and the adoption of new, better technologies as they are discovered. Indeed, for little if any environmental gain we could see the quality of life in some states actually decline as their economies are weakened.

On the other hand, common sense dictates that there is a better way. Common sense tells us that regulations should:

- be protective of the environment;
- be based on good science and the best possible data, and rely on the industry's expertise;
- be based on realistic analysis of risks so that the added environmental benefit from the program is clear;
- rely on cost-benefit analysis to produce a rational prioritization of problems to be addressed;

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- be flexible and focus on performance, not methods, so that compliance can be achieved in the most cost-effective manner;
- not require unnecessary paperwork, needless monitoring or excessive permitting delays;
- recognize the uniqueness of the exploration and production sector of the oil and gas industry and the remoteness of most facilities; and
- build upon the success of existing state programs and industry practices.

The American public should not have to bear the expense of regulations that don't make sense. There have been success stories which show that federal regulators can emulate the successes at the state level and work with the industry to develop common sense solutions to environmental concerns. By relying on state and industry expertise, a better outcome has been achieved for all, truly a "win-win" situation.

One such success story is the MMS and API's Safety and Environmental Management Program (SEMP). Gulf of Mexico offshore exploration and development activities in federal waters are regulated by the Minerals Management Service (MMS) of the Department of the Interior. Eighteen percent of U.S. oil production and 28 percent of natural gas production comes from offshore wells. MMS and the U.S. Coast Guard agreed to work with the industry in developing SEMP on a voluntary basis. This effort resulted in the publication of API RP 75—Recommended Practice for Development of a Safety and Environmental Management Program for Outer Continental Shelf Operations and Facilities. The standard is being used for facilities offshore California and in Alaska, as well.

The SEMP program goes one—very important—step farther than traditional regulatory programs. SEMP is not a regulatory regime, it is a management system designed to produce a safety mentality, not a compliance mentality. The basis for this shift was a study indicating that four-fifths of offshore accidents were the result of errors—mostly human—while operations were in compliance with existing regulations. MMS and the industry agreed to see if performance could be improved by developing a management system that each company could implement to analyze hazards and performance and then make changes in how they approach operations, training, personnel use, work practices, and the quality and integrity of critical equipment. By the end of 1995, 106 companies operating in the OCS—accounting for 99.8% of production volume—participated in the program. In these companies, the safety and environmental programs that companies have had for years have been integrated and are constantly being reviewed, audited and upgraded to ensure that all the right bases are covered.

But unfortunately, many of the federal regulatory efforts now underway do not pass a "common sense" test. In many cases, the proposals under discussion have been formulated without reliance on the years of expertise in the states and without regard to the unique nature of the exploration and production industry—rather, they are merely applications of manufacturing processing methods to the E&P industry. The proposals often start with a method for addressing an issue, not with an appropriate environmental goal.

One such proposal that doesn't pass the common sense test is the potential expansion of EPA's Toxics Release Inventory (TRI) Program to include the oil and gas E&P industry. The TRI program was created to provide communities with information on manufacturing activities. Companies in

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manufacturing industries are required to file toxic release reports for releases to air, water and land from the manufacturers' operations of any of more than 650 chemicals.

The inclusion of oil and natural gas exploration and production facilities in the TRI program would require companies to report annually on the amounts of each listed chemical "released" by a facility into the environment, either from routine operations or as a result of accidents, and the amounts of wastes that undergo recycling, energy recovery, and treatment. There are major problems with this proposal that have caused the industry to conclude that this is a misdirected effort.

The cost of compliance with this paperwork reporting requirement would be extremely high. TRI compliance costs could exceed $200 million in the first year and $100 million each year after that. This program would only divert industry resources from sensible pollution prevention efforts and state programs that could satisfy the community's right-to-know desires in a more meaningful way.

The exploration and production industry supports pollution prevention and providing information that has value to local communities. However, any additional information needed by the public, beyond that which is currently reported under existing state and federal regulations, should be addressed through existing information channels at the state level. EPA has already funded the Interstate Oil and Gas Compact Commission's state review program to improve state regulatory programs through cooperative efforts and peer review among the states and their federal and industry partners. The Clinton Administration has praised this program as a successful approach to "reinvent regulation." The exploration and production industry believes that EPA should work with the states through the IOGCC to achieve legitimate right to know goals.

Regulations that pass the common sense test should be the rule, not the exception. The public deserves no less. The issue is not, and never has been, retreating from environmental progress. Instead, the industry is committed to building on past successes and, to do that, wants to ensure that environmental regulation is managed in the best possible way. With the unique exploration and production industry, this means relying on the expertise of decades of regulation in the states wherever possible. Regulators should also rely on the years of experience of the operating personnel in the regulated industries. If we work together to achieve common sense solutions, society—which runs on the energy we produce—and the environment will benefit together.

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Introduction

The domestic oil and gas exploration and production industry produces 40 percent of the energy that powers the economy and fuels the quality of life Americans enjoy. The industry is committed to meeting America's energy needs while operating in an environmentally sound manner and protecting the health and safety of employees and the public.

In fact, we are the public. The 305,000 employees of companies in the oil and gas exploration and production business and their families are part of their communities and share the desire to preserve and protect the environment. Our children will receive the same environmental legacy as others in the community, and its our job to do our part to ensure that our generation's increased awareness of the need to safeguard the environment is turned into reality.

And much progress has been made. Working with state and federal regulators, in individual companies and jointly as an industry, the exploration and production industry is now more successful than ever before at locating and producing oil and gas with a minimum impact on the environment.

Because of these successes, regulators, the industry and the public need to take into account that future environmental progress will be harder to come by, and far more expensive. So we need to rely on environmental regulation that takes a more common sense approach than the traditional command-and-control methods used in the past. Consideration of the costs and benefits of regulatory proposals, the use of risk assessment, compliance flexibility, decision-making based on sound science and rules that get something accomplished other than paperwork are common sense goals. These principles will help create a better balance allowing our nation to enjoy the benefits of domestic oil and gas production, as well as the economic activity it creates, without compromising environmental protection or the quality of life Americans have come to expect.

Our goal is to achieve a balanced regulatory approach that protects the environment as well or better than the current system, and does the job more efficiently. Our goal is to implement regulations that are cheaper, smarter, and just as clean. For we're part of the community that pays for regulations, too—whether at the gas pump or in our utility bills. The average family in the United States pays a hidden "tax" of over $1500 per year for current environmental regulations—the cost that these regulations add to the prices of goods and services a family buys. As an industry, we think it is only common sense to look for ways to accomplish the environmental goals we all share without wasting valuable resources.

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The Exploration and Production Industry

Man's use of oil is as old as recorded civilization. But until the 19th century, only the oil and gas that naturally seeped from the earth could be used. The technology to recover it in a controlled way from deep within the earth had to be developed before the energy of oil and natural gas could be liberated. The exploration and production industry began in 1859, when Edwin Drake drilled 70 feet down in Titusville, Pennsylvania and showed the world how oil could be extracted from the rocks where it had been trapped for eons.

Only with the birth of the exploration and production industry could society begin to benefit from the myriad uses of oil and natural gas. Oil and natural gas provide 99 percent of America's transportation fuels, energy that allows people mobility and moves goods from faraway farms and factories to local markets. Oil and natural gas heat homes and workplaces, cook food for hundreds of millions, power industry and supply electricity.

And that's not all. Oil and natural gas are used to make petrochemicals and whole categories of products new to the last few generations. Plastics, resins and fabrics synthesized from petrochemicals brought no-iron materials and nylon stockings, football helmets and rollerblades, plastic eyeglasses and medicines.

The modern, high-technology exploration and production industry is now light-years away from Edwin Drake's steam-driven drilling rig and the wooden 42 gallon barrels used to transport oil to town. Domestic oil and gas is currently produced at more than 868,000 well sites in 33 states and in federal waters on the Outer Continental Shelf. Exploration and production take place in a wide array of climates and ecological settings, both onshore and offshore. Successful exploration and production operations produce oil and natural gas at costs low enough to compete with supplies from other countries. Together, domestic wells supply about 2.3 billion barrels of oil and 18.7 trillion cubic feet of natural gas annually.

When most people think about the petroleum industry, they think only of the very large multinational integrated companies with worldwide exploration and production activities. But in reality, more than 80 percent of the companies producing oil and natural gas in the United States are small businesses with fewer than 10 employees. Many are family-owned and operated.

The modern exploration and production industry has demonstrated its commitment to producing oil and gas safely and protecting the environment. Continuing progress must be built on understanding the nature of exploration and production operations: what type of work the industry does, the particular environmental issues surrounding its operations, and how progress has been achieved.

The best way to ensure future progress is to open the lines of communication—between regulators and the industry, between state and federal regulators, between the industry and the public. The operating personnel at exploration and production firms are a resource that shouldn't be ignored. They understand their industry and can help show how best to achieve our goals: environmental progress through cleaner, cheaper, smarter regulations.

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Areas of Environmental Concern

Regulatory programs that govern the exploration and production industry's potential impact on the environment generally fall into three categories: emissions into the air as a result of production; water-related issues like the management of produced water and oil spill prevention; and land-based management of production wastes.

Air issues. Additional exploration and production industry environmental requirements will result from the Environment Protection Agency's implementation of the Clean Air Act Amendments of 1990. Some of the processes used by the industry in producing oil and natural gas, such as glycol dehydrators—equipment that separates water from natural gas to make it safe for transportation by pipeline—emit into the air toxics like benzene.

Many of the regulations being considered are heavy on paperwork and monitoring requirements, and aren't really directed at improving environmental performance. The challenge is to develop regulations that focus on legitimate air emissions issues based on risk. Regulations that restrict operating flexibility, create paperwork and require needless monitoring in remote areas add to the cost of producing oil and natural gas without providing corresponding environmental benefits.

Water issues. The exploration and production industry focuses on protecting our offshore and onshore water resources in two main areas: preventing oil spills and properly managing produced water and other discharges.

Well control and efforts to prevent oil spills have improved dramatically as the industry has matured. In nearly 40 years of drilling oil wells on the federal outer continental shelf, for example, there have been just five big spills—the last more than 20 years ago. Just last year the offshore oil industry in the Gulf of Mexico weathered a severe hurricane season with all workers safely evacuated in advance of the storms and without environmental damage. The year before facilities weathered the ferocity of Hurricane Andrew—a 100-year storm—with very little damage.

Certainly, there is no fail-safe guarantee against spills. And, as the 1989 tanker transportation spill in Alaska's Prince William Sound demonstrated, the short-term consequences of such a serious accident can be enormous. However, the U.S. industry's efforts have redoubled since the Alaskan spill, and additional operational safeguards and response plans—some at the initiative of industry and others directed by regulations—have been put in place to provide increased protection to the environment.

The other major water issue is produced water—usually with significant salt and mineral content—that occurs naturally in geological formations and is brought to the surface with the oil and gas. The industry must handle very large volumes of produced water in order to recover oil and gas. API estimates approximately six to eight barrels of water are produced for each barrel of oil. Currently, in the United States about 92 percent of this produced water is injected deep underground in some 177,000 injection wells. About two-thirds of the reinjected water is used to drive additional oil toward producing wells, enhancing oil recovery. Injection is regulated at the federal level under the Safe Drinking Water Act and by numerous federally-approved state underground injection control

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programs—all reinjection is regulated in some way. In some cases, low-salinity produced waters are beneficially used in arid areas for irrigation and for watering livestock. Offshore produced waters are usually discharged under Clean Water Act regulations and National Pollutant Discharge Elimination System (NPDES) permits with appropriate monitoring and reporting.

Land issues. The exploration and production industry has evolved tremendously from its beginning over a century ago in the way it protects the land surrounding industry operations. Issues include protecting surface water and groundwater from contamination and the improved management and disposal of drilling muds—water- or oil-based mixtures of naturally occurring clays and additives circulated through the wellbore to remove cuttings, cool the drill bit and control well pressure—and associated wastes, such as workover fluids and oily debris from tank bottoms.

Proper management of production wastes depends to a large extent on the geography surrounding the drilling site. What makes sense in the Louisiana wetlands does not necessarily provide sound, efficient waste management policy in the arid areas of West Texas, the high plains of Wyoming, or the Appalachian fields of West Virginia. The type of soil, underground rock formations, and the level of the water table are all factors that govern the way these materials are managed—often on a site-by-site basis. The industry has worked closely with state regulators since the first state regulations in the 1920s to protect groundwater, and the expertise and dedication exist to manage any site-specific risks. Recently, EPA conducted an extensive investigation into state and industry practices which concluded in 1988. EPA closed their effort with the issuance of a "regulatory determination" supporting continued jurisdiction over E&P wastes at the state level and confirming the low risk associated with E&P wastes.

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The Development of State and Federal Environmental Regulation

Regulation to address these environmental issues is certainly not new, either at the federal or state levels. When the U.S. Congress enacted environmental legislation during the 1970s, it found that in most cases, the formation of a federal regulatory structure served as the primary model for states and localities that were just beginning to address environmental concerns. But that wasn't the case in the oil and natural gas exploration and production industry—the states had regulated the industry's impact on the environment for decades prior to federal regulation.

State environmental regulation. The states have been active in state environmental regulation for over 70 years. Oklahoma began regulation in 1916, Texas in 1919. Initially, these regulations dealt with production rates to curb waste of natural resources through overproduction and to protect the health and safety of the citizens.

These state regulatory structures were modified over time to address a wide range of environmental issues. For example, one of the earliest environmental regulations was the Texas Railroad Commission's Rule 20 issued in 1919. It stated that "Fresh water is to be protected. Fresh water, whether above or below the surface, shall be protected from pollution whether in drilling or plugging." As a result of this early start, when EPA began to implement the Underground Injection Control Program (UIC) of the Safe Drinking Water Act decades later, it discovered that many states, such as Texas, already had far more intricate and substantial UIC programs in place that dealt with the specific technical concerns of each state.

State regulations, along with industry practices and technology, are based on more than a century of experience that includes the drilling of over three million wells. But that doesn't mean either the industry or regulators are standing still—it just provides a base of experience for better regulation of the diversity of needs in 33 producing states.

For example, in 1986 Louisiana reviewed environmental protection needs and enacted sweeping changes to Statewide Order No. 29-B governing the oil and natural gas E&P industry. These amendments resulted from concerns over the storage, treatment and disposal of nonhazardous oilfield wastes; the construction, operation, monitoring and closure of pits used to store produced water and other nonhazardous oilfield wastes; and the reuse of processed nonhazardous oilfield wastes. The various types of pits used in these activities were defined and specific regulations were established to assure protection of fresh water and the environment during their use. Standards were set for monitoring, pit closure, waste analysis, burial or trenching, solidification, and disposal by subsurface injection, among other items. Louisiana was far from alone in its efforts.

The Interstate Oil and Gas Compact Commission (IOGCC), an organization of the governors and state officials from the oil and gas producing states, with funding assistance from EPA and input from both environmental and industry groups, developed a model state oil and gas E&P environmental regulatory program. The published report in 1990 contained extensive technical and

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administrative criteria for E&P waste management programs based on site specific or regional differences in geology, hydrology, climate and waste characteristics.
To put these findings into practice, the IOGCC instituted a state-by-state review process that brought together state regulators, EPA, DOE, environmental groups and industry to take an in-depth look at how a state's existing regulations measured up to the model. Wyoming was the first state reviewed in 1991. In all, 14 states have completed the peer review process, two have completed follow-up reviews a few years after their initial review, and two other state reviews are underway.

Each state review serves as a means of identifying methods for improving regulatory programs. The process provides experts from outside the state to look inside individual programs—not with an eye toward leveling criticism, but rather to offer constructive recommendations. These recommendations are not binding on the state, but offer a blueprint for change to be considered by state legislators and regulators. In fact, reviewed states have taken voluntary steps to make program improvements. Reviews have identified personnel and funding needs, pointed to gaps in legislation, and suggested areas where rules and regulations could be strengthened. This highly successful program was cited by President Clinton's State-Federal Technology Partnership Task Force as a model for developing highly successful and efficient state-federal partnerships.

Federal environmental regulation. Since the 1970s the federal government has added another layer of environmental statutes and regulations in many areas. In 1969 Congress passed the National Environmental Policy Act and by the end of 1970, the Clean Air Act was passed. In the next ten years, Congress passed eight other major environmental laws: the Clean Water Act; the Federal Insecticide, Fungicide and Rodenticide Act; the Marine Protection, Research and Sanctuaries Act; the Endangered Species Act; the Safe Drinking Water Act; the Toxic Substances Control Act; the Resource Conservation and Recovery Act; and the Comprehensive Environmental Response, Compensation and Liability Act (better known as Superfund). In 1986 the Emergency Planning and Community Right-to-Know Act became part of Superfund, and in 1990 the Clean Air Act Amendments and the Oil Pollution Act were passed.

As a result, by 1991 the cost of federal environmental regulations on the nation's consumers and businesses reached approximately $115 billion. About half of this environmental regulatory cost was to control water pollution. About a third was for air pollution—auto emissions, smokestack controls, and other controls—and the rest was for solid waste.

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