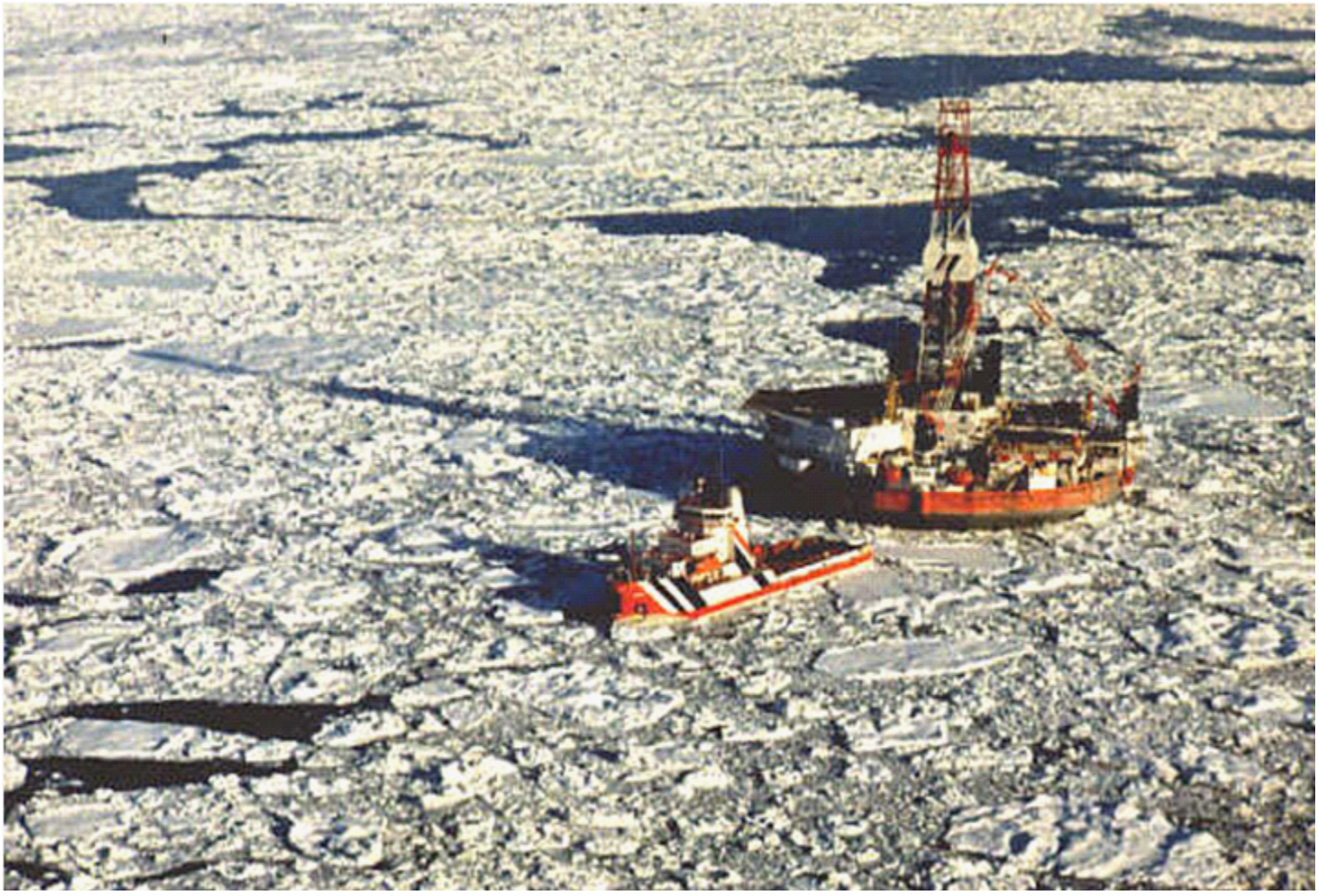
RECOMMENDATIONS FOR IMPROVED OVERSIGHT OF OFFSHORE DRILLING BASED ON A REVIEW OF 40 REGULATORY REGIMES



Harvard Law School
Emmett Environmental Law & Policy Clinic

Prepared by
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Citation
This paper may be cited as: Doug Hastings et al., *Recommendations for Improved Oversight of Offshore Drilling Based on a Review of 40 Regulatory Regimes*, Emmett Environmental Law & Policy Clinic, Harvard Law School, Cambridge, Mass.: June 2012.

Comments are welcome and may be directed to Wendy B. Jacobs at wjacobs@law.harvard.edu.

The Emmett Environmental Law and Policy Clinic at Harvard Law School is directed by Wendy B. Jacobs and is dedicated to addressing major environmental issues in the United States and abroad and to providing its students an opportunity to do meaningful, hands-on environmental legal and policy work. Students and clinic staff work on issues such as climate change, pollution reduction, renewable energy, water protection, and smart growth.

Cover Image: Kulluk drilling vessel and ice-breaking support vessel, Beaufort Sea Alaska, Minerals Management Service, Alaska OCS Region, *available at* http://www.alaska.boemre.gov/kids/gallery/og/og9.htm.

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EXECUTIVE SUMMARY

In the context of the Deepwater Horizon oil spill and the imminent commencement of drilling in the Arctic, the purpose of this paper is to identify ways to improve the oversight, regulation, and management of off-shore drilling by considering the following questions:

1. What design features contribute to the success or failure of regulatory programs?
2. When does industry involvement enhance or hinder regulatory programs?
3. Is the Safety and Environmental Management System (SEMS) rule recently adopted by the Department of the Interior (DOI) (30 C.F.R. § 250.1900 *et seq.*) adequate for managing the safety and environmental risks of offshore drilling?
4. What else can DOI do to improve regulation of offshore drilling?
5. What can the offshore oil and gas industry do to improve safety and environmental protection?
6. How can the lessons learned from drilling in the Gulf of Mexico and from 40 other regulatory programs be applied to drilling in the Arctic?

This is part of a multi-semester project underway at the Emmett Environmental Law & Policy Clinic at Harvard Law School. The ultimate goal of the project is to produce a set of recommendations tailored specifically to the regulation and oversight of offshore drilling in the Arctic. This paper takes an initial step by identifying general program elements that would improve the regulation and oversight of offshore drilling.

To date, Clinic students and staff have reviewed approximately 40 domestic and international regulatory programs in the areas of health, safety, environment, and finance. To assess the effectiveness of these programs, we looked at available empirical evidence to determine the extent to which each program met its stated goals. We also looked at the program's effects on industry compliance with statutes and regulations, its mechanisms for verification and enforcement, its flexibility, and its transparency. We examined the role of industry in the development and implementation of each program and identified whether industry involvement enhanced or hindered the effectiveness of the regulatory program. We then identified which design features contributed to the success or failure of each program and whether these features could be integrated into the regulation and oversight of the offshore drilling industry.

We observed notable successes and failures in both government-administered and industry-administered regulatory programs and among both voluntary and mandatory programs. We concluded that there are specific design features that lead to successful programs and effective utilization of industry

input, including (1) clear, measurable program goals, (2) up-to-date industry performance standards, (3) performance standards created with input from a diverse group of stakeholders, (4) accurate, independent verification of the regulated entity's performance, (5) robust enforcement mechanisms, and (6) combining of industry resources with government oversight.

Among the programs we analyzed were several types of industry-implemented management programs. Our analysis revealed that the mere adoption by a compnay of an in-house management system does not necessarily change a company's attitude towards safety or environmental protection. However, coupled with sufficient independent checks and verifications, management systems can improve a company's practices and outcomes. The National Commission on the BP Oil Spill highlighted the United Kingdom's Safety Case as an effective risk-based regulatory approach that could provide a possible model for the United States. Our research of the Safety Case found that it improved offshore drilling safety because it (1) requires operators to thoroughly analyze and understand specific risks before commencing the operation, (2) uses independent third-party audits of critical equipment and processes, (3) includes a large number of inspections by a well-trained and well-resourced government agency (inspections are paid for by industry), (4) has a strong and formalized role for workforce involvement including appointment of Workforce Safety Representatives who themselves have powers of inspection, (5) provides for effective data collection and reporting, and (6) combines a cooperative approach with the threat of criminal sanctions. Even so, it remains unclear whether the Safety Case has succeeded in creating a universal culture of safety among drilling operators in the United Kingdom. On the other hand, our analysis of the financial management system imposed by the Sarbanes-Oxley Act on certain large corporations in the United States has proven to be very successful, in large measure due to its requirement of compliance certifications by senior corporate officials and independent auditors.

Accordingly, we analyzed a variety of auditing and certification programs. We found that the stringency of the certification process is integral to the integrity and effectiveness of the program. Programs relying solely on a company's self-certification are often ineffective because of the absence of oversight and independent verification. A more credible, reliable, and effective program is one that requires audits conducted by independent third parties who are themselves accredited by another third party. Such a design, requiring two layers of independent certification, helps ensure that auditors are both independent and technically qualified. Audits conducted by teams made up of full-time auditors and industry members can be effective as well if checks are in place to ensure auditor independence. Requiring senior corporate officers to certify their management systems can be a powerful incentive in creating a culture of safety, especially if the certifying officer is subject to civil and criminal liability for false certifications.

Based on these findings, we recommend that:

- DOI's Bureau of Safety and Environmental Enforcement (BSEE), which recently adopted the SEMS rule for offshore drilling, should 1) define the term "independent auditor" in the rule, (2) require that auditors be accredited, (3) require that senior corporate officers certify their companies' SEMS programs subject to civil and criminal penalties, (4) establish clearer procedures for BSEE inspections, (5) define the term "effective" in the criteria for evaluating SEMS, (6) promote workforce involvement in implementation of and compliance with SEMS, (7) prohibit companies from penalizing workers who report non-compliance and/or halt an operation in order to protect safety or the environment, and (8) require that companies identify plans for continual improvement of safety and environmental operations even when in compliance with applicable requirements;

- DOI's Bureau of Ocean Energy Management and BSEE should (1) clarify the relationship between BSEE's audits under SEMS and its audits based on prescriptive regulations, (2) establish a procedure for updating industry standards incorporated by reference into their respective regulations, and (3) require and use greater disclosure of hydrocarbon spills and other environmental data as indicators of both safety and environmental performance; and

- American Petroleum Institute (API)'s Center for Offshore Safety, a new safety organization created by the offshore drilling industry, should (1) establish procedures to ensure the independence of its third-party auditors, (2) create robust sanctions for non-compliant operators, (3) facilitate - or, better yet, require - the sharing of safety information among drilling operators, and (4) consider how to establish and maintain its independence from the lobbying arm of API.

In ongoing research, the Clinic is exploring additional factors that are important in the regulation and oversight of offshore drilling, such as the role of insurance companies, reputational effects in the offshore drilling industry, and application of the National Environmental Policy Act. In the coming year, the Clinic plans to offer recommendations tailored specifically to the unique challenges associated with the regulation of Arctic offshore drilling.

BACKGROUND

A. The Deepwater Horizon Spill

On April 20, 2010, the United States suffered one of the worst environmental accidents in its history. The explosion on the Deepwater Horizon drilling rig and subsequent blowout of the Macondo well on the floor of the Gulf of Mexico claimed 11 lives and released an estimated 4.9 million barrels of oil. BP has set aside $40 billion to cover clean-up and liability costs. Reports of immediate impacts included "visibly oiled and dead wildlife, polluted marshes, and lifeless deepwater corals." Thanks to a combination of favorable currents and naturally-present oil-digesting bacteria, a potentially catastrophic impact on coastal wetlands was avoided and much of the oil did not reach the coast. However, the long-term impacts of the large volume of oil remaining in the ocean are unknown.[1]

The National Commission on the BP Oil Spill (the Oil Spill Commission) found that the disaster was preventable because it was the result of systemic management failures within the industry coupled with a weak, under-resourced, and conflicted regulator. The Commission also criticized the widespread reliance on categorical exclusions from National Environmental Policy Act (NEPA) requirements, the lack of coordination and leadership by federal agencies during the response, and the fact that spill response capabilities had not improved since the Exxon Valdez spill in 1989.[2]

The Oil Spill Commission's recommendations included reconfiguring the Minerals Management Service (MMS), the agency responsible for regulating offshore drilling, to separate its conflicting duties of revenue generation and safety and environmental protection. The Commission recommended creating an independent safety agency within the Department of the Interior (DOI) and moving to a risk-based regulatory approach. It recommended that industry take more responsibility for ensuring safety on the Outer Continental Shelf (OCS) and establish a safety institute, independent from the American Petroleum Institute (API), to develop and share best practices. Other recommendations were aimed at increasing readiness for oil spill response by both government and industry.[3]

1 National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling: Report to the President 127, 167, 174-83 (2011) [hereinafter Nat'l Comm'n Report]; Brian Skoloff & June Wardell, *BP Oil Spill Cost Hits $40 Billion, Company Returns to Profit*, Huffington Post, Nov. 2, 2010, *available at* http://www.huffingtonpost.com/2010/11/02/bp-oil-spill-costs-hit-40_n_777521.html.

2 Nat'l Comm'n Report, *supra* note 1, at vii, 56, 62, 67-68, 132-39.

3 National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Deep Water: The Gulf Oil Disaster and the Future of Offshore Drilling: Recommendations 3-4, 7-9, 12-16, 18-33 (2011) [hereinafter Nat'l Comm'n Recommendations].

B. Status of Oil Exploration and Production in the Arctic

Prior to the Deepwater Horizon spill, DOI was in the process of finalizing a fairly liberal five-year program for offshore leasing auctions. Due partly to local political opposition, the Arctic, much of the Atlantic, the Eastern Gulf of Mexico, and the Pacific have historically been excluded from five-year programs. In a break from this pattern, the pre-Deepwater Horizon five-year program would have included the Eastern Gulf of Mexico and the lower Atlantic.[4]

The proposed five-year program was revised in wake of the Deepwater Horizon spill. The resulting program for 2012-2017 largely limits leases to areas in the Western and Central Gulf of Mexico, where drilling has historically been concentrated. In theory, all remaining unleased acreage in the Western and Central Gulf will be offered for lease. A couple of small areas in the Eastern Gulf will also be included.[5]

The 2012-2017 program also includes two areas off the Alaskan coast. Sites in the Beaufort and Chukchi Seas off Alaska's north coast will be offered for sale in 2015 and 2016, respectively. The Bureau of Ocean Energy Management (BOEM) deliberately scheduled these sales to occur later in the five-year program in order to give time for additional research into "environmental issues, subsistence use needs, and infrastructure capabilities." The results of this research will then be factored into the lease sales.[6]

Some leases in the Beaufort and Chukchi Seas had already been granted under a previous five-year program.[7] Royal Dutch Shell PLC is in the process of obtaining the permits required for drilling under these leases and plans to commence operations in both areas by July 2012.[8]

The Arctic is thought to hold significant untapped oil and gas reserves. Estimates put the reserves at as

4 Bureau of Ocean Energy Management (BOEM), Proposed Outer Continental Shelf Oil & Gas Leasing Program 2012-2017 xi-xiv, 6 (2011), *available at* http://www.boem.gov/uploadedFiles/Proposed_OCS_Oil_Gas_Lease_Program_2012-2017.pdf; 43 U.S.C. § 1344 (Outer Continental Shelf leasing program).

5 BOEM, *supra* note 4, at 8.

6 *Id.* at ix-x.

7 *Id.* at xii, 3. However, obtaining the lease is only the first step in a long process before drilling occurs. The next step is to submit an exploration plan and obtain a permit for exploratory drilling from BOEM. If the operator then wishes to go ahead and develop that site, it must submit a development and production plan and obtain permits for all production wells. The entire process (from consultations on the five-year program through to actual development of a site) can take up to ten years. *See* Nat'l Comm'n Report, *supra* note 1, at 61 for a summary of the process.

8 Ben Geman, *Shell Marches Toward Arctic Drilling as EPA Permits Upheld*, The Hill, Mar. 31, 2012, *available at* http://thehill.com/blogs/e2-wire/e2-wire/219345-shell-marches-toward-arctic-drilling-as-epa-permits-upheld; Simon Hall, *Shell Expects Alaska Drilling in July if No New Challenges,* NASDAQ, June 5, 2012, *available at* http://www.nasdaq.com/article/shell-expects-alaska-drilling-in-july-if-no-new-challenges-20120605-00763.

much as 30 percent of the world's undiscovered gas and 13 percent of undiscovered oil. Much of this is in water less than 500 meters deep, in contrast to the Gulf of Mexico where rigs often drill in depths of over 5000 feet. However, drilling in the seas off Alaska presents many unique safety and environmental concerns. The Arctic has a rich and unique ecosystem but there is limited detailed knowledge about it, in large part because research in this environment is difficult and expensive.[9] A number of Native Alaskan communities are dependent on the marine environment for subsistence. Also, there is very limited spill response infrastructure available; the Coast Guard does not even have a base in mainland Alaska. This is a particular cause for concern because Deepwater Horizon demonstrated the inadequacy of response infrastructure in the Gulf, and there is far less in Alaska. The extreme temperatures and lack of daylight during certain times of the year will compound the difficulty of spill response in the Arctic. In addition, the cold Arctic seas would slow down the oil-digesting bacteria that were crucial in reducing the immediate impact of the spill in the Gulf.[10]

In July 2011, President Obama established an interagency working group on drilling in the Arctic, headed by DOI and bringing together 12 different federal agencies. Its functions include joint long-term planning for energy development in Alaska and facilitating the sharing of project application and environmental information.[11] To date, the working group has established procedures for agencies to coordinate reviews of drilling applications. It has also obtained agreement from offshore drilling operators that they will share scientific data obtained from exploration and drilling in the Alaskan seas.[12]

C. Regulatory and Industry Developments Since the Deepwater Horizon Spill

In response to the Oil Spill Commission's recommendations, MMS was split into three separate divisions: the Office of Natural Resource Revenues (ONRR), to manage revenues from all offshore and onshore mineral leases; the Bureau of Ocean Energy Management (BOEM), to manage offshore leasing and environmental assessments; and the Bureau of Safety and Environmental Enforcement (BSEE), to

9 *But see,* United States Geological Survey, Circular 1370, *An Evaluation of the Science Needs to Inform Decisions on Outer Continental Shelf Energy Development in the Chukchi and Beaufort Seas*, Alaska (2011) (incorporating extensive scientific research and knowledge about the Arctic).

10 Donald L. Gautier et al, *Assessment of Undiscovered Oil and Gas in the Arctic*, 324 Science 1175, 1175 (2009); Nat'l Comm'n Report, *supra* note 1, at 41, 73, 174, 300-05.

11 Exec. Order No. 13,580, 76 Fed. Reg. 41,989 (July 12, 2011) (establishing the Interagency Working Group on Coordination of Domestic Energy Development and Permitting in Alaska).

12 Dan Joling, *Agencies Pledge Science-Based Policy in Arctic Development*, Associated Press, February 7, 2012, *available at* http://www.adn.com/2012/02/07/2304714/agencies-pledge-science-based.html; DOI, *Oil and Gas Lease Utilization, Onshore and Offshore: Updated Report to the President* 10 (2012), *available at* http://www.doi.gov/news/pressreleases/upload/Final-Report.pdf.

oversee offshore safety and environmental protection. While this new structure does not fully meet the Oil Spill Commission's recommendation of establishing an independent safety agency, it provides a clearer division of responsibilities than did the previous structure.

Several months after the Deepwater Horizon spill, the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), a predecessor to BOEM and BSEE,[13] promulgated a rule requiring offshore drilling companies to implement Safety and Environmental Management Systems (SEMS). The rule was finalized on October 15, 2010, and incorporated by reference the existing industry-developed voluntary management system known as API RP 75. The rule also added a requirement for job-level as well as operations-level risk analysis and minimum durations for record-keeping.[14]

In September 2011, BOEMRE issued a Notice of Proposed Rulemaking with six proposals for strengthening SEMS. Perhaps most notable was the proposed requirement that audits be conducted by independent third parties, whereas the existing rule allowed designated employees to conduct audits of their own facilities. The proposed rule also included measures to enhance the role of the workforce. The rule has not yet been finalized.[15]

In March 2011, API created the Center for Offshore Safety (COS). COS is an industry-wide body whose membership is not restricted to members of API. COS claims that it meets the Oil Spill Commission's recommendations for an industry safety institute.[16] However, the Commission specifically recommended the establishment of an entity that would be independent of API in order to credibly perform safety functions.[17] The details of COS's organization and functions have not been finalized, but it appears that COS will remain under the umbrella of API and its board will consist solely of industry representatives. COS will oversee third-party audits of SEMS programs, but it is not clear what mechanisms will be in place to ensure the independence of these auditors.

13 MMS was renamed BOEMRE from June 2010 to October 2011 (ONRR was separated out in June 2010). It then became BSEE and BOEM in October 2011.

14 Oil and Gas and Sulphur Operations in the Outer Continental Shelf–Safety and Environmental Management Systems, 75 Fed. Reg. 63,610 (Oct. 15, 2010); 30 C.F.R. § 250.1900.

15 Oil and Gas and Sulphur Operations in the Outer Continental Shelf–Revisions to Safety and Environmental Management Systems, 76 Fed. Reg. 56,683 (proposed by BOEMRE on Sept. 14, 2011). Since October 2011, BSEE has taken over BOEMRE's regulatory authority over safety and environmental management programs for offshore operations and facilities. BSEE has made it a priority to revise 30 C.F.R. § 250.1900 *et seq.* to include the six proposals. Regulatory Information Service Center Proposed Rule, Introduction to the Unified Agenda of Federal Regulatory and Deregulatory Actions, 77 Fed. Reg. 7772 (Feb. 13, 2012).

16 COS, *Frequently Asked Questions*, http://www.centerforoffshoresafety.org/faqs.html (last visited June 8, 2012).

17 Nat'l Comm'n Recommendations, *supra* note 3, at 12-16.

RESEARCH QUESTIONS AND METHODOLOGY

In the context of the Deepwater Horizon oil spill and the imminent commencement of drilling in the Arctic, the purpose of this paper is to identify ways to improve the oversight, regulation, and management of off-shore drilling by considering the following questions:

1. What design features contribute to the success or failure of regulatory programs?
2. When does industry involvement enhance or hinder regulatory programs?
3. Is the Safety and Environmental Management System (SEMS) rule recently adopted by the Department of the Interior (DOI) (30 C.F.R. § 250.1900 *et seq.*) adequate for managing the safety and environmental risks of offshore drilling?
4. What else can DOI do to improve regulation of offshore drilling?
5. What can the offshore oil and gas industry do to improve safety and environmental protection?
6. How can the lessons learned from drilling in the Gulf of Mexico and from 40 other regulatory programs be applied to drilling in the Arctic?

In order to answer these questions, we reviewed approximately 40 regulatory programs that address safety, health, environment, and finance. We began by analyzing which programs were the most effective in terms of improving safety, protecting the environment, or accomplishing other regulatory goals. We assessed programs' effectiveness based on a variety of factors including the extent to which empirical evidence suggests they achieved their stated goals, their effects on compliance with other statutes and regulations, their flexibility, their transparency, and their mechanisms for verification and enforcement. We then identified design features that contribute to the programs' success or failure. In particular, we focused on whether industry involvement enhanced or hindered the programs. We then identified features of successful regulatory programs that could be implemented in offshore drilling, as well as features from unsuccessful programs that should be avoided. Based on these findings, we generated recommendations for improving DOI's SEMS rule. We also developed recommendations that could be implemented by BOEM, BSEE, and COS to improve their regulation and oversight of offshore drilling.[18]

18 For an in-depth discussion of the methodology used to examine the programs, as well as our findings with respect to each individual program, see the Appendix to Doug Hastings et al., *Recommendations for Improved Oversight of Offshore Drilling Based on a Review of 40 Regulatory Regimes*, located on the Emmett Environmental Law & Policy Clinic website at http://www.law.harvard.edu/academics/clinical/elpc/publications/publications.html.

HIGHLIGHTS OF REGULATORY & OVERSIGHT PROGRAMS REVIEWED

A. Voluntary Programs

1. Overview

For the purposes of this paper, "voluntary program" is defined to mean any program for which participation is not required by government regulation. Voluntary programs may be created and administered by the government or industry groups. Thus, the Institute of Nuclear Power Operations (INPO) is treated here as voluntary even though nuclear facilities are required by the industry to participate. The goals of voluntary programs typically include improving compliance with mandatory regulations and incentivizing improvements beyond the minimum requirements. The following section compares and contrasts various voluntary programs and identifies the design features that contribute to their success or failure.

2. Selected Government-Administered Voluntary Programs

a. Energy Star

Energy Star is a voluntary labeling program that promotes the manufacture of energy-efficient products in approximately 60 categories including home electronics, appliances, and lighting. The program is jointly administered by the Environmental Protection Agency (EPA) and the Department of Energy (DOE). To have its products certified, a firm must first enter into a partnership agreement with one of the two agencies in which it agrees to submit only products meeting certain eligibility criteria. The firm must then file a document for each product it wishes to enter into the Energy Star program, certifying that its efficiency meets the eligibility criteria. The eligibility criteria typically require a product to be 10-25 percent more energy-efficient than the minimum federal standards.[19] In the past, this self-certification was all that was required to receive Energy Star certification for many products.

Energy Star has had mixed results. On one hand, it has achieved quantifiable benefits. For example, EPA estimates that the program prevented 170 million tons of greenhouse gas (GHG) emissions in 2010. The program has also achieved broad participation, with more than 3.5 billion Energy Star products purchased since 2000.[20] On the other hand, the program has historically been plagued by the absence

19 Energy Star, *History of Energy Star*, http://www.energystar.gov/index.cfm?c=about.ab_history (last visited June 8, 2012); Gov't Accountability Office (GAO), GAO-10-470, Energy Star Programs: Covert Testing Shows the Energy Star Program Certification Process Is Vulnerable to Fraud and Abuse 3 (2010).

20 EPA, Energy Star Overview of 2010 Achievements 1 (2011), *available at* http://www.energystar.gov/ia/partners/publications/pubdocs/2010%20CPPD%204pgr.pdf?7ea2-485b.

of a verification mechanism for most efficiency claims. A 2010 investigation by the Government Accountability Office (GAO) found that Energy Star was extremely vulnerable to fraud. As part of the investigation, GAO submitted a variety of bogus products to the program from fictional companies, and EPA and DOE approved most of these products, including a gasoline-powered alarm clock.[21] In response to this investigation and other criticism, EPA and DOE recently entered into a Memorandum of Understanding in which the two agencies agreed, among other reforms, to require independent certification for all product categories by an accredited third party.[22]

b. Voluntary Protection Program

The Voluntary Protection Program (VPP) is administered by the Occupational Safety and Health Administration (OSHA) and is designed to incentivize excellence in workplace safety and health. Firms in the program receive recognition for their participation, as well as exemption from routine OSHA inspections during the time that they remain in the program.[23] To be eligible for VPP, a facility must have a Safety and Health Management System (SHMS) in place, have accident rates below the average industry rate in at least one of the three most recent years, and satisfy an initial onsite inspection. Each facility must then be re-approved for the program every three to five years. During the time the facility remains in the program, it must commit to continuous safety improvement and submit annual injury reports. If the injury reports are above the industry average over three years, then the site will be placed on conditional status or placed in a rate-reduction plan. If there is a serious injury or a death at a facility, the OSHA regional office will review the company's SHMS to determine if it needs to be revised or if the firm needs to be removed from the program.[24]

Like Energy Star, VPP has been a partial success. Some statistical evidence suggests that VPP has been effective at reducing injuries, as the average VPP worksite has 52 percent fewer Days Away Restricted or Transferred (DART) than the average for its industry. This improvement is not due to selection bias,

21 GAO-10-470, *supra* note 19, at 7-10. For a more detailed discussion of the Energy Star certification process, see below at pages 35-36.

22 GAO, GAO-11-888, Energy Star: Providing Opportunities for Additional Review of EPA's Decisions Could Strengthen the Program 11 (2011), at 1-3. *See* EPA & DOE, Enhanced Program Plan for Energy Star Products 12 (2009), *available at* http://www.energystar.gov/ia/partners/downloads/mov/Enhanced-Program-Plan-for-ENERGY-STAR-Products.pdf?9316-5dee. For other criticisms of the programs, see EPA Office of Inspector General, 11-P-0010, Energy Star Label Needs to Assure Superior Energy Conservation Performance (2010); GAO, GAO-07-1162, Energy Efficiency: Opportunities Exist for Federal Agencies to Better Inform Household Customers (2007).

23 GAO, GAO-04-37, Workplace Safety and Health: OSHA's Voluntary Compliance Strategies Show Promising Results, but Should Be Fully Evaluated Before They Are Expanded 3 (2004).

24 GAO, GAO-09-395, OSHA's Voluntary Protection Programs: Improved Oversight and Controls Would Better Ensure Program Quality 3-7 (2009).

as OSHA notes that many sites do not enter the program with low DART rates.[25] Nevertheless, VPP suffers from verification and measurement issues. For example, a GAO report found that regional offices do not report to OSHA headquarters about their investigations after serious injuries or deaths, so some facilities with inadequate safety procedures remain in the program. Furthermore, the GAO report questions OSHA's reliance on self-reported data such as DART rates, as some injuries or illnesses may go unreported.[26]

c. National Environmental Performance Track

The National Environmental Performance Track (NEPT) was designed by EPA to reward companies that served as environmental leaders by improving their environmental performance in a variety of areas.[27] The requirements for membership in the program were (1) use of an Environmental Management System (EMS), (2) public outreach, (3) sustained regulatory compliance, and (4) evidence of continued environmental improvement. In return for their participation, companies received, among other benefits, public recognition, lower priority for routine inspection and reduced reporting requirements.[28] The main mechanism for verifying program members' ongoing performance consisted of annual reports submitted by the companies. EPA could conduct an initial site visit of facilities to determine whether an EMS was being implemented, but site visits were not mandatory and EPA visited only about 30 percent of the facilities in the program.[29] In response to criticism and budget cuts, NEPT was cancelled in 2009.

NEPT was largely a failure. A report by the EPA Office of Inspector General found that the program did not have sufficient performance measures to verify compliance with its goals. The lack of a clear verification mechanism allowed firms to use NEPT as a public relations tool without changing their practices; the Office of Inspector General report found that only two out of 30 facilities it sampled actually achieved all environmental improvements to which they had committed in NEPT.[30] A *Philadelphia Inquirer* investigation was even more critical, finding that membership in NEPT included small facilities like gift shops, as well as environmentally irresponsible businesses such as a chlorine

25 OSHA, *All About VPP*, http://www.osha.gov/dcsp/vpp/all_about_vpp.html (last visited June 8, 2012).

26 GAO-09-395, *supra* note 24, at 12-17.

27 EPA, Performance Track Final Progress Report 1 (2009), *available at* http://www.epa.gov/performance-track/downloads/PT_ProgRprt_2009_web.pdf.

28 EPA Office of Inspector General, 2007-P-00013, Performance Track Could Improve Program Design and Management to Ensure Value 4-5 (2007).

29 RAND Corporation, An Assessment of the U.S. Environmental Protection Agency's National Environmental Performance Track Program 22-24 (2010).

30 EPA Office of Inspector General, *supra* note 28, at 11-13, 18.

plant that used outdated methods and was the largest emitter of mercury in Tennessee.[31]

3. Selected Industry-Administered Voluntary Programs

a. Institute of Nuclear Power Operations (INPO)

INPO is a nuclear safety organization that was created by the U.S. nuclear industry in response to the Three Mile Island meltdown. It includes all operators of nuclear facilities in the country.[32] INPO establishes performance guidelines for the operation of nuclear plants and conducts regular, detailed evaluations of plants to examine the safety of each facility. INPO ensures that plant inspectors are independent by creating inspection teams of about 20 people, in which one-third are full-time inspectors, one-third are industry members on loan for 18 to 24 months, and one-third are industry members on loan from a different company for only a particular inspection. Based on inspections, the safety of plants is rated on a scale of one to five and these results are presented at an annual conference, placing significant peer pressure on poor performers. Perhaps more importantly, insurers of nuclear plants base their premiums in part on INPO ratings, providing firms with an immediate—and significant—financial incentive to improve safety.[33]

INPO is viewed as a successful program. INPO notes that it has helped to lower the average annual number of emergency shut-downs per plant from six to zero and reduce the amount of radiation to which workers are exposed by a factor of seven since the 1980s.[34] The Oil Spill Commission cited INPO as a potential model for the offshore oil and gas industry and highlighted the quality of its inspection process and rating system. INPO's use of team audits and its point-based rating system for facilities are both effective program features that could potentially be applied in the context of offshore drilling. In the 1980s, INPO established its credibility by reporting a mismanaged facility to the Nuclear Regulatory Commission (NRC), resulting in shutdown of the plant and firing of several of the company's corporate officers.[35]

31 John Sullivan & John Shiffman, *Green Club an EPA Charade*, Philadelphia Inquirer, Dec. 9, 2008, *available at* http://articles.philly.com/2008-12-09/news/24992933_1_performance-track-environmental-performance-epry4.

32 INPO, Convention on Nuclear Safety Report: The Role of the Institute of Nuclear Power Operations in Supporting the United States Commercial Nuclear Electric Utility Industry's Focus on Nuclear Safety 1 (2007), *available at* http://www-ns.iaea.org/downloads/ni/safety_convention/us4thnatlreport.pdf.

33 Nat'l Comm'n Report, *supra* note 1, at 236-38.

34 INPO, *supra* note 32, at 1.

35 Nat'l Comm'n Report, *supra* note 1, at 236-38.

b. Responsible Care

Responsible Care is a global program for safety in the chemical industry.[36] In the United States, it is administered by the American Chemistry Council (ACC). ACC requires that participants in the responsible care program publicly report certain performance metrics and implement a management system that responds to hazards and addresses risks. Until recently, there was no requirement that the management system be certified. Participation in Responsible Care is a condition for membership in ACC.[37]

In sharp contrast to INPO, Responsible Care has largely been a failure. In fact, a 2000 study found that Responsible Care participants had higher toxics emissions, based on the Toxic Release Inventory, than did non-participants within the same industry. The study also found that Responsible Care did not have a sufficient mechanism for dealing with non-compliance; instead, only minimal pressure was placed on companies that did not comply with program requirements.[38]

ACC has reformed Responsible Care since the 2000 study, adding the requirement of an independent, third-party verification every three years to better assess the performance of its members.[39] It is not clear, however, that the performance of the program will improve significantly without robust sanctions for non-compliance. Without any repercussions for failing to meet the program's requirements, members have little incentive to comply.[40]

c. Center for Offshore Safety (COS)

In response to concerns raised by the Deepwater Horizon oil spill, the offshore oil and gas industry has developed COS to ensure compliance with RP 75 and SEMS. COS was developed by API, and it remains under API's umbrella. COS states that it is modeled on Responsible Care, VPP, and INPO, among others. Its board is composed entirely of industry members, with representation including operators, drilling contractors, suppliers, and industry association members. The board has an external

36 International Council of Chemical Associations (ICCA), Responsible Care, http://www.icca-chem.org/en/Home/Responsible-care/ (last visited June 8, 2012).

37 ACC, *Responsible Care*, http://responsiblecare.americanchemistry.com/ (last visited June 8, 2012).

38 Andrew King & Michael Lenox, *Industry Self-regulation Without Sanctions: The Chemical Industry's Responsible Care Program,* 43 Acad. Mgmt. J. 698, 709, 713 (2000).

39 Zenna Isaacs, *Third-party Verification Improves Responsible Care Credibility*, Engineering News, Mar. 26, 2004, *available at* http://www.engineeringnews.co.za/article/thirdparty-verification-improves-responsible-care-credibility-2004-3-26.

40 *See* Environmental Data Services, Two Decades of Responsible Care: Credible Response or Comfort Blanket? 21-22 (2005), *available at* http://n.ethz.ch/~yblumer/download/RC/Responsible%20Care/Diverses/Kritischer_bericht.pdf (pointing out the lack of sanctions as a major flaw of the Responsible Care program).

advisory group that consists of representatives from government and academia, but the board is not required to consider or incorporate input from the advisory group.[41]

COS's proposed activities include sharing best practices, providing a forum for discussing methods for continual improvement, and overseeing third-party audits of drilling facilities.[42] Audits of facilities will be conducted by independent third parties, but COS has not yet identified the qualifications for becoming an auditor, whether auditors can inspect facilities at which they are employed, or the frequency and content of audits. Any audits will be additional to those required by BSEE under the SEMS program.[43]

COS is not yet fully operational, so its effectiveness cannot be determined. COS's relationship with API, however, has raised concerns. One member of the Oil Spill Commission has stated that API's history of taking anti-regulatory views could make it hard for COS to work effectively as part of API.[44] A recent report by an outgrowth of the Commission expressed similar concern with COS's independence, but found that the creation of COS was a positive and promising development overall.[45] It is interesting that COS chose to describe itself as being modeled on both INPO and Responsible Care. If COS mirrors INPO by conducting rigorous independent audits and backing them up with meaningful sanctions for non-compliance, then it has the potential to be highly successful at improving safety in the offshore oil and gas industry. If, on the other hand, COS more closely resembles Responsible Care, then its likelihood of success is questionable.

41 API, *Board of Directors Approves Industry Center for Offshore Safety*, Mar. 17, 2011, *available at* http://www.api.org/News-and-Media/News/NewsItems/2011/mar-2011/api-board-of-directors-approves.aspx; COS, *Establishing a Culture of Safety*, http://www.centerforoffshoresafety.org/main.html (last visited June 8, 2012).

42 COS, *Frequently Asked Questions,* http://www.centerforoffshoresafety.org/faqs.html (last visited June 8, 2012).

43 The COS board is currently discussing qualifications for auditors and requirements for their independence. COS hopes to publish them shortly thereafter. The timing and frequency of audits will likely be left to the discretion of the third-party auditors themselves once they are accredited by COS. Personal Communication with Cristina Gillespie, Certification Quality Associate, API (Apr. 18, 2012).

44 Tom Fowler & Jennifer Dlouhy, *Oil and Gas Industry Creates Offshore Safety Institute*, Houston Chronicle, Mar. 17, 2011, *available at* http://www.chron.com/business/energy/article/Oil-and-gas-industry-creates-offshore-safety-1690079.php (providing the statement of commission co-chairman William Reilly). API has claimed that COS will be "independent" in that it is located within the separately-funded standards and certification arm of API. API, *supra* note 42. This level of independence, however, seems minimal.

45 Oil Spill Commission Action, Assessing Progress: Implementing the Recommendations of the National Oil Spill Commission 3 (2012).

B. Mandatory Programs

1. Overview

This paper defines "mandatory programs" as those for which government requires participation by statute or regulation. Mandatory programs may need to utilize industry input in various ways. Mandatory programs may adopt standards developed by industry, rely on industry to work out the specifics of regulatory requirements through management systems, or rely on verification by industry or third parties. Some mandatory programs, including SEMS, involve industry input in all of these ways. Industry involvement in mandatory programs is often necessary because of limited government resources. The National Technology Transfer and Advancement Act also requires federal agencies to use industry standards where appropriate.[46] This section of the paper examines each type of industry involvement through the lens of particular programs and identifies whether industry is helpful or a hindrance and what makes programs involving each type of industry input successful.

2. Government Reliance on Industry Standards

One agency that has relied extensively on standards developed by the private sector is OSHA. OSHA regulates highly technical workplace safety issues and must adopt and administer thousands of standards. The adoption of industry standards has helped OSHA address its immense regulatory burden. Nevertheless, some industry standards adopted by OSHA have been more successful than others, and OSHA struggles to keep adopted standards up-to-date.

As an example of a successful set of standards, OSHA has adopted exposure limits for air toxics that were developed by a private standards development organization, the American Conference of Government Industrial Hygienists (ACGIH). OSHA adopted ACGIH standards when it first began regulating air toxics, and subsequently adopted hundreds more ACGIH standards in the 1980s.[47] ACGIH is a collaboration of experts from industry, academia, and government. Due in part to its diverse and technocratic membership, ACGIH has created standards that have been viewed as sufficiently protective of workers' health. OSHA continues to consider ACGIH's recommended air toxics levels in setting its air toxics standards, and it has also incorporated input from another federal agency, the National Institute for Occupational Safety and Health (NIOSH).[48]

46 Pub. L. No. 104-13, § 12(a)(3), 110 Stat. 775, 782 (1996).

47 OSHA, Executive Summary, Air Contaminants, Regulations: Preambles to Final Rules, http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=PREAMBLES&p_id=763 (last visited June 8, 2012); Henry Weinstein, *OSHA Will Place New Limits on 402 Toxics*, L.A. Times, June 8, 1988, *available at* http://articles.latimes.com/1988-06-08/news/mn-3910_1_exposure-limits.

48 OSHA, *Occupational Safety and Health Guidelines*, http://www.osha.gov/SLTC/healthguidelines/index.html (last visited June 8, 2012). For an additional discussion of ACGIH, see pages 23-24.

In contrast, an example of an unsuccessful set of standards was when OSHA relied on an industry-driven standard for grain elevator fire safety developed by the National Fire Prevention Association (NFPA). This standard proved to be woefully inadequate to the task of regulating dust in grain elevators, as evidenced by a series of grain elevator explosions in the 1970s. The inadequacy of NFPA's standard resulted from the fact that, unlike ACGIH, NFPA designed the grain elevator dust standard in a way that was based largely on economic concerns of industry unrelated to safety.[49] As those examples demonstrate, the effectiveness of industry standards adopted by OSHA turns in part on the structure of the standards organization involved in their development.[50]

A persistent problem with the adoption of any industry standard by OSHA is keeping it current. Even effective standards can become problematic if they are not updated. For example, in 1971 OSHA adopted a private standard prohibiting the use of ice in drinking water based on a long out-of-date reason.[51] Failing to update standards can also cause them to become underprotective. To use an example from another program, EPA had such an issue when it failed to update its standards for thermometers. EPA had adopted a private standard for safety in mercury thermometers, but because it did not update the standard, it ended up requiring the use of mercury thermometers long after non-mercury alternatives were available.[52]

OSHA has also developed some technical standards internally using input from government scientists or consultants. For example, OSHA developed its own rule for fire safety in grain elevators when the NFPA standard was demonstrated to be ineffective. The standard was significantly more protective than the NFPA standard, but it took ten years to develop and required OSHA to hire two different consulting firms to assist in its development.[53] This process illustrates a clear tradeoff associated with standards created internally by the government: they may be more protective than industry standards but can be expensive and time-consuming to develop. In order to address problems with lengthy rulemakings, OSHA has engaged in "negotiated rulemaking[s]" in which it attempts to gather input from parties ahead of time to reduce contentious comments later in the process.[54] While negotiated rulemakings

49 Ross E. Cheit, Setting Safety Standards: Regulations in the Public and Private Sectors 39-40, 56 (1990).

50 For a more complete discussion of standards organizations, see pages 23-25.

51 Robert Hamilton, *The Role of Nongovernmental Standards in the Development of Mandatory Federal Standards Affecting Safety or Health*, 56 Tex. L. Rev. 1329, 1390 (1978) (explaining that the ban on ice in drinking water was developed in the nineteenth century when ice was often cut out of polluted rivers).

52 Incorporation of Revised ASTM Standards That Provide Flexibility in the Use of Alternatives to Mercury-Containing Industrial Thermometers, 77 Fed. Reg. 2456 (Jan. 18, 2012).

53 Cheit, *supra* note 49, at 39, 56, 59.

54 OSHA, *Setting Occupational Safety and Health Standards*, http://www.osha.gov/doc/outreachtraining/htmlfiles/fact9214.html (last visited June 8, 2012). Other agencies have established procedures for expediting rulemak-

can expedite the process, they are not a panacea. OSHA remains resource- and time-constrained, and must to some extent rely on industry to develop standards for many topics.

3. Government Reliance on Industry Management Systems

Management systems take the form of mandatory programs that depend on industry design and implementation. Management systems allow for more flexibility than traditional regulatory programs. Prescriptive and performance-based regulations dictate particular practices and particular levels of performance, respectively. Management systems, on the other hand, attempt to foster a culture of safety in industry through broad, process-oriented requirements. Management systems are thus often additional to, or include, prescriptive or performance-based standards and encourage continual improvement beyond such standards. Management Systems have been utilized in Risk Management Plans under the Clean Air Act[55] and in the United Kingdom's Safety Case,[56] among others. They are the focus of the new SEMS rule for offshore drilling.

4. Government Reliance on Industry or Third-Party Certification

Industry is also involved in the implementation of mandatory programs through certification requirements. Due to the limited ability of government agencies to verify the compliance of every participant in a particular program, it often relies on industry or third-party certification. Energy Star, for example, has recently expanded the use of third-party certification.[57] Other programs have relied on the use of industry or third-party certification for a long time; for example, the Federal Aviation Administration (FAA)'s designee program has used designated personnel within the aircraft construction industry to inspect and certify compliance of certain elements of aircraft design since 1927.[58]

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ings. For example, the Coast Guard has attempted to expedite its procedures for rules for which it is unlikely to receive any comments by issuing "direct final rule[s]" that take effect with a limited final rule as long as there are no adverse comments. *See, e.g.,* Coast Guard Final Rule, Update of Standards from the American Society for Testing and Materials (ASTM), 64 Fed. Reg. 67,170 (Dec. 1, 1999) (updating outdated standards using a direct final rule).

55 *See, e.g.,* EPA, *Chemical Accident Prevention Provisions Overview*, http://www.epa.gov/oem/content/lawsregs/rmpover.htm (last visited June 8, 2012) (requiring a Risk Management Plan for companies that use certain flammable and toxic substances).

56 Offshore Installations (Safety Case) Regulations, S.I. 2005/3117. For a more detailed discussion of the United Kingdom's Safety Case, see below at pages 28-31.

57 GAO-11-888, *supra* note 22, at 8.

58 FAA, *Delegation and Designee Background*, http://www.faa.gov/about/history/deldes_background/ (last visited June 8, 2012).

C. Standards Development Organizations

1. Overview

There are thousands of private organizations in the United States and throughout the world that create technical standards. Standards are typically created by standards development organizations (SDOs), and may be coordinated by national standards-setting bodies like the American National Standards Institute (ANSI) or international standards bodies like the International Organization for Standardization (ISO). SDO standards are typically designed to be adopted voluntarily by industry, but they can be made mandatory through incorporation in government regulations.[59] The regulations governing offshore oil drilling incorporate many private standards by reference.[60] Private companies are interested in the creation of industry standards either because they will derive an individual benefit from adopting a standard practice or because they have an interest in helping to design the standard for the industry as a whole. SDOs are thus often funded in part by companies who adopt the standards that they create and by companies who wish to have an active role in the creation of new standards.[61]

2. Selected Standards Development Organizations

Not all standards organizations ensure that input is provided by a broad and diverse group of stakeholders, including government representatives, academics, and consumers, in addition to industry. In general, standards created by organizations that do incorporate diverse perspectives tend to be created by consensus, more protective of safety, health, and the environment, and more likely to reflect consideration of factors other than costs. Standards created by organizations without consensus procedures are often heavily influenced by industry implementation and may thus be underprotective. SDOs with strong consensus procedures include the American Society for Testing and Materials (ASTM),[62] the Institute of Electrical and Electronics Engineers (IEEE),[63] and the American Conference

59 Andrew Updegrove, The Essential Guide to Standards: Chapter 2: Participating in Standard Setting Organizations: Value Propositions, Rules and Strategies (2007), *available at* http://www.consortiuminfo.org/essentialguide/participating1.php.

60 *See* 30 C.F.R. § 250.198 (2012) (incorporating standards developed by the American Petroleum Institute, American National Standards Institute, and the American Society for Testing and Materials, etc.).

61 An exception to this general funding mechanism is ACGIH, which is funded largely by grants and donations through a supporting organization. Foundation for Occupational Health and Safety (FOHS), *About FOHS*, http://www.fohs.org/about.htm (last visited June 8, 2012).

62 ASTM creates standards in a variety of areas ranging from construction to consumer products to nanotechnology. ASTM International, *ASTM Overview*, http://www.astm.org/ABOUT/overview.html (last visited June 8, 2012).

63 IEEE is involved primarily in the creation of standards for telecommunications, information technology, and power generation products and services. IEEE, *IEEE at a Glance*, http://www.ieee.org/about/today/at_a_glance.

of Government Industrial Hygienists (ACGIH). For example, IEEE and its individual standards committees set rules ensuring that no single interest dominates the standards development process, and it has an even stricter set of rules requiring participation by diverse groups when a standard is sponsored by a particular interest.[64] Thus, if a rule is sponsored by industry, IEEE rules will ensure participation by government, non-profits, and other interests. Similarly, ACGIH ensures that multiple groups have a right to vote in standards creation and other matters. In contrast to most SDOs, ACGIH began as a consortium of government officials and academics, so it has recently changed its rules to ensure that industry members have voting rights.[65]

Organizations that use, or have historically used, minimal procedures for gathering consensus include API and NFPA. The grain elevator fires discussed earlier illustrate the failure of standards created by NFPA with input primarily from industry management. NFPA has since changed its standards development procedures to require much more diverse input. NFPA technical committees that develop standards may not draw more than one-third of their members from a particular "interest category," including industry members, labor, government enforcement authorities, insurance, and consumers.[66] In recent years, OSHA has been able to rely on many NFPA standards without incidents like grain elevator explosions.[67]

API's standards, on the other hand, have been subject to criticism in the wake of Deepwater Horizon. API's standards-writing committees are theoretically open to all parties who are "materially affected" by such standards, including government and academia.[68] Yet it is not clear that API actually receives significant input from non-industry groups, and it does not seem to actively seek it. Minutes from API standards committees meetings indicate that these meetings are attended by only a few government officials, or sometimes by no one outside of the industry.[69]

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html (last visited June 8, 2012).

64 IEEE Standards Association, *How are Standards Made?*, http://standards.ieee.org/develop/process.html (last visited June 8, 2012).

65 ACGIH, *About*, http://www.acgih.org/about/history.htm (last visited June 8, 2012).

66 NFPA, *New Standards Development Process*, http://www.nfpa.org/categoryList.asp?categoryID=2517&URL=Codes%20&%20Standards/Standards%20development%20process/How%20codes%20and%20standards%20are%20developed/New%20standards%20development%20process (last visited June 8, 2012).

67 *See, e.g.*, 29 C.F.R. § 1915 (adopting NFPA standards for fire alarms, sprinkler systems, and fire extinguishers).

68 API, *Committee Information*, http://www.api.org/publications-standards-and-statistics/committee-information.aspx (last visited June 8, 2012).

69 *See, e.g.*, Drilling and Productions Operations Committee, API, Record of Meeting Attendance (Feb 24, 2011), *available at* http://mycommittees.api.org/standards/ecs/sc2/Meeting%20Materials/2011/February%2023,%202011%20Meeting/Attachment%2001-%20Attendance%20Sheet%20-%20Feb%202011.pdf; Subcommit-

The Oil Spill Commission also noted that API's standards setting process may be influenced by the organization's substantial lobbying activities. The Commission further concluded that API has developed standards that are tailored to the "lowest common denominator," rather than standards that are sufficiently protective of safety or health.[70]

A group that may add additional credibility to the creation of private standards is ANSI. ANSI is the national standards body in the United States, which coordinates the efforts of many SDOs and ensures that their standards follow adequate procedures. To this end, ANSI accredits both SDOs and particular standards that they create in order to ensure that they meet ANSI's four core requirements of "openness, balance, consensus and due process."[71] ANSI accreditation thus adds an additional layer of credibility to standards created by private organizations. The rigor of ANSI's accreditation process, however, may be called into question by the fact that it accredited over 200 SDOs, including API.[72]

D. Management Systems

1. Overview

Management systems are process-oriented and typically aim to improve financial, safety, and/or environmental performance on a company-by-company basis by means of corporate self-assessment and goal setting. Common features of management systems include systemic assessment of business risks or impacts, plans for how these can be reduced or mitigated, and processes for evaluation and continual improvement.[73]

Management systems attempt to foster a culture of safety in industry by requiring operators to take responsibility for identifying and mitigating specific risks of their operations. Placing this responsibility on industry should mean that the regulatory framework keeps pace with technological developments, since operators must re-assess their risks as they amend their practices or equipment. Management systems can also create incentives to go beyond the minimum level of safety set by the regulator and

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tee on Offshore Structures, API, Record of Meeting Attendance (Sept. 28, 2011), *available at* http://mycommittees.api.org/standards/ecs/sc2/Meeting%20Materials/2011/September%2028,%202011%20Meeting/Attachment%2001-Meeting%20Attendance%20Sheet%20-%20Sept%202011.pdf.

70 Nat'l Comm'n Report, *supra* note 1, at 225.

71 ANSI, *Introduction to ANSI*, http://www.ansi.org/about_ansi/introduction/introduction.aspx?menuid=1 (last visited June 8, 2012).

72 ANSI, Accredited Standards Developers (May 2012), *available at* http://publicaa.ansi.org/sites/apdl/Documents/Standards%20Activities/American%20National%20Standards/ANSI%20Accredited%20Standards%20Developers/MAY12ASD-basic.pdf.

73 Neil Gunningham, *Integrating Management Systems and Occupational Health and Safety Regulation*, 26 J. Law & Soc. 192, 196-200 (1999).

find the best possible way of reducing risks. Drawbacks of management systems include their cost and the potential for superficial implementation which does not change practices or improve safety.[74]

For this paper, we analyzed three particular management systems: ISO 14001, the United Kingdom's Safety Case, and DOI's SEMS. The factors that bear on the effectiveness of these programs and that will be discussed below are (1) the level of checks and verification, (2) whether there is any evidence of changes in practices or culture, and (3) impact on safety and environmental outcomes.

2. ISO 14001

ISO 14001 is an environmental management system (EMS). It was developed in 1997 by the International Organization for Standardization (ISO), a network of national standards institutes of 163 countries. It is modeled on a quality control management system, ISO 9000, which is considered very successful. ISO 14001 can be utilized by any industry or business and is one of the most widely used EMSs in the world.[75]

The main features of ISO 14001 include assessing environmental impacts, creating an environmental policy, setting environmental objectives, developing an implementation plan, conducting performance reviews and seeking continual improvement.[76] Although companies are allowed to self-certify compliance with ISO 14001, many companies seek external certification. This is done by private organizations which are accredited for this purpose by the International Accreditation Forum (IAF).

ISO 14001 does not specify particular performance standards or environmental objectives. This enables it to be used by any industry or business. This purely procedural approach has been criticized by environmental groups, who have also questioned whether ISO is the appropriate body to be developing environmental management guidelines given that its aims are to reduce trade barriers and enhance competitiveness.[77]

a. Checks and verification

One would expect the use of third-party certification in ISO 14001 to increase its effectiveness. However,

74 *Id.*, at 198-200.

75 *See generally,* Minore Idé, The Effectiveness of International Environmental Regimes: The Case of the ISO 14000 Regime 25 (August 2002)(MPP/MPA Thesis, Concordia University)(on file with the National Library of Canada), *available at* http://spectrum.library.concordia.ca/1890/1/MQ72868.pdf (portraying ISO 14000 as a global environmental tool).

76 *Id.* at 15; Matthew Potoski & Aseem Prakash, *Covenants with Weak Swords: ISO 14001 and Facilities' Environmental Performance*, 24 J. Pol'y Analysis & Mgmt. 745, 751 (2005).

77 *See* Idé, *supra* note 75, at 69-70 (pointing out that IPO's primary objectives are "to facilitate exchange of goods and services by eliminating barriers to trade").

there are concerns about the reliability of this process. Research has identified "race to the bottom" problems among the certification companies. The combination of competition among certifiers and lack of enforceable standards for their work means some are under pressure to cut costs and provide positive results even if these actions are not justified.[78]

b. Change in practices or attitudes

Some businesses report that adopting ISO 14001 has increased their awareness of their environmental impacts. However, other research has found that ISO 14001 tended to be treated as a separate process undertaken in isolation from business operations. Respondents to a survey claimed that improvements to environmental practices were made as a result of regulation rather than implementing ISO 14001; in other words, they continued to react to external requirements rather than proactively changing practices as a result of their internal analysis of environmental impacts.[79]

The pan-European Remas project is one of the largest evaluations of EMS's to date, covering 300 industrial sites across eight sectors and 14 European countries. Remas commenced in 2002 to examine the environmental performance of companies within E.U. member states that actively implemented EMS.[80] The research conducted by Remas compared sites that had no EMS with sites that did, including sites that used informal mechanisms, ISO 14001, and the European Union's Eco-Management and Audit Scheme (EMAS). Remas found that, despite the self-selection bias that better-performing sites were more likely to adopt an EMS, there was "strong evidence" that EMSs, including ISO 14001, improved environmental management practices. It also found that the improvements were greater for EMAS, which is seen as being a more stringent EMS because of its stricter reporting and documentation requirements.[81]

c. Improvement in outcomes

The Remas project attempted to select indicators which give an accurate picture of performance and for which there are sufficient data available. Looking at pollutant emissions levels, the project found some evidence that an EMS leads to lower emissions, although this varied considerably between different sectors. The improvements in outcomes, however, were weaker than improvements in management

78 Susan L.K. Briggs, *ISO 14001 Hits 10-Year Mark*, Quality Progress (2007), *available at* http://asq.org/quality-progress/2007/08/environmental-management-and-sustainability/iso-14001-hits-10-year-mark.html.

79 Frank Monbaten et al., *ISO 14000: Assessing Its Perceived Impact on Corporate Performance*, J. Supply Chain Mgmt. 4, 7-9 (2000). The survey had a very low response rate of only around ten percent so results should be interpreted cautiously.

80 Remas is funded by LIFE Environment, an E.U. body that supports environmental demonstration projects, and other project partners. The project is led by the Environment Agency for England and Wales.

81 Remas, Analysis of Final Remas Project Dataset 2, 9 (2007).

practices. The project also found no evidence that using ISO 14001 led to better environmental performance than using an informal documentation system.[82] Other research gives a mixed picture, with some research showing that ISO 14001 does lead to improved environmental outcomes;[83] however, none of this is as methodologically robust or comprehensive as the Remas project. Explanations for the weak outcomes include the absence of explicit environmental performance objectives in ISO 14001 and an auditing function that does not effectively ensure that companies actually implement their plans.[84]

3. United Kingdom's Safety Case

The United Kingdom's Safety Case is one of the models highlighted by the Oil Spill Commission as an example of a comprehensive risk-based approach to safety regulation. It was introduced in the aftermath of the 1988 Piper Alpha disaster, in which a rig in the North Sea exploded and killed 167 people.[85] An inquiry into Piper Alpha criticized the use of prescriptive regulation for creating "too much law" and diverting attention away from actual risks.[86] As a result, the Safety Case requires companies to identify all possible risks of the operation they plan to undertake and explain how these will be eliminated or reduced to an acceptable level.[87]

82 *Id.* at 3, 25; Remas, Linking Environmental Management and Performance: The Results of the Remas Project at 4-7 (2006), *available at* http://remas.iema.net/pdf/reports/remas_findings.pdf.

83 *See, e.g.*, Potoski & Prakash, *supra* note 76, at 746-47 (finding that ISO 14001-certified facilities have better environmental performance); Richard N.L. Andrews et al., *Environmental Management Systems: Do They Improve Performance?,* U. North Carolina at Chapel Hill 286 (2003) (finding that the mean environmental performance was not statistically different between ISO 14001-certified and non-certified facilities); Petra Christmann & Glen Taylor, *Firm Self-Regulation Through International Certifiable Standards: Determinants of Symbolic Versus Substantive Implementation,* 37 J. Int. Bus. Stud. 863, 865 (2006) (providing an overview of previous research on whether ISO 14001 certification improves environmental performance).

84 Potoski & Prakash, *supra* note 76, at 749; Christmann & Taylor, *supra* note 83, at 866.

85 *See* John Paterson, *The Significance of Regulatory Orientation in Occupational Health and Safety Offshore,* 38 B.C. Envtl. Aff. L. Rev. 369, 378-80 (2011). The Safety Case approach is used in other high-hazard industries, notably nuclear, onshore oil and gas, chemical, and military establishments.

86 Charles Haddon-Cave, *The Nimrod Review: Independent Review into the Broader Issues Surrounding the Loss of the RAF Nimrod MR2 Aircraft XV230 in Afghanistan in 2006* at 164 (2009), *available at* http://www.official-documents.gov.uk/document/hc0809/hc10/1025/1025.pdf.

87 Technically, the Offshore Installations (Safety Case) Regulations, S.I. 2005/3117, do not specify the level of risk, but instead require the operator to demonstrate compliance with all "relevant statutory provisions." The main statutory provision is the Health and Safety at Work, etc. Act, 1974, c. 37, which imposes a general duty on all employers to reduce risks to employees "so far as is reasonably practicable." The other key regulations are the Offshore Installations (Prevention of Fire and Explosion and Emergency Response) Regulations, S.I. 1995/743; Offshore Installations and Wells (Design and Construction, etc.) Regulations, S.I. 1996/913; Offshore Installations (Safety Representatives and Safety Committees) Regulations, S.I. 1989/971; and the Management of Health and Safety at Work Regulations, S.I. 1999/3242. The risk level set by these regulations, where applicable, is to reduce risks to a level "as low as reasonably practicable." There are various Health and Safety Executive (HSE) guidance on what these terms mean. *See, e.g.*, HSE, Principles and Guidelines to Assist HSE in Its Judg-

The Safety Case requires companies to demonstrate, to themselves first and to regulators second, that their operations will be safe. The regulations specify the acceptable level of risk but do not contain any prescriptive requirement except the use of good practice, which is required as a minimum. "Good practice"[88] refers to standards which are developed by industry and recognized by the Health and Safety Executive (HSE), a quasi-autonomous non-departmental public body with functions similar to OSHA. Oversight of offshore safety sits with a specialized offshore division of HSE.[89]

A company's Safety Case must be accepted by HSE before drilling operations can commence. Acceptance of the Safety Case does not mean HSE guarantees the safety of the rig. The duty to ensure safety remains with the operating company at all times. The Safety Case must be reviewed and resubmitted every five years, although it must be kept up to date at all times with the company making revisions in between the formal resubmissions in the event of any operational changes.[90]

a. Checks and verification

The Safety Case regime contains at least three enforcement mechanisms. First, there are traditional inspections conducted by HSE, which is a well-resourced agency. Second, independent third-party audits are required for "safety-critical elements" of the specified plant. Industry publishes detailed guidance on such audits. Third, workforce safety representatives are directly elected in secret ballots by workers and have the authority, *inter alia*, to inspect rigs, investigate complaints, report risks to HSE and represent the workforce in dealings with HSE. An independent review of the Safety Case regime, commissioned by the British government after Deepwater Horizon, found that the combination of these three elements was one of the strengths of the Safety Case.[91]

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ments that Duty-Holders Have Reduced Risk as Low as Reasonably Practicable (2001), *available at* http://www.hse.gov.uk/risk/theory/alarp1.htm (in general) (last visited June 8, 2012); HSE, Assessment Principles for Offshore Safety Cases (APOSC) (2006), *available at* http://www.hse.gov.uk/offshore/aposc190306.pdf (for offshore Safety Cases specifically).

88 HSE, *Assessing Compliance with the Law in Individual Cases and the Use of Good Practice*, http://www.hse.gov.uk/risk/theory/alarp2.htm (last visited June 8, 2012).

89 *See generally*, Tony Prosser, The Regulatory Enterprise, Ch. 5 (2010); Department of Work and Pensions (DWP) & HSE, Framework Document (2009), *available at* http://www.hse.gov.uk/aboutus/howwework/management/dwphse.pdf.

90 HSE, A Guide to the Offshore Installations (Safety Case) Regulations 2005: Guidance on Regulations 6 (2006); S.I. 2005/3117, *supra* note 87, at regs. 13-14.

91 Geoffrey Maitland et al., Offshore Oil and Gas in the UK: An Independent Review of the Regulatory Regime 3, 85-86 (2011) (this publication was authored by an independent review panel commissioned by the Department of Energy and Climate Change); HSE, *supra* note 90, at 23-24; UK Offshore Operators Association, Guidelines for Management of Safety-Critical Elements: A Joint Industry Guide (2007); S.I. 2005/3117, *supra* note 87, at regs. 2(5)-(7), 18(3), 19-22 and sched. 7; S.I. 1989/971, *supra* note 87, at regs. 16-17.

b. Change in practices and attitudes

The Safety Case appears to have helped create a systematic approach to risk assessment within the industry and may have sparked technological improvements. Some evaluations find that it encourages industry to innovate and spread best practices.[92] However, a 2011 independent review found that the main weakness remains the issue of how to ensure that the Safety Case is a dynamic document that motivates improved practices. There is evidence that the actual change in practices varies widely according to the "spirit" in which the Safety Case requirements are implemented by individual operators.[93]

The independent review of the Safety Case regime emphasized the benefits of formalized workforce involvement and, in particular, the authority delegated to the safety representative, in improving a company's safety culture. Workforce safety representatives must be provided with training paid for by the company and be consulted on various matters including preparation of the Safety Case and the design of workforce safety information and training. Companies must give safety representatives paid leave to carry out their functions and provide them the facilities and information they require.[94] However, the review noted that the effectiveness of the representatives was dependent on companies providing sufficiently detailed training to provide the representatives with a high level of knowledge of operational hazards and risk management practices.[95]

c. Impact on outcomes

In enforcing the Safety Case regime, HSE relies on key performance indicators covering injuries, fatalities, hydrocarbon releases, and other dangerous occurrences in order to identify problems and potential risks. Hydrocarbon releases are seen as being particularly accurate since they are "potential precursors to major accidents" and therefore "indicat[ors] of failure to contain and control risk." All performance indicators showed substantial improvement just after the Safety Case regime was introduced, but this trend has now leveled off.

In addition, a limited number of performance indicators may not identify all problems or potential risks.[96] An HSE review of rigs in 2007 found that many were in poor condition, particularly those

92 Vectra Group, Literature Review on the Perceived Benefits and Disadvantages of UK Safety Case Regimes 19-21 (2003) (commissioned by HSE) (covering all industries–not just offshore–subject to Safety Cases and using a small number of interviews to obtain industry views on the regimes). Maitland et al., *supra* note 91, at 3, 47.

93 Maitland et al., *supra* note 91, at 4.

94 HSE, Safety Representatives and Safety Committees on Offshore Installations: A Guide for the Workforce, *available at* http://www.hse.gov.uk/pubns/indg119.pdf; S.I. 1989/971, *supra* note 87, at regs. 24-26.

95 Maitland et al., *supra* note 91, at 69-72.

96 *See* The Reporting of Injuries, Diseases and Dangerous Occurrence Regulations, S.I. 1995/3163; HSE, *Hydrocar-*

reaching the end of their productive life, where companies were making conscious decisions to save money by avoiding maintenance and upgrade costs.[97] This finding may suggest that Safety Cases were not being viewed as "living documents" by the companies or as integral parts of their operations.[98] It may also suggest weaknesses in the regular inspection program which apparently was failing to identify these problems in a systematic manner.[99] In response, Oil and Gas UK, the industry body for UK's offshore drilling industry, has implemented a Step Change in Safety program. As part of this program, Oil and Gas UK is monitoring performance indicators to assess asset integrity, such as backlogs on routine and safety-critical maintenance jobs.[100]

4. DOI's SEMS Rule

In October 2010, the previously voluntary SEMS, or Safety and Environmental Management Systems program that API had called API RP 75 and developed for offshore drilling companies in 1993, became mandatory when DOI incorporated it by reference into 30 C.F.R. § 250 Subparts.[101] DOI made only minor changes to RP 75 when it incorporated it into the SEMS rule. These included clarification about certain requirements and additional record-keeping and documentation requirements.[102] Companies were given one year, until October 15, 2011, to develop their SEMS.

SEMS plans must address 13 points. The first two set out the general principles and information requirements. It is the responsibility of management to ensure that SEMS is fully implemented as an

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bon Releases System, https://www.hse.gov.uk/hcr3; Maitland et al., *supra* note 91, at 57-58.

97 HSE, HRS 2011-1, Offshore Injury, Ill Health and Incident Statistics 2010/2011: HID Statistics Report at 25-30 (2011), *available at* http://www.hse.gov.uk/offshore/statistics/hsr1011.pdf.

98 Research found that industry perceived the Safety Case as being overly bureaucratic. The Safety Case regulations were revised in 2005 to reduce the resubmission requirement from every three to every five years. However, it is not clear whether the appropriate balance between ensuring a rigorous assessment and avoiding excessive burdens on companies has been achieved. Preparing an initial Safety Case can take 18 months and cost up to $1.5 million. The industry also pays for the entire cost of its regulation, around $25 million in financial year 2010-11. HSE, Annual Report and Accounts 2010/11 63 (2011), *available at* http://www.hse.gov.uk/aboutus/reports/1011/ar1011.pdf.

99 Vectra Group, *supra* note 92, at 44-45; Maitland et al., *supra* note 91, at 59; HSE, Key Programme 3–Asset Integrity Programme 5-8 (2007), *available at* http://www.hse.gov.uk/offshore/kp3.pdf; Paterson, *supra* note 86, at 384-85.

100 Oil & Gas UK, *Knowledge Centre*, http://www.oilandgasuk.co.uk/knowledgecentre/assetintegrity.cfm (last visited June 8, 2012).

101 *See* 75 Fed. Reg. 63,610, *supra* note 14.

102 *See, e.g.*, 76 Fed. Reg. 56,683, *supr*a note 15 (adding clarifiations to explain what is required for compliance); 30 C.F.R. § 250.1911 (requiring a hazard analysis and job safety analysis); 30 C.F.R. § 250.1928 (requiring SEMS to be kept for six years and to be made available to BSEE on request).

integral part of operations.[103] The next seven elements focus on operations. Operators must conduct a hazard analysis using a systematic approach to identify all potential safety and environmental risks and ensure that control measures capable of reducing the risks to an "acceptable" level are in place. The SEMS plan must include detailed provisions for management of change, standard operating procedures, and safe work practices. Companies have a duty to select contractors who have safe work practices and must ensure that all contractors are aware of the detailed operational procedures. Companies must provide ongoing safety training for staff. There must be procedures in place to ensure mechanical integrity of all equipment through testing and inspection. Companies must conduct a pre-startup review, essentially a checklist before new operations start or new equipment is used, ensuring that all factors such as emergency procedures and staff training are in place.[104]

The final four elements cover emergency response, accident investigation, audits, and recordkeeping. Companies must develop full emergency response and control plans. They must ensure that incident investigations are conducted and recorded so as to capture learning about the causes of the incident to prevent future occurrences. Companies' SEMS must be audited at least every three years by either an independent third party or qualified and designated employees, with an initial audit conducted two years after implementation. The company must notify BSEE at least 30 days prior to the audit so that BSEE may observe or participate if it wishes.[105]

BSEE also has authority to conduct its own evaluations of a company's SEMS or to require additional audits. If shortcomings are found in the SEMS, BSEE may issue Incidents of Noncompliance, seek civil penalties, and/or disqualify the company from serving as an OCS operator. Finally, all SEMS documents must be kept for at least six years[106] and made available to BSEE on request.[107] In addition, companies must submit annual safety and environmental data to DOI, including details of injury and illness rates for employees and contractors, the number of EPA National Pollutant Discharge Elimination System (NPDES) noncompliances, and the number of spills over 42 gallons.[108]

DOI proposed amendments to SEMS in September 2011. Among the most significant are proposed new requirements that audits only be conducted by independent third parties, that companies must show how employees are involved in the development of their SEMS, and that employees will have the

103 30 C.F.R. § 250.1909-10.

104 30 C.F.R. § 250.1911-17.

105 30 C.F.R. § 250.1918-20.

106 Other than Job Safety Analyses (JSAs), which must be kept for 30 days and injury logs, which must be kept for two years.

107 30 C.F.R. § 250.1924-28.

108 30 C.F.R. § 250.1929.

right to report violations to BSEE or request inspections without corporate retribution.[109]

As SEMS is so new, it is too soon to gauge its effectiveness. However, RP 75 was used for over a decade by a significant number of companies operating offshore drill rigs. In the late 1990s, nearly 100 percent of OCS operations were covered by RP 75, although this figure dropped to 60 percent in 2006.[110] In light of the Oil Spill Commission's industry-wide criticisms of the approach to safety, and the likelihood that BP was using RP 75 at the time of Deepwater Horizon,[111] there is surprisingly little discussion or evaluation in the available literature about whether RP 75 is adequate.[112] The discussion below will identify some of the potential strengths and weaknesses of SEMS, drawing on lessons from ISO 14001 and the Safety Case.

a. Checks and verifications

The requirement for regular audits is important, but, as learned from the limited success of ISO 14001, they need to be conducted by independent auditors. Under the existing SEMS rule, employees as well as third parties may conduct audits. Since these employees are acting on behalf of the employer, rather than the workforce (as with the Safety Case safety representatives), this appears to be a weakness. SEMS should be revised to require independent verification of compliance. BSEE's proposal to limit the audit function to third parties should be adopted into the final rule together with additional clarifications recommended below at pages 46-47.

b. Changes in practices and attitudes

Independent verification of compliance is crucial because the evidence suggests that management systems alone are unlikely to change practices or attitudes. There is a risk that SEMS will be a compartmentalized,

109 76 Fed. Reg. 56,683, *supra* note 15.

110 75 Fed. Reg. 63,610, *supra* note 14. There is no detail given about possible reasons for this decline. However, the statistics quoted in 74 Fed. Reg. 28,639 show that by 2006, over 60 percent of "low-activity" and 30 percent of "moderate-activity" (i.e. small to medium operators) were not using the voluntary SEMS program. Safety and Environmental Management Systems for Outer Continental Shelf Oil and Gas Operations, 74 Fed. Reg. 28,639 (June 17, 2009). This suggests that the drop-off may have been primarily within the smaller producers.

111 *See* 74 Fed. Reg. 28,639, *supra* note 110, citing results of API RP 75 implementation surveys for the period from 1996 to 2006. It divides operators into high, moderate, and low activity, based on volume of oil production. All high-level operators had voluntary SEMS programs. As one of the biggest operators on the OCS, BP was presumably within this high-level activity category. Thus, at least in 2006, BP was using SEMS.

112 Extensive research has failed to uncover any evaluations or analyses of RP 75 during the period of voluntary implementation. The few sources that mention RP 75 tend to be descriptive, industry-produced documents. This lack of independent evaluation may perhaps be because offshore safety was not high on any research agenda prior to Deepwater Horizon, or perhaps because the use of RP 75 was voluntary.

paper process that companies do not consider or integrate in their daily operations.[113] The extensive role of the workforce in the Safety Case regime is one of its strengths, providing impetus to build a safety culture from the ground up. Given that eleven workers died in Deepwater Horizon, frontline personnel have incentives to be more involved in ensuring safety and environmental protection. BSEE should adopt into the final rule enhanced workforce involvement. In addition, we recommend clarifying the protections for workers who do come forward with complaints or concerns, whether or not they do so as part of BSEE's audit process.

c. Impact on outcomes

SEMS does not specify a particular outcome or level of safety or environmental protection. The goal of the SEMS program is to "promote safety and environmental protection" by ensuring compliance with all aspects of the SEMS plan.[114] One observed weakness of the ISO 14001 regime is its failure to include substantive outcomes or performance goals. SEMS could be amended to include risk-based standards, as in the Safety Case. BSEE has also not yet made clear which outcomes it will assess as part of the SEMS audits and how it will go beyond merely checking that the SEMS paperwork is in place. Paperwork, without a genuine safety culture, will not reduce accidents or protect workers or the environment.

E. Certifications

For a management system to be effective at protecting safety and the environment, it is essential that there be a system in place to certify compliance with the program's requirements. A robust certification process, however, requires a significant amount of time and resources. Government regulators have a finite quantity of both and, as such, often rely on third-party auditors or the regulated entities themselves to perform the certification function. This delegation creates problems, including the potential that an auditor will be captured or controlled by the regulated entity, the risk of unqualified auditors, and the risk of fraud. Approaches to addressing these challenges can be found by examining certification methods in existing programs.

1. Responsible Care

As summarized on page 18 of this paper, Responsible Care is a voluntary initiative of the global chemical industry focused on improving performance, communication, and accountability in the manufacturing of chemicals. It is run by the International Council of Chemical Associations (ICCA) and administered in the United States by ACC. Participating companies are required to implement a management system based on the Responsible Care Management System.

113 Gunningham, *supra* note 73, at 196-200.

114 30 C.F.R. § 250.1901.

As originally structured, Responsible Care did not require any form of third-party certification.[115] Participating companies were expected to police themselves in implementing the program. Some companies adopted Responsible Care without making substantive changes to their manufacturing processes and used the Responsible Care program as a publicity tool to argue to the public that improvements were being made, when, in fact, not much was substantively being done.[116] A 2000 study from the Academy of Management Journal found that participating firms actually performed worse than nonparticipating firms in lowering total emissions of chemicals.[117]

In 2004, Responsible Care's certification process was restructured. Participating companies are no longer allowed to self-verify. Instead, a company's management system must be certified by an independent third-party auditor.[118] Responsible Care now also requires two layers of independent certification: (a) there must be an audit by an independent third party and (b) the independent third party auditor must itself be accredited by another third party. The requirement that auditors be accredited begs the question of how this will happen and who will be authorized to accredit them. ACC has worked with the ANSI-ASQ National Accreditation Board (ANAB), a subsidiary of ANSI that specializes in the accreditation of management system auditors, to develop an application process and criteria that auditors must meet in order to obtain accreditation.[119] This additional accreditation is expected to help ensure that auditors are both independent and qualified.

2. Energy Star

As summarized in pages 14-15 of this paper, the history of certification in the Energy Star program is very similar to that of Responsible Care. Prior to 2011, EPA generally relied on manufacturers' self-verification that their products satisfied the Energy Star requirements. EPA did little to substantiate claims made by manufacturers. GAO, in its unfavorable 2010 review of Energy Star, was able to obtain Energy Star approval for, among other things, a gas powered alarm clock and a "room air cleaner" that was in actuality a space heater with a feather duster attached to it.[120] Based on these failings, EPA substantially altered Energy Star's certification structure. Energy Star now requires two layers of

115 Jody Freeman, *Private Parties, Public Functions and the New Administrative Law*, 52 Admin. L. Rev. 813, 850 (2000).

116 Environmental Data Services, *supra* note 40, at 21-22.

117 King & Lenox, *supra* note 38, at 709.

118 ACC, *Responsible Care Management Certification*, http://responsiblecare.americanchemistry.com/Responsible-Care-Program-Elements/Management-System-and-Certification (last visited June 8, 2012).

119 ANAB, *Responsible Care Accreditation*, http://www.anab.org/accreditation/responsible-care.aspx (last visited June 8, 2012).

120 GAO-10-470, *supra* note 19, at 10.

independent certification. For a new product to qualify for the Energy Star label, it must be certified by a third-party certification body that is itself accredited by an EPA-approved accreditation body. EPA plans to authorize accreditation bodies to accredit certification bodies which can then certify products that comply with Energy Star requirements. For an accreditation body to be recognized by EPA it must adhere to the ISO/IEC 17011 standard that sets out the requirements for assessment bodies.[121]

3. Institute of Nuclear Power Operations (INPO)

As summarized in pages 17-18 of this paper, INPO adopts a different method for certifying compliance with requirements applicable to nuclear power plants. Rather than requiring plants to submit to independent, third-party audits, INPO itself coordinates inspection teams that conduct audits of facilities. Inspections teams, consisting of about 20 individuals, are made up of three groups: (a) one third are full-time inspectors employed by INPO, (b) one third are industry members on loan to INPO for 18 to 24 months to conduct audits, and (c) one third are industry members from other facilities on loan only for a single audit. This structure is used both to create independence among the auditors and to foster information-sharing across the industry. Individual plants are assigned a grade based on the inspection.[122] These grades are not made available to the public so as to foster company participation and candor, but they are used to determine whether to take enforcement actions against a power plant. Importantly, the results also heavily affect a plant's insurance premiums. Safety has increased in the nuclear power industry since the inception of INPO in 1999. For example, the number of emergency shutdowns of nuclear reactors has decreased from an average of six in 1980 to near zero today.[123] Not all of this improvement can be attributed to INPO. It is important to note that INPO works in tandem with NRC in overseeing nuclear power facilities. NRC conducts its own, independent inspections of all nuclear facilities.[124] Nonetheless, the improvement suggests that a team-based auditing approach contributes to the success of an auditing program. The US Navy's SUBSAFE program for construction of submarines uses a similar, team-based approach to its audits. That program, too, is considered a success.[125]

121 The NELAC Institute, Volume 1, Module 2: General Requirements for an Accreditor of Stationary Source Audit Sample Providers § 5.1.2(a)(2009) (commissioned by the EPA), *available at* http://www.epa.gov/ttn/emc/accreditoraudit.pdf; GAO-11-888, *supra* note 22, at 2.

122 INPO, *supra* note 32, at 3-4.

123 National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling, Industry's Role in Supporting Health, Safety, and Environmental Standards: Options and Models for the Offshore Oil and Gas Sector (Staff Working Paper No. 9) 1, 7-8 (2011), *available at* http://www.oilspillcommission.gov/sites/default/files/documents/staff%20Working%20Paper%20Industry%20Role.pdf.

124 GAO, GAO-91-122, Nuclear Regulation: NRC's Relationship With the Institute of Nuclear Power Operations 1-2 (1991).

125 For additional information on the SUBSAFE program, see the Appendix to Doug Hastings et al., *Recommen-*

4. Federal Aviation Administration (FAA) Designee Program

FAA has relied on private parties to carry out compliance certification functions since the 1920s. Individuals and companies can apply to become FAA "designees" to certify pilot examinations, pilot fitness, manufacturing quality, and airworthiness. Designees carry out up to 90 percent of FAA's certification functions. The designees are "Representatives of the Administrator" designated to act on behalf of FAA rather than the company that employs them.[126]

The benefits of the Designee Program are that it enables certifications to be carried out in a timely and cost-effective manner, provides expert assistance to FAA, and frees FAA employees to handle other tasks. Given the proportion of certifications conducted by designees it is unlikely FAA could function without this program. However, several GAO and Department of Transportation evaluations have found inadequate oversight and supervision of designees by FAA officials. Specifically, FAA is not identifying or remedying poor performance by designees. This problem is attributed in part to the failure of FAA Headquarters to provide sufficient guidance to the regions.[127] In response to these criticisms, FAA has introduced a new electronic designee tracking system to help improve oversight. This system will consolidate data in various FAA data systems and make more accessible data on designees and pilot examiners.[128] FAA's designee program highlights the need for robust systems to track the performance of third parties. Interestingly, although the Food and Drug Administration (FDA) likewise permits third parties to conduct premarket approval of low- to moderate-risk medical devices and the vast majority of medical devices are eligible for third-party accreditation, the program is little used,[129] in part

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dations for Improved Oversight of Offshore Drilling Based on a Review of 40 Regulatory Regimes, located on the Emmett Environmental Law & Policy Clinic website at http://www.law.harvard.edu/academics/clinical/elpc/publications/publications.html.

126 GAO, GAO-05-40, Aviation Safety: FAA Needs to Strengthen the Management of Its Designee Programs 12 (2004); Establishment of Organization Designation Authorization Program, 70 Fed. Reg. 59,947 (Oct. 23, 2005); FAA, Department of Transportation FAA Order 8100.8D, Designee Management Handbook.

127 GAO-05-40, *supra* note 126, at 12-20; Office of Inspector General, Department of Transportation, AV-2011-136, FAA Needs to Strengthen Its Risk Assessment and Oversight Approach for Organization Designation and Risk-Based Resource Targeting Programs 2-3 (2011).

128 GAO, GAO-12-117, Initial Pilot Training: Better Management Controls Are Needed to Improve FAA Oversight 41 (2011).

129 GAO, GAO-09-190, Medical Devices: FDE Should Take Steps to Ensure That High-Risk Devices Are Approved Through the Most Stringent Premarket Review Process 37 (2009) (noting that between 2003 and 2007, only nine percent of eligible devices were reviewed by third parties); FDA, *Current list of Accredited Persons for 501(k) Review Under the FDA Modernization Act of 1997*, http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfthirdparty/accredit.cfm (last visited June 8, 2012) (pointing out that there are currently only ten accredited persons).

because FDA is skeptical about the quality of the third-party reviews.[130]

5. Sarbanes-Oxley Act

The Sarbanes-Oxley Act was enacted in response to the corporate and accounting scandals of the early 2000s. Under Sarbanes-Oxley, managers of publicly-traded companies are required to create a management system of internal controls designed to ensure accuracy and prevent fraud in the compilation and disclosure of financial data.[131] A company's financial reports must be audited by an independent third-party auditor accredited by the Public Company Accounting Oversight Board.

Sarbanes-Oxley also requires that a company's senior officers make certain certifications in the company's annual reports. Specifically, they are required to certify (a) that they are responsible for establishing and maintaining internal controls, (b) that they designed such controls to ensure that material information is made known within the company, and (c) that they have evaluated the effectiveness of the internal controls.[132] An officer is personally subject to civil and criminal penalties for knowingly providing a false certification. On top of the management certification requirement, Sarbanes-Oxley also mandates that the third-party auditor who audits the company's financial reports must also review and attest to management's evaluation of its internal controls.[133] This unique approach requires management and the external auditor each to take personal responsibility for the design and implementation of the management system.

While Sarbanes-Oxley is not without detractors,[134] research suggests that it has been effective in increasing the accuracy of financial data. Since the enactment of Sarbanes-Oxley, the number of

130 Alicia Mundy & Jared A. Favole, *Third-Party Reviews of Devices Come Under Scrutiny at the FDA*, Wall S.J., Mar. 15, 2010, *available at* http://online.wsj.com/article/SB10001424052748703447104575117892340074732.html. *But see* GAO, GAO-10-279, Food and Drug Administration: Opportunities Exist to Better Address Management Challenges 1 (2010) (stating that the FDA lacks sufficient resources to adequately oversee medical devices, which may suggest a need for greater use of third parties).

131 42 U.S.C. § 7241.

132 17 C.F.R. § 229.601.

133 15 U.S.C. § 7262.

134 *See, e.g.*, Joseph D. Piotroski & Suraj Srinivasan, *Regulation and Bonding: The Sarbanes-Oxley Act and the Flow of International Listings* 38-40 (2008), Rock Center for Corporate Governance at Stanford University, Working Paper Series, *available at* http://ssrn.com/abstract=956987; *America as Number Two*, Wall S.J., Jan. 4, 2012, *available at* http://online.wsj.com/article/SB10001424052970204720204577129052317747614.html?mod=googlenews_wsj.

restatements, or corrective filings, filed has increased markedly.[135] This suggests that Sarbanes-Oxley is causing companies to take a harder look at their financial data and that the accuracy and completeness of such data are improving.

In contrast, SEMS—both current and proposed—does not require any management certifications. While the SEMS rules require management to implement a management system, there is nothing making management personally liable for failing to do so.[136] Adding management certification requirements to SEMS would help create a safety-centered culture by holding top level management accountable for falsely certifying a SEMS program.

135 Mark Groth et al., Getting It Wrong the First Time, Glass, Lewis & Co (2006), *available at* http://www.glasslewis.com/downloads/Restatements2005Summary.pdf.

136 30 C.F.R. § 250.1909, *supra* note 103.

FINDINGS

A. General Features of Successful Programs

1. Industry involvement is not determinative of a program's success or failure

Based on our research into the programs described above, as well as our analysis of many other voluntary and mandatory programs,[137] it is evident that industry involvement in setting regulatory standards, certifying compliance, and otherwise administering oversight programs, is not determinative of whether a program is a success or a failure. In terms of voluntary programs, both government and industry programs have succeeded and failed. For example, INPO has been a success while Responsible Care was a failure,[138] and Energy Star has been a partial success while NEPT was a failure. Mandatory government programs that rely on industry involvement have also experienced different levels of success. For example, OSHA has successfully relied on standards developed by ACGIH, while OSHA's reliance on NFPA's grain elevator standard was a catastrophic failure. Similarly, reliance on industry certification in the FAA designee program has been somewhat problematic, while industry certification in the Sarbanes-Oxley Act has proven highly successful.

In the end, limited government resources necessitate some reliance on industry. It is simply not practical for government to create a prescriptive standard for every technical aspect of a complex operation, and it cannot create a culture of safety in an industry without meaningful involvement of the companies themselves. Nevertheless, there are design mechanisms discussed below that can maximize the usefulness and reliability of industry input.

2. Clear, measurable goals

A preliminary requirement for successful programs is having clear, measurable goals. NEPT was a failure in large part because it had an overarching goal to improve the environment, but no mechanism to link the performance of individual facilities to this goal. In contrast, Energy Star, while suffering from verification issues, has been somewhat successful because of its explicit and readily quantifiable requirements for participation in the program. Some commentators have also criticized management systems for being too vague. Requirements in management systems must not be so broad as to essentially impose no obligations on industry.

137 All of our research has been detailed in the Appendix to Doug Hastings et al., *Recommendations for Improved Oversight of Offshore Drilling Based on a Review of 40 Regulatory Regimes*, located on the Emmett Environmental Law & Policy Clinic website, at http://www.law.harvard.edu/academics/clinical/elpc/publications/publications.html.

138 Responsible Care has since restructured its certification process. *See* pages 34-35.

3. Accurate, independent verification

Another critical element of successful programs is verification. If program participants are not compliant, the program cannot be effective. Verification issues have been problematic in programs such as Energy Star, as evidenced by its approval of bogus products. The increased use of third-party certification in programs including Energy Star and Responsible Care is promising. Yet, even with third-party certification, the independence of those carrying out the certification must be ensured. Restricting who can inspect particular facilities or accrediting third-party certifiers can be effective ways to ensure independence.

4. Effective enforcement mechanisms

A robust enforcement mechanism is also essential. Even if a program has a mechanism for verifying compliance, there must still be sanctions for non-compliance. Responsible Care vividly illustrates that a voluntary program with no repercussions for non-compliance does not produce meaningful results. Enforcement mechanisms like rating systems and disclosure of non-compliance have been particularly effective in INPO. Expulsion from a program, as in Energy Star, can be an effective sanction as well. In mandatory programs, some form of enforcement mechanism is always present. Nevertheless, enforcement in mandatory programs must still be meaningful and directed at those, such as senior corporate officers, who have the ability to make significant changes in regulated industries. Thus, the threat of criminal liability for executives in programs like Sarbanes-Oxley has been a particularly efficient method of enforcement.

5. Use of industry resources to fill and complement government oversight

Programs that take advantage of both the resources and technical expertise of industry and the broader perspective of the government are often successful. Such an arrangement helps to address both the government's lack of resources and the potential of industry to be anti-regulatory or to seek lowest-common-denominator solutions.[139] One example is the United Kingdom's Safety Case, in which industry pays for the regulator's inspections and also pays to train employees to stand in for the regulators on a daily basis. Another example is EPA's revamped Energy Star program, in which firms are certified by third parties who are in turn accredited by EPA. A third example are private SDOs that include significant input from government regulators.

139 *See, e.g.*, 6 Edward J. Balleisen & Marc Eisner, The Tobin Project, New Perspectives on Regulation (2009).

B. Standards Setting

1. Agencies need to streamline and expedite

OSHA's fire safety standard for grain elevators, which took ten years to develop, illustrates the drawbacks in terms of time and cost of government-created standards. Private standards created by SDOs can often be adopted more quickly and cost-effectively by the government than standards that agencies create internally. Yet government agencies must still use rulemaking procedures to adopt industry standards, and rulemakings can take a long time even if a standard has already been designed.

A few procedural mechanisms are available to agencies to expedite rulemakings, whether the standards were initially created by the government or industry. For rulemakings that are likely to be contentious, "negotiated rulemaking" procedures, as used by OSHA, may help to address comments in advance of the rulemaking process. For standards that are not necessarily contentious or for minor modifications to existing rules, "direct final rule" procedures that allow a rule to become final with minimal public process in the absence of adverse comments could be helpful. Other procedural streamlining approaches need to be developed.

2. Private standards created by broad consensus tend to be thoroughly designed and protective of health and safety

Standards that have been developed by SDOs that actively involve representatives from government, academia, and industry typically consider a variety of factors in addition to costs. Such standards are thus often more protective of safety, health, and the environment and better-suited for incorporation as mandatory regulations.[140] SDOs that use consensus-based procedures include ASTM, IEEE, and ACGIH. In contrast, SDOs that have not actively sought or incorporated outside input often develop standards that are underprotective. Such SDOs include NFPA in the 1970s and API. NFPA has since reformed its procedures substantially to require much greater input from different stakeholder groups. API, on the other hand, has made some effort to allow outside involvement, but has not required or actively encouraged such input.

3. Prescriptive requirements must be kept up-to-date with technology

One of the inherent difficulties associated with prescriptive regulations is keeping them current, particularly with the rapid development of technology in modern industries.[141] One of the advantages

140 The National Technology Transfer and Advancement Act of 1995 requires agencies to use private standards wherever possible. Pub. L. No. 104-13, § 12(a)(3), 110 Stat. 775, 782 (1996).

141 While prescriptive regulations have the advantage of clarity and specificity, they have several significant drawbacks. In a fast-changing industry, such as offshore drilling, regulations quickly become outdated. Either they

to government adoption of industry standards is that industry is close to technical developments and can create timely, current standards. Even if industry standards are used, however, agencies must periodically update them.[142] Industry standards that are appropriate at one time can become ineffective or burdensome if they are adopted by government and not revised. Vivid examples of out-of-date industry standards include OSHA's adopted standard banning ice water, and EPA's adopted standard requiring the use of mercury thermometers.

C. Management Systems

1. External checks and verifications are essential to the effectiveness of management systems

There is little evidence to support the notion that management systems alone will change industry culture and practices. The role of independent third party certification is essential in ensuring that practices actually improve. Although there are weaknesses in the certification process in ISO 14001, research has identified the use of certification as one of the contributors to the positive effects the system can have. This conclusion is supported by the Remas research that found that the more stringent the verification requirements in the management system, the greater the improvements in performance. The conclusion is borne out by the success of Sarbanes-Oxley with its very stringent verification requirements.

2. Management systems must be "living" documents

Management systems have the potential to be "living" documents that are an integral part of the company's operations. However, even in jurisdictions like the United Kingdom, which have used safety management systems for a considerable length of time, regulators still struggle with the issue of how to ensure management systems are actually—and continually—implemented, rather than long documents that are divorced from a company's operations.

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do not keep pace with improvements in safety technology, or more pertinently, they do not keep pace with changes in industry practices. Therefore gaps emerge. Government agencies are responsible for keeping the regulations up-to-date. They may rely on standards developed by private organizations, but they still have to take action to amend the regulatory standards. Not only does the process of amending regulations take time, but the responsible agencies may lack the expertise and other resources to update prescriptive standards on a timely basis. Prescriptive regulations can also contribute to a check-box compliance mentality within the industry, which can result in doing the minimum required rather than taking a holistic approach to safety.

142 *See* U.S. Dept. of Transp., Voluntary Industry Standards and Their Relationship to Government Programs (1993), *available at* http://www.strategicstandards.com/files/GovernmentStandards.pdf.

D. Certifications

Certification is essential to a successful regulatory regime. There are numerous ways to structure the certification process. After examining the different approaches, it is possible to identify which methods are more successful than others.

1. Self-verification is inadequate

It is clear from Responsible Care and Energy Star, prior to their recent revisions, that corporate self-verification is inadequate. It is too easy for bad actors to utilize self-verification to the detriment of other participants and of the reputation of the program and the industry as a whole. Even well-intentioned companies are more likely to be relaxed in participating when no one is verifying their compliance.

2. Two-layered independent certification is an effective verification mechanism

Responsible Care and Energy Star, learning from their past failures, both adopted certification systems requiring two layers of independent certification. There are clear advantages to this approach. First, it ensures that an independent and competent third party verifies that the regulated entity is complying with the program's mandates. This eliminates many of the problems inherent in a system that relies entirely on self-verification. Second, it is not overly burdensome to the regulating agency because the certification function is delegated to a third party. This allows for in-depth audits to be conducted despite the resource limitations of government agencies. While there is a concern that the third-party auditor could be incompetent, this concern is mitigated by the second layer of certification: that the auditor itself must be accredited by another third party.

3. Team-based certification and audits are another successful structure for verification

The use of teams to conduct audits can be a successful form of certification. It has been extremely effective for both INPO and SUBSAFE. The key to the success of this approach is in the composition of the team. INPO, by using full-time inspectors combined with industry experts on loan for various amounts of time, has highly skilled and qualified auditors. Additionally, the team-based approach allows for the sharing of safety knowledge across the industry. Industry members on loan are able to take back to their own companies the knowledge they gain by acting as auditors. While some have expressed concern about potential anti-trust violations, this concern can be managed and addressed by Memoranda of Understanding with the Department of Justice.

4. Management certifications can create management ownership and a culture of safety

Having an independent party or team certify compliance may not be enough to ensure a program's success. The real key is to ensure high-level corporate commitment to the program. INPO and SUBSAFE appear to have succeeded in inspiring a culture of safety in the nuclear power industry and national submarine operations in the United States. Sarbanes-Oxley provides an innovative solution by requiring senior corporate officials to certify their company's management system subject to personal criminal and civil liability for false certifications. These officials thus have a clear incentive to take an active role in implementing the system from the top down.

SPECIFIC RECOMMENDATIONS

A. For improving the SEMS rule

1. Define the term "independent third party"

Neither the current nor the proposed SEMS rule defines what is required to qualify as an "independent third party" for the purpose of conducting audits under 30 C.F.R. § 250.1920. The proposed regulations should be revised to clearly define at 30 C.F.R. § 250.1903 the minimum qualifications for independent auditors. At a minimum, "independent third party" should be defined to ensure that auditing teams are not composed entirely of personnel from the facility being inspected. A more ambitious system would create a team of independent auditors similar to INPO, in which some of the auditors would be either full-time auditors or industry personnel designated as auditors for an extended period.

2. Require third party auditors to be accredited

The current SEMS rule, at 30 C.F.R. § 250.1920, allows audits of SEMS to be conducted either by an independent third party or by designated and qualified personnel within the company. The proposed rule removes this choice and mandates the use of an independent auditor. While this is an improvement, the certification process could be further strengthened by requiring a second layer of independent certification and mandating that the independent auditor be accredited by another third party. There are organizations that specialize in accrediting auditors. For example, ANAB accredits auditors for Responsible Care, ISO 14001, and numerous other management systems.[143] BSEE could utilize ANAB's institutional knowledge in establishing criteria and a process by which to accredit auditors. BSEE could require industry to finance the establishment and maintenance of the accreditation process, possibly with revenue from offshore drilling leases.

3. Require certifications from senior corporate officers

Senior officers of companies engaged in offshore drilling should be required to certify their involvement in the design and implementation of SEMS and to certify that the SEMS is designed to foster internal disclosure of safety and environmental data. Further, more corporate officers should be required to conduct an annual assessment of the effectiveness of their company's SEMS. This model has made Sarbanes-Oxley successful. With respect to SEMS, it will help create corporate officers' buy-in and foster a culture of change.

143 *See* ANAB, *ANAB Accreditation in General*, http://www.anab.org/accreditation.aspx (last visited June 8, 2012). For more information on ANAB, see the Appendix to Doug Hastings et al., *Recommendations for Improved Oversight of Offshore Drilling Based on a Review of 40 Regulatory Regimes*, located on the Emmett Environmental Law & Policy Clinic website, at http://www.law.harvard.edu/academics/clinical/elpc/publications/publications.html.

Additionally, top level officers could be required to certify their annual Form BSEE-0131 submission regarding safety and environmental data. The accuracy of this data is vital in assessing the success of a company's SEMS. Requiring officers to certify the data will almost certainly increase its accuracy.

BSEE has authority to require officers to certify and to attach criminal and civil liability for knowingly false certifications.[144] In fact, DOI invoked this power recently in No. NTL 2010-N10, which requires that every application for a well permit must be certified by an "authorized company official" stating that activities will be conducted in compliance with all applicable regulations.[145] While this NTL is a positive step, it does not go far enough. No definition is provided for who qualifies as an authorized company official. Furthermore, the certification is only required to be made in connection with an application for a well permit. The impact of No. NTL 2010-N10 is thus performance-limited.

4. Establish clearer procedures for BSEE audits

Under 30 C.F.R. § 250.1924, BSEE is authorized to conduct its own audits of offshore drilling activities to determine whether SEMS are effective. BSEE should establish clear criteria and procedures for conducting these audits and for training auditors. Such criteria could include both the frequency of the audits and a priority system for inspections. The current rule specifies that inspections may be based on an operator's performance, but an explicit priority system would enable BSEE to further incentivize safety improvements by granting companies or drill rigs with fewer incidents a lower inspection priority. In order to conduct audits effectively, it is also essential that BSEE adequately train and prepare its auditors.

5. Define "effective" in 30 C.F.R. § 250.1924

In addition to defining more clearly when it will conduct its own audits, BSEE should specify its criteria for evaluating SEMS. To this end, it should define the word "effective" as used in 30 C.F.R. § 250.1924, which states that BSEE will determine whether a SEMS is "effective in protecting the safety and health of workers, the environment, and preventing incidents." While this term may be intentionally left broad to allow for discretion by BSEE inspectors, it could be defined more specifically to describe how inspectors will assess the effectiveness of a SEMS. Such a definition would both help inspectors in their mission and inform drilling operators of what to expect.

144 43 U.S.C. § 1350(c) (authorizing criminal penalties for violations of regulations covering the Outer Continental Shelf Lands).

145 BOEMRE, NTL 2010-N10, National Notice to Lessees and Operators (NTL) of Federal Oil and Gas Leases, Outer Continental Shelf, (Nov. 8, 2010), *available at* http://www.doi.gov/news/pressreleases/loader.cfm?csModule=security/getfile&PageID=70560.

6. Promote workforce involvement and prohibit reprisals

BSEE should implement the amendments to SEMS regarding workforce involvement as set out in BOEMRE's September 2011 Proposed Rulemaking. In the proposed § 250.1930, BSEE should clarify or strengthen the requirement that workers may stop work when an imminent risk or danger exists without risk of reprisal. This is particularly important given that many workers in the offshore industry are contractors with limited employment rights. For example, the final rule should state that no disciplinary action may be taken against any worker who uses this authority in good faith, regardless of whether or not there turns out to have been an imminent risk or danger. Additionally, use of this authority must not be a factor in decisions about contractor hiring or firing. A similar description should be added to section § 250.1933, which provides for the reporting of unsafe conditions, in case anonymity is breached. This should reinforce the ability of workers to report any concerns to BSEE without fear of losing their jobs or other reprisal. These protections against disciplinary action should be included on the posters and cards that companies are required to display and distribute.

BSEE may also wish to consider requiring companies to prepare a summary of SEMS for their workforce. Such a summary is required in the UK Safety Case regime, as it is recognized that the full document can be very long and complex. Companies are required to produce a user-friendly version of the key points including risks and mitigation measures, workforce duties, and rights, and to make it available to all workers.

7. Require continual improvement

The ultimate success of the SEMS rule will depend on whether a company's SEMS is static or dynamic. Management systems can all too easily become static documents divorced from daily operations and "real" risk. To ensure that SEMS are dynamic, not only should regular corporate certifications be required but, also, the certification should articulate the company's plans for improvement. Plans for improvement should be required even if the company is in compliance with all applicable laws.

B. For BSEE and BOEM, generally

1. Clarify the relationship between audits conducted by BSEE under 30 C.F.R. § 250.130 and audits conducted under SEMS, 30 C.F.R. § 250.1900.

2. Establish streamlined procedures for updating industry standards incorporated by reference in 30 C.F.R. § 250.198.

3. Require greater reporting and disclosure of hydrocarbon spills and other environmental data.

C. For COS

1. Establish certification procedures that complement BSEE and ensure independence of auditors

COS should be designed to complement, not replace, BSEE. To this end, COS should create certification procedures that are separate and independent from BSEE's. COS could use team-based inspection procedures similar to INPO for these audits to both encourage information sharing and ensure independence of the auditors.

2. Create robust sanctions for non-compliance with RP 75 and SEMS

COS states that it will ensure compliance with RP 75, and it has a strong position for doing so now that RP 75 has been made mandatory through the SEMS rule. If COS takes after Responsible Care, however, with no repercussions for facilities that fail to meet the requirements of RP 75 or SEMS, then it is unlikely to improve the safety or environmental performance of the industry. COS should thus develop private, industry-enforced sanctions for non-compliant companies. One potential sanction would be expulsion from API or revoking certain benefits until a company achieves compliance. API membership offers a variety of benefits to its members,[146] so revocation of membership privileges could be a strong incentive, at least for offshore drilling operators that would otherwise find it advantageous to join API. A more ambitious incentive system would be to rate and rank the safety and environmental performance of members, similar to the way that nuclear plants are rated by INPO. Such a rating system would be a particularly powerful incentive to companies if ratings were disclosed to insurers who could use them to adjust insurance premiums. Finally, if a company were continually out of compliance and refused to improve, COS could threaten to disclose the situation to BSEE.

3. Facilitate the sharing of information and best practices

COS could help enable safety improvement beyond what is required by regulation through sharing industry best practices. COS could also facilitate the sharing of additional information such as lessons that have been learned from small accidents or near misses. COS should further consider whether smaller companies require special support in developing and implementing SEMS. Such assistance could consist of pairing small companies with larger companies for training. COS could also work with workforce representatives, managers, contractors, and unions to coordinate the development and dissemination of SEMS training materials. COS may even be well-placed to offer safety training and updates directly to workers as well as managers, given that it is likely to develop a wealth of information about the various safety practices. This role may also help it gain feedback from workers about whether

146 API, *Benefits of Membership*, http://www.api.org/globalitems/globalheaderpages/membership/benefits-membership.aspx (last visited June 8, 2012).

claimed techniques are actually effective and provide a conduit between workers and management that may not exist on all rigs.

Some offshore oil and gas companies have raised concerns that antitrust law might prevent the sharing of safety information. It is unlikely, however, that antitrust law would place a meaningful barrier on the sharing of safety information because companies in the offshore oil and gas industry do not compete with regards to safety issues. The competition between offshore oil companies instead turns on the development of technology to economically extract oil and to locate new oil and gas deposits. As one oil industry executive has said, "safety is not proprietary."[147]

147 Staff Working Paper No. 9, *supra* note 123.

FUTURE RESEARCH

This paper is the culmination of a single semester's work. Listed below are several areas of research to be conducted by the Clinic in 2012-2013.

A. The Role of Insurance

Insurance can play an important role in the success of a program involving a high-risk industry like offshore drilling. For example, insurance premiums linked to a nuclear facility's inspections grade have been important to INPO's success. In future research, we will explore how to apply this principle to offshore drilling.

B. NEPA Exemption

The National Environmental Policy Act (NEPA) could require additional review of offshore oil and gas permitting decisions. At present, various aspects of offshore drilling are categorically exempt from NEPA. In future research, we will examine whether such exemptions are warranted, and whether there would be potential advantages to increased NEPA review.

C. Unique Challenges of Offshore Drilling in the Arctic

The ultimate goal of the project is to produce a set of recommendations tailored specifically to the regulation and oversight of offshore drilling in the Arctic. To this end, we will examine the unique challenges of offshore drilling in the Arctic.

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The Emmett Environmental Law & Policy Clinic at Harvard Law School is directed by Wendy B. Jacobs and is dedicated to addressing major environmental issues in the United States and abroad and to providing its students an opportunity to do meaningful, hands-on environmental legal and policy work. Students and clinic staff work on issues such as climate change, pollution reduction, water protection and smart growth.