

ARTICLE

WHERE THE EXTRACTION FRONTIER MEETS THE SAFETY FRONTIER: DEEPWATER HORIZON, SAFETY CASES, AND NEPA-AS- CONTRACT

*Michael Barsa & David A. Dana**

I.	INTRODUCTION	43
II.	THE PIPER ALPHA DISASTER	46
III.	THE SAFETY CASE APPROACH	48
IV.	NEPA-AS-CONTRACT AND BAST	51
	A. The Safety Case and Cultural Transformation in the US	51
	B. Transforming Culture Without The Safety Case: NEPA-As-Contract.....	53
V.	THE RENEWABLE ENERGY FRONTIER	57
VI.	CONCLUSION	58

I. INTRODUCTION

The Deepwater Horizon disaster has prompted a deserved rethinking of U.S. offshore oil drilling regulation in the Gulf of Mexico. However the focus of the debate has been too narrow. For one thing, the Deepwater Horizon disaster is best understood not just as a lesson for offshore oil exploration in the Gulf but for all extraction activities in unfamiliar, technically challenging environments. So understood, Deepwater Horizon should be used as a basis for thinking about “extraction frontiers” more generally, such as oil extraction from the tar sands and fracking for natural gas. Moreover, although Deepwater Horizon

* David A. Dana, Stanford Clinton Sr. and Sylpha Kilbride Clinton Research Professor, Northwestern University Law School

discussions and evaluations have looked to past experiences with oil spills in the United States, including, most notably, the Exxon-Valdez spill, they have largely ignored precedent outside the United States.¹ But the most interesting case for comparison to Deepwater Horizon may well be a UK case, namely the disaster on the Piper Alpha rig.

This Article assesses what the Piper Alpha disaster, and the ensuing adoption of a “safety case” approach to regulation, can teach U.S. policymakers and reformers. The safety case approach was designed to place the primary responsibility for safety in the companies themselves. Companies were to articulate and justify safety goals, identify hazards and obstacles to hazard reduction, and then implement, test, and continually modify practices to ensure goals were being met. Regulators would act as sounding boards, collaborators, and co-venturers in the achievement of safety—but would no longer simply prescribe the practices the companies ought to follow. The ambition of the safety case approach was (and is) that companies would come to “own” safety and incorporate it into their culture, rather than regarding safety as a matter of complying with externally-imposed, legalistic rules. By internalizing safety into their cultures, companies would shed the short-sighted cost-containment focus they had formerly displayed. And because companies better understood the technical and other realities on the ground (or under it!) in a way regulators could not, the companies were in the best position to establish and maintain practices that were more effective and flexible than anything that regulatory agencies on their own could have devised.²

There is currently some debate in the UK as to whether the safety case has “worked” in the North Sea or in other contexts in which UK regulators have implemented. We know that there has not been a major accident or spill in the North Sea since Piper Alpha. We also know that some participants in the safety case process provide favorable reports about it. On the other hand, external audits of installations suggest that companies often do not follow what they themselves say is necessary in their safety case documents.³ For the purposes of this Article, however, we assume that the safety case approach in the UK has been a “success.” Then we ask: can that approach work in the U.S.

1. John Paterson, *The Significance of Regulatory Orientation in Occupational Health and Safety Offshore*, B.C. ENVTL. AFF. L. REV. 369, 369-89 (2011).

2. See *infra* Part II.

3. See *infra* Part II.

context? We conclude that the safety case approach *cannot* be expected to produce substantial changes in corporate culture and behavior. In part this is because in the U.S., regulators and industry officials are part of a homogenous community with a shared world-view and perceived interests. In addition, industry leadership understands that the material consequences of even large-scale disasters will generally be quite modest over the long term. In sum, while the safety case approach sounds very appealing, it may well offer more rhetorical flourish than real transformation in the context of the United States.

At the same time, we are persuaded by the core insights that motivated the U.K. to look away from traditional command-and-control regulation as a response to the Piper Alpha disaster. Ultimately, safety on any extraction frontier requires that the companies running the operations accept safety as their own responsibility. Regulators can only know so much; the companies will always have more and have more up to date knowledge and expertise, as well as more financial resources. Where we see a flaw in the safety case approach is its reliance on a *dialogue* between a corporation and a regulator over achieving safety. We believe that corporate culture, in the U.S. at least, will be transformed only after top corporate leadership is convinced that safety is *essential* to the corporation's ability to flourish in the extraction business. To that end, we outline a proposal we call "NEPA as Contract," which would impose large material consequences if companies fail to engage in thorough, frank, and up-to-date environmental assessments and planning. In addition, we propose that companies be required to identify the best achievable safety technology for their operations, including technologies in use anywhere in the world, and that such "BAST" technology *must* be adopted unless the companies can demonstrate that exceptional circumstances exist for the continued use or adoption of less protective technology. If a company fails to identify what is in fact the BAST but regulators identify the BAST based on information from other sources (including other companies' disclosures), the company would be required to implement the BAST. A company's failure to disclose a BAST that the company in good faith should have disclosed could also be the basis for rescinding government permissions for resource extractions.⁴

4. For example, if British Petroleum were aware of a safety technology soon to be put to use in Norway but did not disclose that to U.S. regulators in connection with seeking exploration permissions and the regulators hence did not require that technology, the company's permissions could be rescinded once the regulators discovered the new

Part I of the Article reviews the Piper Alpha story and the regulatory reforms the UK embraced in its aftermath. Part II develops the argument that a safety case regime probably would not have helped prevent the Deepwater Horizon disaster, and more generally would have limited effect in the U.S. context. Part III outlines our proposal for NEPA-as-Contract and a BAST requirement. Finally, in Part IV, we consider whether another change is needed to ensure prevention of another disaster – greater investment in the renewable energy frontier, so that the ceaseless pressure to find oil and gas and other fossil fuels in dangerous, environmentally sensitive settings could be abated, if not eliminated.

II. THE PIPER ALPHA DISASTER

Oil exploration and extraction in the U.K. waters of the North Sea had been the source of a string of accidents and repeated special commission reviews even before Occidental's Piper Alpha platform suffered a series of explosions in July 1988 that resulted in the death of 167 men.⁵ In the 1980s production in the North Sea was well established.⁶ But the harsh weather and rough waters remained a challenge.⁷ In that sense, the North Sea in the 1980s, like the Gulf of Mexico in the 2010s, was at what might be called the “extraction frontier.”

The Piper Alpha disaster did not, unlike the Deepwater Horizon disaster, involve a massive environmental spill. But the massive loss of life shocked the public and resulted in the establishment of a Public Inquiry under the direction of a retired Scottish judge, Lord Cullen. The Inquiry was “the longest and most thorough ever seen in the UK.”⁸ The immediate cause of the disaster was the failure of communications between shifts, which resulted in a later shift attempting to use equipment that an earlier shift had put into maintenance.⁹ The first explosion on the platform resulted in successive explosions, and fire spread

technology and confirmed that the company should have disclosed it in its application for exploration permissions. At a minimum, this would mean suspension of exploration activity until the technology was put in place.

5. Paterson, *supra* note 1, at 371-75.

6. *Id.* at 374-75.

7. JOHN PATERSON, BEHIND THE MASK: REGULATING HEALTH AND SAFETY IN BRITAIN'S OFFSHORE OIL AND GAS INDUSTRY 213 (2000) [hereinafter BEHIND THE MASK].

8. John Paterson, *Health and Safety at Work Offshore*, in OIL & GAS LAW: CURRENT PRACTICE AND EMERGING TRENDS 115, 132 (Greg Gordon & John Paterson eds., 2007).

9. *Id.* at 132.

without any effective attempt to contain it because the pumping of oil was not shut off and the stand-by and firefighting vessels on hand proved wholly ineffective.¹⁰ As described by the Cullen Report, there was chaos. The Cullen Report faulted Occidental for its excessive concern with costs (which was exacerbated by the oil price crash in 1986), neglect of safety concerns, and inattention to emergency planning.¹¹ By the same token, the regulatory agency in charge of the platform – the UK’s Petroleum Energy Department or “PED” – was faulted for superficial inspections and a failure to grasp the core safety risks facing the platform in its operations.¹² The Piper Alpha disaster thus was depicted as having broad grounding in regulatory and industry culture, rather than as being an unavoidable human error that occurred on a particular day. Indeed, the leading academic student of the Piper Alpha experience has emphasized how much of what happened at Piper Alpha can be understood as the product of a pervasive mindset that was blind to major risks:

Most striking still was the number of times I heard from a wide variety of sources the phrase: ‘No one actually thought that could happen.’ This phrase sums up well the systematic blindness to risk which existed in the industry prior to Piper Alpha. Both the industry and the regulators were convinced of the adequacy of existing arrangements to ensure safety and the communicative systems by which they operated effectively masked the potential for this disaster. . . . Piper Alpha had to happen before anyone could accept that it *could* happen.¹³

As we discuss below, the causes of the Deepwater Horizon disaster can similarly be understood not as the result of a bad decision on a rig on one particular day (although there were such decisions) but rather as the product of a shared culture and world view among industry or government actors that too readily dismissed risks and accepted the prioritization of cost-savings. Transocean and BP lacked a safety culture, just as Occidental in 1988 did. The U.S. Mineral Management Service (MMS) shared the industry’s world view and lacked the capacity and will to meet its stated regulatory mission as a safety regulator, just as the UK’s PED did in 1988. A failure of the blowout protector and massive spill were not seriously considered by anyone—in either

10. *Id.* at 132-33.

11. *Id.* at 133.

12. *Id.* at 133; BEHIND THE MASK, *supra* note 7, at 216-17.

13. BEHIND THE MASK, *supra* note 7, at 221.

industry or government—in the years and months before the Deepwater Horizon blowout, just as an out-of-control fire was not seriously contemplated by industry and government in the lead up to the Piper Alpha conflagration. Viewed along these lines, the two disasters share the quality of having been surprising at the time—and yet more than a little obvious in hindsight. And so this question would seem to be relevant to those interested in reform of U.S. offshore oil production regulation – how did the UK respond to the Piper Alpha, and could the U.S. respond in a similar way?

III. THE SAFETY CASE APPROACH

The Cullen Report's recommendations were embodied in the Offshore Installation Act of 1992, implementing regulations in 1992, and then a new set of implementing regulations between 1995 and 1998.¹⁴ One of the most important reforms was that safety regulation was transferred from the jurisdiction of the Petroleum Energy Department, a department whose mission included promoting the development of the UK's oil resources, to the Health and Safety Executive ("HSE").¹⁵ Prior to the Piper Alpha disaster, the Petroleum Energy Department had been criticized as unduly influenced by the petroleum industry, but Lord Cullen's recommendation to shift offshore oil regulation to the HSE may well have reflected a belief that the HSE had the sophistication to undertake safety case regulation whereas the PED did not, rather than any concerns about agency capture.¹⁶ The HSE has safety-related jurisdiction over a hodge-podge of industries, and in U.S. terms, might be understood as hybrid of OSHA, EPA, and OMB.¹⁷

The overall thrust of the safety case reforms was to require each operator of an off shore rig to develop a safety case that would be a "living document" guiding safety at that installation.¹⁸ The operator of the installation was required to prepare a safety case that satisfied the HSE regulator.¹⁹ In the Safety Case, the operator was required to explain how the management system would meet the broad statutory goals; how adequate auditing and reporting would be assured; how all

14. *Health and Safety at Work Offshore*, supra note 8, at 136-37.

15. *Id.*

16. BEHIND THE MASK, supra note 7, at 16, 217.

17. HEALTH & SAFETY EXECUTIVE, A-Z OF GUIDANCE BY INDUSTRY, <http://www.hse.gov.uk/guidance/industries.htm> (last visited Sept. 5, 2011).

18. *Health and Safety at Work Offshore*, supra note 8, at 138.

19. *Id.*

potential hazards had been identified; and how the risks from those hazards had been reduced to the “lowest level that was reasonably practicable.”²⁰ Operators were to revise the Safety Case as often as changed circumstances required in safety-related operations, and major changes required approval of the HSE regulator.²¹ Moreover, a review by HSE of each safety case at first was mandated for every three years, and then later every five years. Regulation via operator-created, HSE-accepted safety cases can be understood as a form of guided or overseen self-regulation and as “reflexive regulation.”

The safety case approach, as undertaken in the UK, required operators to use quantitative risk assessment to characterize potential hazards and the options available to address them. While the initial focus was on quantitative risk assessment that focused on magnitudes of risk and effectiveness of measures in reducing risk, agency regulations and guidance later called on – or at least allowed -- for quantitative comparisons of economic costs of safety options, and hence called for comparative quantitative cost-benefit analysis as applied to possible safety options.²² Although the safety case approach remains focused on quantitative analysis, the HSE has recently suggested that there is such a thing as too much quantitative analysis, at least as to relatively minor or routine issues.²³

While the safety case definitively embraced operator’ “ownership” of the safety review, it edged toward, but did not fully embrace, the concept of worker involvement in safety planning.²⁴ Workers are merely to be consulted both with respect to the content and implementation of the safety case at each installation.²⁵ The Piper Alpha Public Inquiry considered the possibility of requiring more substantive participation by workers in the formation of safety cases, but Lord Cullen reportedly shied away from such a requirement as poorly-suited to the non-unionized workforce on offshore platforms.²⁶

20. *Id.*

21. *Id.* at 138-39; BEHIND THE MASK, *supra* note 7, at 252-57; HEALTH & SAFETY EXECUTIVE, ASSESSMENT PRINCIPLES FOR OFFSHORE SAFETY CASES at 7 (2006), available at www.hse.gov.uk/offshore/aposc190306.pdf.

22. BEHIND THE MASK, *supra* note 7, at 256-57.

23. *Health and Safety at Work Offshore*, *supra* note 8, at 147.

24. *Id.* at 145.

25. *Id.*

26. BEHIND THE MASK, *supra* note 7, at 16, 276-280.

It is debatable whether the safety case approach in the UK has led to a different mindset regarding safety or, even more dramatically, to a new corporate safety culture. The available empirical assessments of how safety cases have performed are often quite technical and yield few general conclusions. At least in the offshore oil production context, there has been some recent evidence that calls into question whether operators have been internalizing a safety mission and following the cases for which they obtain HSE approval. Audits have suggested inconsistent attention to safety among companies and even among installations owned by the same company.²⁷ A 2007 Report of the HSE seemed to suggest that engineering-focused safety practices on offshore installations were being weakened by the industry leadership's focus on financial considerations, and that senior management failed to appreciate the safety implications of their decisions.²⁸ On the other hand, there have been no major recent accidents in the North Sea, and there are anecdotal accounts of positive benefits from the safety case process.²⁹ As one report sponsored by the HSE concluded:

There is a generally positive picture regarding the impact of [Safety Case Regimes] on safety culture and awareness. Claims are made that during the process of securing a Safety Case, staff involvement in the risk assessments and implementation of risk control measures enhances staff awareness of safety. Several case papers suggest that preparation of Safety Case reports ensures that the staff are more aware of the relative risks of various operations or activities at work.³⁰

If we assume *arguendo* that the safety case approach has worked well in the UK and in the North Sea, directing attention toward the identification and mitigation of safety risks, the question for reform on this side of the Atlantic is whether the safety case approach would help bring about needed changes in

27. See GORDON & PATERSON, *supra* note 8, at 132-33; PATERSON, *supra* note 7, at 260-268.

28. OFFSHORE DIV. OF THE HEALTH AND SAFETY EXEC. HAZARDOUS INSTALLATIONS DIRECTORATE, KEY PROGRAMME 3: ASSET INTEGRITY PROGRAMME 8, 27 (2007), available at <http://www.hse.gov.uk/offshore/kp3.pdf>.

29. See VECTRA GRP. LTD., LITERATURE REVIEW ON THE PERCEIVED BENEFITS AND DISADVANTAGES OF UK SAFETY REGIMES 3 (2003), available at <http://www.hse.gov.uk/research/misc/sc402083.pdf>; See DNV ENERGY, THE RISKS ARISING FROM MAJOR ACCIDENT HAZARDS: LESSONS FROM THE PAST, OPPORTUNITIES FOR THE FUTURE 8 (2008), available at http://www.dnv.nl/binaries/paper%20refining%20management%20forum%20copenhagen_tcm141-311567.pdf.

30. VECTRA GRP. LTD., *supra* note 29, at 45.

resource extraction in the Gulf of Mexico and elsewhere on the extraction frontier. For the reasons we develop below, we have our doubts.

IV. NEPA-AS-CONTRACT AND BAST

A. *The Safety Case and Cultural Transformation in the US*

The core insight of the safety case—that a cultural transformation among regulators and the regulated community alike is what really enhances safety—is an important one.³¹ Nonetheless, we do not believe that the safety case would be effective at causing the same cultural transformation in the U.S. Put simply, the U.S. begins with a vastly different culture both within industry and more importantly within government and society at large. The Head of the British HSE's Offshore Safety Division (OSD) himself has acknowledged as much: “we have a different safety culture compared to the safety culture that applied in the Gulf of Mexico.”³²

In the U.S., drilling in general and deep-sea drilling in particular has become a heated political issue, with great political pressure being exerted to “drill, baby, drill.”³³ Indeed, the “Gulf of Mexico Energy Security Act of 2006,” which opened up large areas of the Gulf of Mexico to offshore oil drilling,³⁴ was preceded by a multi-year, highly politicized push to expand oil drilling during the recent Bush Administration. President Bush issued an executive order to “expedite projects that will increase the production... of energy,”³⁵ and Interior Secretary Gale Norton implemented royalty relief programs to heighten the incentives

31. OIL SPILL COMMISSION, DEEP WATER: THE GULF OIL DISASTER AND THE FUTURE OF OFFSHORE DRILLING 217 (2011).

32. See HOUSE OF COMMONS, ENERGY AND CLIMATE CHANGE-SECOND REPORT: UK DEEPWATER DRILLING - IMPLICATIONS OF THE GULF OF MEXICO OIL SPILL, 2011, H.C. 450, ¶ 25; See Steven Davidoff, “BP’s Options to Limit Liability from the Oil Spill,” N.Y. TIMES (June 15, 2010), <http://dealbook.nytimes.com/2010/06/15/bps-options-to-limit-liability-from-the-oil-spill/> (stating that B.P.’s U.S. subsidiary BP Holdings North America was in charge of its U.S. drilling operations and the operations in the Gulf of Mexico).

33. See Mary Carnevale, *Steele Gives GOP Delegates New Cheer: ‘Drill, Baby, Drill!’*, WALL ST. J. (Sept. 3, 2008, 10:50 PM), <http://blogs.wsj.com/washwire/2008/09/03/steele-gives-gop-delegates-new-cheer-drill-baby-drill/>.

34. See Press Release, Ctr. For Biological Diversity, Senator Salazar Will Push Legislation For Increased Oil and Gas from Gulf Coast Region to Ease Energy Needs (July 6, 2006), http://www.biologicaldiversity.org/programs/public_lands/energy/dirty_energy_development/oil_and_gas/salazar_oil_and_gas_07-06-2006.html (last visited Sept. 16, 2011); See also Gulf of Mexico Energy Security Act of 2006, Pub. L. No. 109-432, §§102-03, 120 Stat. 3000-02 (2006).

35. See Exec. Order No. 13,212, 66 Fed. Reg. 28,357 (May 18, 2001).

for offshore drilling.³⁶ Domestic oil drilling in the U.S. is bound up with notions of independence, not only the independence of “wildcatting” oil riggers and cowboy-like executives, but also independence from foreign energy sources.³⁷

This larger political preference for drilling is reflected both in industry and in government. Unlike the HSE, whose mandate spans multiple issues, the US Department of Interior’s Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE), and its predecessor the Mineral Management Service (MMS), are focused almost exclusively on oil and gas drilling.³⁸ Moreover, “in the UK the safety and licensing aspects are handled by two separate regulatory bodies, the HSE and DECC respectively—by contrast, until the Deepwater Horizon incident, both safety and licensing fell under the remit of the U.S. Minerals Management Service.”³⁹ This is reflective of the powerful pro-drilling bias within the U.S. agencies, a bias that the mere imposition of a safety case would seem unlikely to overcome. Indeed, the U.S. agencies have been described as the province of “engineers” who are at “war” with biologists who have counseled caution.⁴⁰ As one marine biologist who left the agency has stated: “In order to get promoted at MMS, you better get invested in this pro-development oil culture.”⁴¹

Similarly, the regulators, especially those overseeing the Gulf of Mexico, have deep ties to industry that are unlikely to be affected by the mere imposition of a safety case. For example, in May 2010, as the BP oil spill raged, the Interior Department’s

36. See Press Release, Minerals Mgmt. Serv. Dep’t of the Interior, Spurred by Incentives, Oil and Gas Production in the Gulf of Mexico Expected to Increase Over the Next Decade (Nov. 15, 2004), <http://www.boemre.gov/ooc/press/2004/press1115.htm> (last visited Sept. 16, 2011).

37. See Press Release, Sen. Mary Landrieu, President Signs Into Law Domenici-Landrieu Gulf Coast Energy Plan (Dec. 20, 2006), <http://landrieu.senate.gov/mediacenter/pressreleases/12-20-2006-1.cfm> (last visited Sept. 16, 2011). Drilling in the Gulf of Mexico was hailed by Senator Mary Landrieu, one of the key sponsors, as being “good for the country because it reduces our dependence on foreign energy sources and protects the energy infrastructure along the Gulf Coast.”

38. CURRY L. HAGERTY & JONATHAN L. RAMSEUR, CONG. RESEARCH SERV., R41262, DEEPWATER HORIZON OIL SPILL: SELECTED ISSUES FOR CONGRESS (2010).

39. See HOUSE OF COMMONS, *supra* note 32, at ¶ 23.

40. See Juliet Eilperin, *U.S. Oil Drilling Regulator Ignored Experts’ Red Flags on Environmental Risks*, *The Washington Post*, May 25, 2010, at A1, available at http://www.washingtonpost.com/wp-dyn/content/article/2010/05/24/AR2010052401974_pf.html.

41. Tim Dickinson, *The Spill, The Scandal, and the President*, *Rolling Stone*, June 24, 2010, at 57, available at <http://www.rollingstone.com/politics/news/the-spill-the-scandal-and-the-president-20100608?print=true>.

Office of the Inspector General issued a report concerning MMS employees receiving inappropriate gifts from the Island Operating Company, an oil and gas production company working on oil platforms in the Gulf of Mexico.⁴² The report “found that a culture of accepting gifts from oil and gas companies was prevalent throughout the MMS Lake Charles office” in Louisiana and that “the individuals involved in the fraternizing and gift exchange, both government and industry, have often known one another since childhood.”⁴³ The MMS Lake Charles District Manager Larry Williamson told Inspector General investigators that “many of the MMS inspectors had worked for the oil and gas industry and continued to be friends with industry representatives.”⁴⁴

There is some indication of reform within BOEMRE in the wake of the Deepwater Horizon disaster, notably a moratorium on drilling, which remains, de facto, in place in waters more than 500 feet deep in the Gulf while safety reviews are conducted.⁴⁵ Nonetheless, there continues to be tremendous political pressure exerted on the Obama Administration by the oil industry and others to speed up drilling in the Gulf.⁴⁶ A safety case alone would be unlikely to dampen that political pressure, nor do we believe that a safety case by itself would lead to the necessary cultural change that takes safety more seriously than is currently the case.

B. Transforming Culture Without The Safety Case: NEPA-As-Contract

Given the importance, which we recognize, of such a cultural transformation, the question then becomes: is there a way to create such a cultural transformation in a way *other* than the safety case? We believe there is. In particular, we believe that a “NEPA-As-Contract” approach could serve the same goals as the safety case, but in a way better adapted to the U.S. This

42. See Memorandum from Mary L. Kendall, Acting Inspector General, U.S. Dep’t of the Interior, to Secretary Salazar, Minerals Mgmt. Serv. (May 24, 2010) (on file with author), available at http://abcnews.go.com/images/Politics/MMS_inspector_general_report_pdf.pdf; See ISLAND OPERATING CO. ET AL., INVESTIGATIVE REPORT 1 (2010), available at http://abcnews.go.com/images/Politics/MMS_inspector_general_report_pdf.pdf

43. *Id.*

44. See ISLAND OPERATING CO., ET AL., *supra* note 42, at 3.

45. See Harry Weber, *Blowout Containment Part of Drilling Permit Snag*, ASSOCIATED PRESS (Feb. 5, 2011), <http://abcnews.go.com/Business/wireStory?id=12845530>.

46. *Id.*

approach relies less on active collaboration than on stringent penalties that make a renewed focus on safety a matter of bottom-line sense.

In essence, this “NEPA-As-Contract” approach does two things:

First, it reconceptualizes the environmental review process under the National Environmental Policy Act (NEPA). NEPA would essentially become a bargain between industry and government. Industry would gain the right to drill, but only in exchange for a robust environmental review, and if industry violates its end of the bargain by conducting a sub-standard review, it would lose the benefit of its bargain.⁴⁷

Under this approach, a company would be required to conduct and publish an environmental review at the time of leasing, exploration and drilling. Thereafter, its rights to retain any leases, exploration plan approvals or drilling permissions would be tied to the quality of this environmental review. The company also would have a duty to update its reviews, in the same way that agencies have a duty now to update their reviews under NEPA when new information comes to light. And if it were later discovered that the company’s environmental review was conducted in a dishonest or grossly inadequate way, the lease or approval or permission could be rescinded without the payment of any compensation. In practice, rescissions of approvals of this sort would translate into real delays in resource extraction and hence significant foregone revenue for the company.

By creating incentives that corporate leaders took seriously—incentives that affect the company’s bottom-line—the NEPA-as-Contract approach seeks to change corporate culture from the top down. Elsewhere we have written about the

47. In contrast to our contractarian approach to NEPA review, Professor Hodas suggested a liability-based approach to transforming NEPA. See David R. Hodas, *The Role of Law in Defining Sustainable Development: NEPA Reconsidered*, 3 WIDENER L. SYMP J. 1, at 26, 31-32 (1998) (contemplating a liability regime whereby NEPA project sponsors would pay money damages for the environmental harms that might have been avoided had they prepared more adequate environmental assessments). We think that the damages measurement and collection difficulties posed by Hodas’s proposal argue in favor of our contractarian approach. Moreover, because the government does regularly contract with companies engaged in resource extraction – most notably, via leases and sales of mineral rights --- the addition of an explicit condition on such contracts in the form of the requirements of a good faith environmental review is a relatively straightforward change in the current legal regime.

benefits of a “NEPA-As-Contract” approach in doing exactly this: in overcoming the “groupthink” insularity of the regulator-regulated community and in counteracting potentially profit-maximizing decisions that led to substandard environmental reviews in the first place.⁴⁸ It is only in this way, by imposing real consequences for inadequate review, that we believe U.S. industry will internalize safety concerns. Environmental review will be seen as something that the company has a direct financial stake in getting right. Top management, in-house counsel and, very likely, outside counsel would take a closer look at reviews than they currently do and would want to assure themselves that they “covered the bases.” Company leaders would have a strong incentive to change the culture in which the “engineers” always dominate the “biologists” and cautions about drilling are routinely dismissed.

Second, our “NEPA-As-Contract” approach would not stop with the environmental review process. It would also require the use of the Best Achievable Safety Technology—in other words, the best safety technology in use anywhere in the world—modeled on similar requirements under other environmental laws such as the Clean Air Act. Companies would be motivated to identify promising safety technologies because of the risk that if they did not, their government permissions might later be rescinded. Regulators, generally, would become better informed about the available technologies, and as a result, capable of developing and maintaining prescriptive BAST regulations to apply when a company fails to identify a plausible BAST. Implicitly, this technology “back-stop” recognizes the limits of relying on cultural transformation alone to minimize safety.

One of the ironies of the Deepwater Horizon disaster was that MMS had received a number of reports concerning the reliability and effectiveness of blind shear rams, the supposed last “failsafe” option to prevent a blowout.⁴⁹ Some of these reports detailed how, in other jurisdictions, a second blind shear

48. See Michael Barsa & David A. Dana, *Reconceptualizing NEPA to Avoid the Next Preventable Disaster*, 38 B.C. ENVTL. AFF. L. REV. 193, at 242, 243 (2011).

49. MAJORITY STAFF OF H.R. COMM. ON ENERGY AND COMMERCE, 111TH CONG., MEMORANDUM ON FEDERAL REGULATION OF DEEPWATER DRILLING, at 5, *available at* <http://democrats.energycommerce.house.gov/documents/20100719/Supplemental.Memo.Deepwater.07.19.2010.pdf> or <http://royaldutchshellplc.com/wp-content/uploads/2010/07/DOI+Track+Record+%2526+Oil+Spill+Hearing+Memo.doc> (“[i]n the first four years of the Bush administration, MMS received a series of reports that identified serious concerns about the reliability of subsea BOPs and the effectiveness of blind shear rams.”).

ram is used to prevent the very type of blowout that occurred.⁵⁰ There is no reason why technologies that are achievable—especially those already in place in other jurisdictions—should not be implemented in the US. Indeed, a UK House of Commons publication concerning the implications of the Deepwater Horizon disaster specifically noted that the risk of blind shear ram failure would be mitigated by a second ram.⁵¹ However, whether a safety case approach would incorporate a second blind shear ram—in other words, whether cultural transformation alone would lead to this upgrade in safety—was another matter entirely. “As to whether a drilling rig in the UK could operate with the same BOP setup as the Deepwater Horizon, Mr Walker, head of the HSE Offshore Safety Division, told [authors of the report] “we would have asked the well operator [...] ‘why have you chosen that design? Why have you chosen, say, only one [blind shear] ram or two rams’ [...] we would then assess their answers.”⁵²

In light of the uncertainty concerning whether specific safety measures would be incorporated in the safety case, there have been calls, even in the U.K., to move beyond the collaborative process: to augment the safety case with prescriptive technological standards such as BAST. The authors of the House of Commons report specifically “recommend that for fail-safe devices such as the blowout preventer the Government should adopt minimum, prescriptive safety standards or demonstrate that these would not be a cost-effective, last-resort against disasters.”⁵³ In particular, the authors recommend “that the Health and Safety Executive specifically examine the case for prescribing that blowout preventers on the UK Continental Shelf are equipped with two blind shear rams.”⁵⁴ In other words, changes in corporate culture, while certainly laudable, might nonetheless require certain minimum technology requirements, especially when it comes to preventing blowouts. Our BAST approach does exactly this.

Moreover, in the U.S., such a prescriptive standard makes even more sense. Even with heightened penalties for sub-

50. *See id.*

51. *See* HOUSE OF COMMONS, ENERGY AND CLIMATE CHANGE-SECOND REPORT: UK DEEPWATER DRILLING – IMPLICATIONS OF THE GULF OF MEXICO OIL SPILL, 2011, H.C. 450, ¶ 41 (U.K.), available at <http://www.publications.parliament.uk/pa/cm201011/cmselect/cmenergy/450/45006.htm>).

52. *Id.* at ¶ 43.

53. *Id.* at ¶ 52.

54. *Id.* at ¶ 45.

standard environmental reviews, there remains a danger that these penalties must be enforced by the same agency that, as described *supra*, remains deeply sympathetic to industry. Especially when regulating on the “extraction frontier,” where blowouts and spills can have such uncertain and far-reaching effect, a precautionary approach that does *not* rely solely on agency enforcement is warranted. Instead, when pushing the *extraction* frontier, it makes sense to simultaneously push the *safety* frontier.⁵⁵ A mandatory BAST requirement would at least provide some assurance that, when drilling in challenging environments, state-of-the-art safety measures will provide some technological backstop.⁵⁶

V. THE RENEWABLE ENERGY FRONTIER

One of the most sobering lessons of the Deepwater Horizon disaster is that, while the risk of spills may be minimized (and can certainly be minimized much more than they are now), they can never be entirely eliminated. Especially when drilling in challenging environments such as the Gulf of Mexico, even the most robust BAST requirement may not be enough to prevent another catastrophic spill. Ultimately, it is only by pushing the *renewable energy* frontier that safety concerns along the extraction frontier will be addressed.

The Obama Administration has recently accelerated permitting and financial incentives for renewable energy sources on public lands.⁵⁷ However, current financial incentives to promote oil and gas development continue to dwarf incentives for renewable energy.⁵⁸ Offshore drilling benefits from billions of dollars in tax and royalty relief, along with tens of millions of

55. There is some indication that, at least with respect to spill *containment*, U.S. regulators are beginning to move in this direction. While the official moratorium on deep water drilling in the Gulf of Mexico has been lifted, drilling has not yet resumed in waters deeper than 500 feet while an industry coalition led by Exxon Mobil builds “a one-of-a-kind system designed to contain an oil leak in up to 10,000 feet of water—twice the depth of the BP blowout.” Weber, *supra* note 42 (future efforts to implement BAST should focus not only on spill containment but also spill *prevention*).

56. One objection to such a requirement would be that it reduces incentives for oil companies to push safety technology in other parts of the world, for fear that such technology would then become mandatory in the US. However we believe that this risk is easily over-stated. For one thing, the focus on “achievable” technology does not technically depend on what is currently in use (although it is of course an important factor).

57. See Phil Taylor, *Obama Admin Says Initiatives Sparked Boom of Renewable Energy Projects on Public Land*, N.Y. TIMES, Feb. 9, 2011.

58. See INTERNATIONAL ENERGY AGENCY, CLEAN ENERGY PROGRESS REPORT at 15, (2011), available at http://www.iea.org/papers/2011/CEM_Progress_Report.pdf.

dollars to support technical research.⁵⁹ Moreover, even at the state level, states such as Louisiana provide significant tax incentives to support the mineral extraction industry, including offshore drilling. Such incentives include exempting from sales taxes the labor, services, and supplies used to repair or renovate oil rigs in the Outer Continental Shelf, and similar exemptions for property rentals, leased vessels, diving services, and more.⁶⁰

This wide array of federal and state support of the extraction industry only pushes companies, on the margins, to expand the extraction frontier even farther—in some cases making drilling in challenging environments profitable where it would not have been before. Seen in this light, the safety approaches—from the safety case to NEPA-as-Contract to BAST—only serve to mitigate the effects of governmental policies that encourage the risky behavior in the first place. In other words they are band-aids on wounds of the government's own making.

The ultimate solution to the environmental and safety risks posed by drilling, then, involves not only strengthening the safety end of the equation but also the incentives end. In fact the most effective guarantor of drilling safety might be to simply reduce federal and state incentives for drilling while strengthening financial incentives for renewable energy.

VI. CONCLUSION

The safety case is an intriguing new development in the regulation of oil drilling. By relying on collaboration rather than prescription, it seeks to transform the culture within industry—to have industry internalize the importance of safety by becoming involved in the development of the safety measures themselves. However, while this approach may have been successful in the U.K., we doubt that such an approach could be successfully exported to the U.S. given the different cultural environment—especially the highly political nature of oil drilling and the close, often personal relationships between the regulators and industry. Nonetheless, the core insight of the safety case—that cultural transformation is key to safety—nonetheless remains valid. In the U.S., though, we believe that such a transformation could be most effectively brought about through an approach we call

59. See Kim Geiger & Tom Hamburger, *Oil Companies Have a Rich History of U.S. Subsidies*, L.A. TIMES, May 25, 2010.

60. See Ross Mouhot, *Sales Tax Incentives for Oil & Gas Drilling Companies in Louisiana*, 26 J. ST. TAX'N 35, 44, 45-46 (2008).

2011]

EXTRACTION & SAFETY

59

“NEPA-as-Contract.” Under this approach, industry’s ability to continue drilling would depend on taking environmental reviews seriously, with severe penalties attached should it become clear that the review process fell below some standard. More prescriptive technological requirements would also ensure that the Best Achievable Safety Technology was used in all oil drilling operations in U.S. waters. Ultimately, though, drilling may only become more safe when it becomes more rare—when financial incentives, currently skewed heavily in favor of fossil fuels, shift in favor of renewable energy.