

Ethics and oil: Preventing the next disaster

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ABSTRACT

This analytical paper assesses the BP Deepwater Horizon 2010 oil well explosion in the Gulf of Mexico in the context of ethical theory in the field of emergency management. It reviews the relevant literature that pertains to the ethical dimensions of decision making in relation to industrial disasters. Once the theoretical framework is established, a descriptive presentation of features common to Deepwater Horizon and past oil disasters is presented. The analysis suggests that the BP disaster in the Gulf of Mexico was, as much as anything else, the product of a systemic ethical failure on the part of both the oil industry and public officials. In addressing this failure, principles consistent with the theory presented are identified along with some preliminary action steps to stimulate and guide ongoing discussion and evaluation pertaining to the application of ethical theory to the important tasks of risk reduction and safety.

Key words: ethics, industrial disasters, Deepwater Horizon

INTRODUCTION

If the past is prologue to the future, the overall influence of the BP Deepwater Horizon explosion of 2010 on the policy agenda will be muted when compared with a genuinely natural disaster or a national security crisis. This is primarily because the oil policy domain is ongoing, its interests are well entrenched and powerful, and as such it is not usually event driven.¹ There may be some slight policy modifications or adjustments (improved regulation for safety, a few more dollars invested in alternative energy sources, etc), but the future of deepwater drilling and the policy interests of the oil industry will be impacted only marginally. This suggests that the prevention of or

mitigation against future disasters of this magnitude will have to be the product of something else. The “something else” to be assessed herein is the promotion of ethical standards for the industry and for public policy makers that provide more reliable guidelines for decision makers and a stronger defense for public safety and natural preservation.

This assessment will begin with a review of relevant literature in the field of emergency management that addresses the ethical dimensions of decision making in the context of industrial disasters. Once we have articulated the theoretical framework for ethical responsibility in relation to industrial disasters, the analysis will turn to a description of features common to past oil disasters and to the Deepwater Horizon that exemplify, in the context of the theoretical foundation, ethical failures on the part of both the oil industry and public officials. The analysis will conclude with the recommendation of principles and some steps that might logically be explored and implemented to promote the application of the ethical theory presented to the important tasks of risk reduction and public safety.

THEORETICAL FRAMEWORK

Industrial disasters are regular occurrences. Many such disasters have occurred in the oil industry. Until the spring of 2010, the Exxon Valdez tanker spill of March 1989 was considered the greatest oil disaster in the American history. When the Valdez ruptured her hull on Bligh Reef, she spilled 30 million gallons of crude (56 percent of her cargo) into Prince William Sound and left devastation in its wake. Thousands of marine mammals, thousands of marine birds, and millions of salmon and herring were among the victims. The years to follow saw continued threats

to plant and animal life and revealed a trail of pervasive health problems for response workers related to the use of chemical dispersants in the cleanup phase and ongoing health risks for the human population.²

As the BP Deepwater Horizon well explosion of 2010 unfolded, releasing as much as two million gallons of crude per day into the Gulf of Mexico, there was a sense of déjà vu to the narrative. The symbolic power of an oil spill is undeniable. It is a visible and emotional event that, to the degree it is of a serious magnitude, becomes a focusing event. A focusing event often presents us with a motivation, and some might say a duty, to try to place it into a broader perspective to both better understand it and to take constructive steps to apply what may be learned from it. It is in this sense that our understanding and our discussion of the focusing event known as Deepwater Horizon might be “broadened” if placed into the context of ethical theory in the field of emergency management and its application to industrial disasters. Such a broadening may have utility if it encourages industry leaders and political policymakers alike to reformulate the manner in which they think about ethics and its application to the important tasks of risk reduction and public safety.

Corporations and governments acknowledge the inevitability of major industrial disasters and crises. They plan for them, try to prevent them, but all too often fail to really cope with them effectively. Improved managerial tools and better techniques to prevent and cope with industrial disasters have long been perceived as necessities in an industrial setting.³

Major industrial disasters may include some or all of the following characteristics: large-scale and unprecedented risks; long-term impacts that are difficult to predict accurately and which expand risks; standard emergency plans and procedures that prove inadequate or ineffective; scientific or technological uncertainty that is severe or potentially paralyzing; a critical phase that is long and leads to the exhausting of people, systems, and organizations; a slow and difficult return of impacted communities to normal; sometimes harsh conflicts within the impacted communities; and economic, cultural, political, and legal stakes that can be extremely high.⁴ Any combination of these

characteristics is likely to be accompanied by a great deal of situational uncertainty and symbolic manipulation by multiple and competing interests that wish to expand or contain the policy impact of the disaster.

The causes of major industrial disasters are generally attributed to rare malfunctions, unforeseen failures, impossible to anticipate side effects of technological systems, or to natural phenomena beyond human control. However, the reality is somewhat different. In most cases, a disaster is the result of an interaction of industrial systems, technologies, people, and environments that produce a disaster that could have and perhaps even should have been anticipated.⁵

Decision makers, private and public, often persuade themselves that a disaster is unexpected or unlikely. Corporate executives and public officials are often too quick to take the position of minimizing the risks attached to various technologies and practices.⁶ Political and economic factors combine to make this an unfortunate byproduct of technological and economic development. The assurances and assumptions of corporate and political leaders are rarely subjected to appropriate rigorous and frank scrutiny when things that are valued highly come into inevitable conflict with the value of public safety. Profit, economic development, jobs, votes, etc, are such high stakes that they often skew risk assessments.⁶ This is not to say that risks should not be taken or that any enterprise can be made entirely risk free, but it is to suggest that the risks inherent in technologies and development practices should be assessed honestly and should never be casually minimized even in the pursuit of socially acceptable or highly valued ends.

One complicating problem with respect to most industrial disasters is that they are the product of multiple decisions made by multiple agents that have cumulative effects. Technological decisions and those decisions that pertain to technological byproducts are such that, as a disaster begins to unfold, their cumulative impact may quickly overtake the contributing acts and motives of their originators. This cumulative effect may consume what had originally appeared to be a rational and even ethical basis for judgment by several different decision makers along the way. In such a context, how does one assess ethical responsibility?

The emergency management literature speaks of the need to anticipate the unexpected and to reduce the risk to life, safety, and property posed by regularly occurring natural disasters or by hazardous events stemming from human endeavors that entail elements of predictable risk.⁷ The reduction of risk is a critical mitigating function in emergency management. Risk reduction, especially in conjunction with the value placed on human life and property in Western societies, is an ethical responsibility widely attributed to the emergency management function.⁸ It is generally understood that managers and decision makers may be said to have ethical responsibility under a specified set of conditions:

- They have specific knowledge of and are able to prevent an emergency or disaster.
- They have an ability to make decisions and act on them.
- They have a choice to act or not to act.
- Their decisions have value consequences that affect lives, welfare, and the rights of other persons.⁹

Decision makers (public and private) who make assessments and decisions regarding risks are ethically responsible for outcomes when they have knowledge of and are able to prevent a disaster, the ability to make decisions, a choice to act or not act, and their decisions have value consequences. It is the first of these conditions, ie, that they have knowledge and are able to prevent a disaster, which deserves special consideration here and is of critical importance to our discussion.

Policy makers, industrial leaders, and emergency management specialists presumably operate on the basis of knowledge about present situations, projected risks, and possible harms, and they develop responses that anticipate future outcomes. This requires a predictive knowledge base; however, predictive capacities often fall behind the technical knowledge that permits us to act. It has been suggested that this fact, the possibility of a gap between our ability to act in a

technological sense and our ability to predict, is the prime moral dilemma presented by technology.¹⁰ Narrowing that gap to prevent surprise industrial disaster is, in addition to being a scientific and practical necessity, a necessary precondition for ethical decision making. This is to say that without such knowledge and its proper application, there is no possibility for ethical decision making. Whatever its causes, the lack of a proper knowledge base or a refusal to act in reference to it will render all decisions arbitrary from an ethical point of view. Ethical judgments, uninformed and based solely on the pragmatic discretion of political and industrial leaders, are no better than whim or impulse when they are divorced from reliable predictive knowledge. It is important to note, however, that the lack of such knowledge is all too often a matter of choice.

The unavailability of knowledge due to a genuine inability to develop reliable predictive information is to be truly confronted with the unknown and the unpredictable. This inevitably implies a tragic ethical arbitrariness and a degree of uncertainty that precludes holding anyone responsible for the genuinely unknown or unexpected. However, this condition, the inability to know, is infrequent and rare. More typical is the unavailability of knowledge due to ignorance. In this instance, the possibility of knowing exists but has not been fully developed or pursued. The problem is correctable and it is, one might say, a moral duty to narrow the gap between actions and our ability to predict consequences.¹⁰ The third type of unavailability with respect to knowledge is what we might call unavailability by choice. This is the type all too frequently observed. Unavailability by choice is usually the product of political or economic influences that lead decision makers to discount, underestimate, or ignore what is known or knowable in pursuit of what they perceive to be some greater and more compelling political or economic value.

To say we could not possibly have known is very different from saying we could have known but did not. Far more serious is the situation where we knew but chose not to act based on what was known. The first situation is tragic, to be sure, but the second two are at the heart of most ethical failures by decision makers.⁸

Without knowledge we can say that there is no possibility for ethical choice. It is important to note, however, that knowledge is a precondition but not a guarantee of ethical choice. Knowledge, to the degree that it may contribute to ethical decision making, must be placed in the service of broader values. The values typically referenced in relation to ethical choice in Western thought include utilitarian rationales, culpability and prevention of harm standards, the concept of basic human rights, and public service rationales.¹¹⁻¹³

The preferred ethical action from the utilitarian perspective, for example, is based on its usefulness in creating the greatest good (economic or material usually) for the greatest number. The utilitarian approach has been institutionalized in the public and private sectors through the implementation of cost-benefit analysis. For its critics, this approach is faulted for its willingness to often accept social costs that exceed social benefits (however defined) for the sake of individual gain. The basic human rights perspective, usually offered as a viable alternative to or adumbration of cost-benefit analysis, suggests that it is never acceptable to allow a significant loss of life or vitality from a public disaster without taking actions to prevent or minimize it simply because such action may be socially inefficient or incur costs deemed unacceptable to industrial or political actors.¹¹

The basic human rights approach is compatible with the Lockean and widely accepted Western principle that life and all other property rights are guaranteed and may not be violated or endangered by governmental or private entities. Personal safety is considered as a part of these basic rights, and both the preservation of life and the prevention of harm figure strongly into every calculation of risk. Risks are generally prohibited if they meet one or several of the following conditions:

- The potential harm is physical and may also be life threatening.
- The potential harm is not reversible.
- The risk of the harm is undetectable in advance by its potential victims.

- There is avoidable unpredictability.
- Policy and decision makers are able to predict the risks and harms.
- Reasonable steps may be taken to reduce the risks or prevent the harms.
- The probability of incurring the harm in a predictable disaster scenario is high.^{14,15}

Under the conditions set forth in this formulation, the introduction of risk is prohibited. The notion here is that, under these circumstances, decision makers have an ethical obligation for the safety of individual citizens and populations potentially impacted. This ethical obligation presumes that citizens or impacted populations cannot perceive or predict a threat to life or safety and thus are unable to pursue their own best interests in a disaster scenario. It further presumes that their well-being and safety depends on the informed or knowledge-based judgment of others in critical decision-making roles.

The prevention of harm, the reduction of risk, the elimination of prohibited risk, and even a basic cost-benefit analysis all have one thing in common. They assume the existence of knowledge and a central role for it in making decisions and in meeting any ethical standards. The concept of prohibited risk, as briefly articulated, binds public and industrial leaders together in serving the values of life and public safety (or, if thinking strictly along utilitarian lines, in reducing social costs, maximizing social benefits, etc). In theory, no decisions may elude the grasp of prohibited risk. However, as we turn to an assessment of responses by industry and political leaders to oil-related disasters or incidents, we all see too frequently that knowledge (the necessary precondition) is not put to work at risk reduction or safety and the industrial disasters that occur as a result are indeed a part of a larger and systemic ethical failure. What follows, given space constraints, is a broad overview of common behaviors and practices gleaned from several well-known disaster incidents, including Deepwater Horizon.

OIL AND ETHICAL FAILURE: A PRESCRIPTION FOR DISASTER

The unavailability of knowledge by choice is, as already noted, often the product of political or economic influences that lead decision makers to discount, underestimate, or ignore what is known or knowable in pursuit of what they perceive to be some greater and more compelling political or economic value. The unavailability of knowledge by choice appears to be a theme common to disaster scenarios related to the oil industry. Where this condition is observed, it is the greatest inhibitor of ethical decision making by industry and political leaders. An examination of specific cases is instructive.

BP (formerly British Petroleum) has had a history of ethically questionable (within the theoretical framework established herein) and illegal behavior spanning decades. Prior to 2010, the best-known disaster was the 2005 explosion of a refinery in Texas City (near Galveston) that killed 15 workers, injured 180, and endangered thousands of nearby residents. A subsequent investigation by the US Chemical Safety and Hazard Investigation Board found organizational safety deficiencies at all levels of the corporation. BP pleaded guilty to a felony violation of the Clean Air Act and was fined \$50 million.¹⁶

In Alaska, more than 20 years ago, BP deficiencies came to light in the aftermath of the Exxon Valdez oil tanker spill. Exxon was BP's partner in Alaska's Prudhoe Bay oilfield and shared ownership of the trans-Alaska pipeline system (Alyeska) that routinely failed to live up to BP's promises to contain spills. Its North Slope Corrosion Control Program, for example, failed miserably time and again. Despite warnings from a leak detection system, a corroded piece of pipeline in Prudhoe Bay lost oil (more than 200,000 gallons) over a 5-day period in March 2006. A second leak occurred 5 months later (1,000 gallons). Subsequent investigations by Congress found that the entire line was riddled with corrosion and that BP workers were actively discouraged from reporting safety and/or environmental problems. Other disturbing reports (eg, from 1993 to 1995, a BP contractor had illegally dumped hazardous materials down well shafts on the North Slope) were numerous and indicative of a lax attitude toward safety and the environment.¹⁶

After the 2005 Texas City explosion, the US Chemical Safety and Hazard Investigation Board issued a report concluding that BP had a history of ignoring warning signs, routinely failed to invest in safety as a means of cost cutting, and pushed their people to maximize profitability at the expense of both worker and public safety.¹⁶ There is evidence of some increased safety investments after this 2005 report; however, a corporate culture of cost cutting and cutting corners on safety is said to have persisted.¹⁷ This does not make BP unique among oil companies or in the corporate world generally. Love Canal (a symbol of corporate neglect of toxic waste), General Dynamics (a symbol of defense industry excess), Exxon Valdez (a symbol of corporate insensitivity to the environment and to safety), the Savings and Loan scandal of the 1990s (a symbol of banking irresponsibility), and a long and continuing list of corrupt practices (consider the current financial crisis) provide ample evidence that ethics and corporate responsibility in general requires our constant attention.¹⁷ However, BP does make an interesting case study in relation to the ethical argument being made herein, and thus we turn our attention more directly to Deepwater Horizon for purposes of illustration.

The extraction of oil in the Gulf of Mexico has been common since the end of World War II. Most of the wells were in shallow water (about 200 feet deep) and, in the event of a problem or accident, divers could be sent down to fix them. However, as these inshore coastal wells became depleted, oil companies went into deeper waters. Oil companies pushed further offshore and deeper (5,000 feet beneath the surface in the case of Deepwater Horizon), and this has expanded risks and increased safety concerns. Divers cannot fix deep wells. Robotic instruments are used at deeper levels, generally with less precision than human divers and in an environment (ie, different chemistry of the water) where the fixes that work in shallow water often do not work.¹⁸ The key point here is that as oil companies have gone to greater extremes to acquire oil, they have increased the level of risk and the potential for harm associated with oil exploration.

Congressional hearings conducted in July 2010 concluded that although the oil industry has spent

billions of dollars to research and develop the technologies for deepwater drilling, little investment has been devoted to the technologies for accident prevention and hazard mitigation. In spite of well-known increased risks and the increased prospect for high-impact disasters such as Deepwater Horizon, decisions have been made to reduce costs by not investing in risk reduction and safety.¹⁹ This is, in essence, a choice not to act on the basis of what is known about risk. However, this is not the only case of “unavailability of knowledge by choice” that plagued the Deepwater Horizon. What we have come to know about the events of April 20 just prior to the explosion and what we have come to know of its aftermath point to a series of choices rendered ethically questionable by the failure to act on the basis of what was in fact known. Poor judgment and faulty equipment combined with the unavailability of knowledge by choice set the stage for a series of ethical failures.

On April 20, 2010, an explosion at the Deepwater Horizon drilling platform killed 11 people, unleashed an environmental catastrophe in the Gulf region, and adversely impacted the Gulf economy. Initial investigations quickly focused on the failure of the “blowout preventer” (BOP). The BOP is a large mechanism consisting of a series of high-pressure hydraulic valves designed to stop any uncontrolled flow of oil and gas from the well. Given the extreme pressures at the depth in question, preventing an uncontrolled flow or surge is of critical importance. As the pressure built and the BOP was engaged, the blind sheer ram (which uses two blades to cut through the metal pipe and seal the wellbore) failed. It is worth noting that the reliability of blind-sheer rams had been repeatedly questioned and deemed insufficient by a number of studies and tests conducted over the past decade.¹⁹ However, failed equipment is not the story of this disaster.

In the hours before the explosion, the crew at Deepwater Horizon had various and serious warning signs before the well finally exploded. The well was about to be sealed as per normal procedure as the drilling contractor (Transoceanic) had completed its work. BP was eager for them to complete their job given costs to BP of about a \$1 million a day. The normal procedure would be to remove the heavy drilling

lubricants and to replace them with lighter fluid before sealing the well off until BP was ready to extract the oil.

According to a House Energy and Commerce Committee report issued a month after the explosion, crews noticed unusual pressure and fluid readings that should have alerted them.²⁰ Removing the heavier drilling fluids was counter-indicated by these readings. There was also concern about evidence of possible damage to the BOP. BP executives and top drill hands debated how to proceed in the face of the mounting warning signs. Over the objection of the rig’s chief mechanic who was worried about the BOP which he believed to have been damaged and seriously compromised, a BP executive ordered the removal of the heavy fluid and its replacement with lighter weight sea water as per normal procedure. Five hours before the explosion, an unexpected loss of fluid was observed, thus suggesting that there were leaks in the BOP; this was a reckless decision to say the least.²⁰ In the face of what was known on the night of April 20, and in spite of obvious warnings, decisions were made to ignore safety and to proceed. One would suspect the basic decision was that it was worth rolling the dice to cut costs.²¹

One might expect that given the risks associated with drilling thousands of feet below the surface, the federal regulators would take extra care to insure that BP, a company with a corporate culture of cost cutting where safety is concerned,¹⁷ would take all necessary precautions to guard against cutting corners on safety. However, as we shall see, this was not the case.

Oil companies generally create their own offshore safety rules. They also enjoy various protections that discourage the sharing of best practice in safety procedures or the safety technologies they have developed. This is more or less the case internationally. The US government is not alone in ceding responsibility to the oil industry for the design and implementation of safety features on offshore rigs. This trend may come into question in the aftermath of the blowout in the Gulf.²² Beyond a general lack of safety regulation and the reliance on oil producers to self-regulate and invent the appropriate safety technology, it appears that the

US governmental agency with oversight responsibility for offshore drilling systematically failed to meet any minimal expectations of professional responsibility.

The Minerals Management Service (MMS), a bureau within the Department of Interior, was charged with the responsibility of monitoring the development of energy and mineral resources in the federal waters off the US shores. They were responsible for oversight and inspection of drilling sites in federal waters. MMS was found to have a culture of lax oversight and excessively close ties with the oil industry. Reports of ethical lapses going back many years by MMS included the acceptance of gifts from the industry, accounting inaccuracies, being under the influence of illegal substances while on the job, improper sexual relations between industry representatives and representatives on the leasing and inspection staff in a Gulf region office in Louisiana, falsification of inspection documents, and a history of inadequate performance of oversight functions generally.²³ These documented reports led to the disbanding of MMS in the aftermath of Deepwater Horizon and the division of its work among three other bureaus.

From an ethical perspective, given the practice of self-regulation by an industry with a long history of failing to invest in safety combined with inadequate oversight by an agency guilty of violating even the most basic code of professional ethics, we have a perfect storm. The introduction of prohibited risk is made inevitable as are threats to the life and vitality of a population that relies on decision makers (public and private) to protect them against or reduce the risk of disasters that are predictable and avoidable. Knowledge is placed not in the service of broader values but is skewed in the service of more narrow economic and individual interests. Decision makers all too routinely avoid the task of applying knowledge to the task of risk reduction. Ethical arbitrariness is not only tolerated but is also invited in the absence of knowledge as the necessary precondition for ethical choice. This becomes even more problematic in the response phase of a disaster such as Deepwater Horizon.

An examination of the immediate response to any oil spill or blowout disaster often reveals a tragic trail of ethical lapses. It might be suggested that what

ensues in the immediate aftermath of a disaster amounts to a sort of response theater. In efforts to contain the damage to the company image, to contain any negative political fallout, and to limit legal liability to whatever degree possible, oil companies and their executives and political protectors follow a script of sorts. Its main features are as follows:

- Understate the amount of oil spilled or released (this entails controlling access and delaying or preventing independent analysis).
- Understate the environmental impact of the disaster.
- Overstate the effectiveness of the company's response (ultimate success is assured even as long-term impacts are denied or obscured).
- Try to buy off the locals (eg, offer money to locals impacted in exchange for waivers promising not to sue for damages).
- Slap gag orders on anyone doing business with the corporation (especially cleanup workers hired during the response phase who must be kept away from the media).
- Understate any health risks posed to cleanup workers or locals by things such as chemical dispersants or exposure to the oil itself.
- Seek to spread the blame to someone else (partners, nature, act of God, etc).
- Mount a massive PR campaign to reassure the public and to control the damage to the corporate image.

The response theater script does not work perfectly in achieving all of its goals, especially in major

events where initial coverage is intense and public perceptions are difficult to control; however, it works well enough in several major respects to be predictably employed by the oil industry. The first goal of the oil company, of course, is to protect itself against any charges of negligence or misconduct. Union Oil, in the aftermath of the Santa Barbara blowout of 1969, was reasonably successful in redefining the sparsely covered event. Its strategy of redefinition first blamed the disaster on nature (ie, beyond human control) and secondly claimed that the disaster was a minor and insignificant event.²⁴ Exxon, following the Valdez spill of 1989, waged a massive public relations campaign to minimize the impact of the event. They sought to convey that the spill was not very serious, blamed perceived snags in the immediate response or cleanup on the Coast Guard and the state of Alaska, and sought against all evidence to the contrary to portray the spill as resulting not from human error or negligence but, more or less, as an act of God.²⁵ These efforts by Exxon failed as far as public relations are concerned, but were deemed necessary and somewhat effective as a part of a legal strategy to minimize risk to the corporation in the face of inevitable law suits.

BP sought, as an early part of its strategy, to evade responsibility and to spread the blame for the Deepwater Horizon explosion to Transoceanic (the company which owned and operated the drilling platform) and Halliburton (the manufacturer of the complicated safety equipment) and to shift the focus away from any discussion of miscalculations on its part.¹⁷ In addition, it appears to have intentionally underestimated the amount of oil gushing into the Gulf. On April 24, BP announced that only 1,000 barrels per day were leaking into the Gulf. On April 28, the estimate was raised to 5,000 barrels per day. The estimate continued to creep upward to 12,000 barrels per day, to 19,000 barrels per day, to 35,000, and by mid June to 60,000 barrels per day.²⁶ The estimates began to increase only after the public was allowed to view the underwater camera BP had trained on the site. Initially, BP released only short periods of video from limited angles and they allowed no external expert analysis of the flow. When Congress finally forced broader and unrestricted viewing, BP's estimates increased as independent experts began to

disprove the earlier lowball estimates.²⁶ The changing estimates clearly suggest that BP's original estimates may have been a part of an intentional effort to control information and to minimize public perception of the damage.

In both the immediate and the long-term response to a disaster, oil companies remain fixated on legal liability. Their number one concern is the disaster's impact on management, employees, and shareholders. This may be understandable, perhaps logical. Company lawyers would be negligent if they did not advise their clients to take all steps necessary to avoid legal liabilities. However, this almost guarantees that the ethical concerns associated with the prevention of risk and the reduction of harm will not be effectively addressed. Knowledge is not applied to serve values associated with public safety.

In both the predisaster and postdisaster phases, knowledge is not directed toward the meeting of ethical responsibilities. The skewing of knowledge, choosing to ignore or distort what is known in the interest of cost reduction (predisaster) or in an effort to evade legal liability or negative outcomes for the company (postdisaster) are the apparent industry norms. This leads to the lack or absence of knowledge, which is the driving force for decision making. It is a condition that renders ethical decision making impossible because even if there is an articulated intention to promote the value of public safety, the ethical choice cannot be made without the application of the very knowledge being controlled, skewed, or ignored in the pursuit of other values.

The unavailability of knowledge by choice, which most aptly applies to much of what has been described in our discussion in this section, reduces and may even eliminate the possibility for ethical choices by decision makers. As noted in our ethical theory, knowledge is a precondition for ethical choice. It does not guarantee ethical outcomes, but its absence almost always works against them. This is the essential problem that must be resolved if public and private decision makers wish to arrive at ethically sound decisions. It is not a problem that can be easily solved, but there may be some practical steps that can move this process forward.

KNOWLEDGE AS AN ETHICAL IMPERATIVE: FOUR PRINCIPLES

Our quick glimpse at the behavior of BP and other oil companies in various disaster settings indicates that corporate responsibility is often frustrated by a recurring cycle of decisions that work against the application of knowledge to the tasks of risk reduction and safety as a first priority. Management incentives and rewards are not centered on safety or ethical decision making, and this is reflected in both the cutting of corners on cost before an event and the lack of transparency and openness during and after a crisis event. The examples discussed herein suggest that there is a corporate culture that often works against consistently thoughtful and responsible decision making about safety and risk reduction. The relatively weak oversight of the oil industry by regulatory bodies and the apparent reluctance of public policy makers to regulate the industry have only compounded the risks taken and the costs of unethical choices.

Moving forward, there must be a clearer sense of ethical priorities and clearly articulated values to guide private and public decision making. The application of the ethical theory with which this analysis began to the important tasks of risk reduction and public safety requires some basic principles to be identified and some critical steps to be taken. Several principles suggest themselves as logical starting points for guiding any subsequent action. These principles, along with the several action steps mentioned as examples in the discussion to follow, are meant to serve as a foundation for a much needed long-term analysis and discussion as the focusing event known as the BP disaster in the Gulf retreats from immediacy and becomes a vaguely remembered incident.

Elevation of the prohibited risk principle

In conjunction with the basic human rights argument, we have reported that risk is prohibited when the potential harm is a threat to life and vitality. This means that the risk is undetectable by potential victims who must rely on the expertise of others (public and private decision makers) to be protected, the harms are predictable, and there are known methods for the reduction of risks. Beyond this general statement of principle, public policy makers must articulate

precisely which risks we as a people will prohibit and which we will accept. One would suggest that this question should be a critical component in any legislative initiative to assess the BP disaster and/or to craft enhanced regulations for safety.

All risks are typically calculated and applied to planning for and mitigation against predictable disaster impacts. In the context of the ethical theory developed in the emergency management literature, risks defined as “unacceptable” must be “prohibited,” and all other risks must be managed and incorporated into preparedness planning. In addition to informing any subsequent governmental regulation, this perspective must be integrated into the training of public and corporate decision makers. The ethical responsibility to avoid the introduction of prohibited risks must be made clear and not just in the context of legal liability as seems to be the case presently. Likewise, the ethical responsibility to reduce all other risks and to invest in safety should be emphasized as an ethical responsibility and not merely as a legal one. The prohibited risk principle must be elevated and defined as a first priority, and overall risk reduction must also be stressed for all public and private decision makers. This is easier said than done; however, the emphasis of this priority in our political discourse and in the formal education and training of decision makers would seem to be an appropriate place to begin.

Improved risk assessment independently verified

Risk assessment is the basic first step in preparing for any disaster. In most cases, knowledge about present situations, the ability to predict potential risks or harms, and the capacity to develop responses that anticipate future outcomes and to reduce the risks and impacts of a disaster are all possible. This does not routinely happen when oil companies or politicians assess risks (they all too often underestimate them) unchecked. To the degree possible, risk assessments related to oil exploration (especially deep water drilling) should be subjected to an independent expert review and held to the strictest safety standards. Regulatory bodies with industry ties and politicians seeking oil state money and votes have proven inadequate in the past.

Given the number of times we have noted a lax attitude toward investment in safety and the propensity to elevate cost cutting to the level of highest priority in our narrative, it is not unreasonable to suggest that policymakers take steps to enhance risk assessment and insure that it guides decision makers. This ideally can be done in a proper regulatory environment, and lawmakers should be expected to devote some time and attention to addressing the need for that. More ideally, in light of past oversight failures, one is tempted to recommend the creation of a nonindustrial and nongovernmental panel of independent experts to verify the accuracy of risk assessments and to do so in a transparent manner that will be available for public review. This might include the recommendation of appropriate baseline safety procedures and technical guidelines for safety preparedness efforts. Whatever is the mechanism, it is critically important that the knowledge developed during risk assessment be applied to planning for safety and disaster preparedness planning.

Verification of safety preparedness

With the development of reliable risk assessments based on adequate scientific, technical, and predictive knowledge, companies must have an incentive to make adequate provisions for safety and disaster preparedness before proceeding with new drilling sites. The application of knowledge to these efforts must be guaranteed by independent verification of safety and disaster response plans. Policy makers may want to craft regulations to specify that such plans be developed, verified by expert review, and put in place before work may begin on a new site.

One understands that the verification of safety preparedness can be difficult and that oil companies in particular may be reluctant to share best practices and any new technologies they have developed. Yet, given the repeated indications that investment in safety lags far behind the investment in new technologies that expand risks related to deepwater exploration, it is again not unreasonable to be more proactive in holding the industry accountable. It is common in many technological fields to be transparent in the discussion of safety and in the sharing of tools and

techniques for risk assessment and safety design. Establishing requirements to design safety or risk reduction plans, to verify and demonstrate the reliability of these plans, to execute the plans, and to document the implementation of the plans is a professional norm in many technological fields and should be made a stricter requirement and more tightly enforced than has previously been the case with respect to offshore oil exploration.

Incident response transparency

Responding to an incident is (to the degree it is reliant on the technology and expertise of a generally self regulated industry) subject to manipulation by the oil industry. Our assessment of what we have called the response theater demonstrates that it is probably a mistake to rely on the industry for accurate information or openness with respect to the assessment of damages, the calculation of long term impacts, the assessment of ecological damage, or the assessment of health risks to an impacted population or cleanup workers.

In the interest of promoting ethical decision making in the response phase, it is imperative that the response to a disaster or incident be transparent and that there be a reliable assessment by independent experts to calculate damage and to evaluate any risks posed by response techniques (such as the introduction of chemical dispersants) or the application of technical fixes. Appropriate steps must be designed to provide appropriate independent expertise to have access and to be applied so that corporate leaders or governmental actors may not obstruct independent and accurate analysis or skew the perception of a disaster event to cover corporate or governmental negligence.

The application of knowledge to risk reduction and harm prevention is especially critical in response scenarios for response workers and impacted populations. Their safety and health may be compromised if decisions in the response phase of the disaster or incident are not based on the best predictive knowledge. Openness is also critical so that the requirement is met that we learn everything we can from each disaster event and apply the knowledge gained to future risk reduction decisions in general.

CONCLUSIONS

Given the importance we have assigned to knowledge in relation to ethics in industrial and technological settings, it should be considered as the moral imperative for all decision making. It is the necessary foundation or precondition for ethical choice, and it should be applied without compromise to risk reduction and safety. The ethical theory discussed in this analysis establishes that the application of the best technical knowledge, the ability to identify risks and to predict outcomes, the sharing of expertise and information, and the making of ethical choices must be connected first and foremost to the fundamental purposes of preventing prohibited risks that pose unacceptable threats to life and safety and to the reduction of all other risks that may be identified. This must be the first principle that animates all decision makers. As the knowledge base is expanded in relation to the technologies associated with oil exploration and the risks they impose, there must be an equal or greater expansion of ethical analysis and risk reduction.

The common behaviors and practices we have gleaned from Deepwater Horizon and several other well-known disaster incidents demonstrates that decision makers all too frequently discount, underestimate, or ignore what is known or knowable in pursuit of what they perceive to be some greater or more compelling political or economic value. In assessing the ethical implications of these decisions, it becomes clear that they often compromise what our ethical theory suggests is required for the tasks associated with risk reduction and public safety. The four principles we have discussed as a foundation for long-term discussion and analysis represent a means of refocusing our attention on the importance of ethical decision making as an essential ingredient in the reduction of risk and the meeting of responsibilities to the public.

In the industrial world, as we have seen in our brief discussion of the oil industry, there is a need for knowledge in relation to the ethical responsibilities that flow from the ever-increasing possibility that we may inflict great and unacceptable risks on our fellow citizens and the communities in which they work and live. It may be true that to achieve great and mighty deeds, we must be willing to take greater risks, but it

also follows that with greater risks come greater responsibilities. The BP disaster is quickly receding from our minds and any lessons learned from it are illusive with its quick retreat from our immediate attention. The analysis and concluding suggestions made herein are aimed at stimulating renewed thinking and long-term analysis about the meeting of the greater responsibilities that come with great and mighty deeds. This may be the only hope we have of preventing the next disaster.

Robert O. Schneider, PhD, Department of Public Administration, University of North Carolina at Pembroke, Pembroke, North Carolina.

REFERENCES

1. Birkland TA: *After Disaster: Agenda Setting, Public Policy, and Focusing Events*. Washington, DC: Georgetown University Press, 1997.
2. Ott R: *Sound Truth and Corporate Myth: The Legacy of the Exxon Valdez Oil Spill*. Cordova, AK: Dragonfly Sisters Press, 2005.
3. Shrivastava P: Are we ready for another Three Mile Island, Bhopal, or Tylenol? *Ind Crisis Q.* 1987; 1(1): 2-4.
4. Legadec P: *States of Emergency*. London: Butterworth-Heinemann, 1990.
5. Mitchell JK: Improving community responses to industrial disasters. In Mitchell JK (ed.): *The Long Road to Recovery*. New York: United Nations Press, 1996: 10-35.
6. Kirby A: *Nothing to Fear: Risks and Hazards in American Society*. Tucson, AZ: University of Arizona Press, 1990.
7. Petak WJ: Emergency management: A challenge for public administration. *Public Adm Rev.* 1985; 45(1): 3-7.
8. Schneider R: Knowledge and ethical responsibility in industrial disasters. *Disaster Prev Manage.* 2000; 9(2): 98-104.
9. Partridge E: Ethical issues in emergency management. In Comfort LK (ed.): *Managing Disaster*. Durham, NC: Duke University Press, 1988: 330-343.
10. Jonas H: *The Imperative of Responsibility*. Chicago, IL: The University of Chicago Press, 1984.
11. Beatley T: Towards a moral philosophy of natural disaster mitigation. *Int J Mass Emerg Disasters.* 1985; 7 (1) pp. 5-32.
12. Lilla M: Ethos, ethics, and public service. *Public Interest.* 1981; 63: 3-17.
13. Schneider R: Principles of ethics for emergency managers. *J Emerg Manage.* 2006; 4(1): 56-62.
14. Schneider R: The ethical dimensions of emergency management. *Southeast Pol Rev.* 1993; 21(2): 251-267.
15. Shue H: Exporting hazards. *Ethics.* 1981; 91(4): 579-606.
16. McClatchyDC: BP has a long record of legal violations. Available at <http://www.mcclatchydc.com/2010/05/08/93779/bp-has-a-long-record-of-legal.html#ixzzOnAzTzTzdgN>. Accessed June 28, 2010.
17. Hanson K: Safety, corporate responsibility, and the oil spill. Available at <http://www.scu.edu/ethics/practicing/focusareas/bp.html>. Accessed June 28, 2010.
18. Southern Studies: Oil spill reveals dangers of deepwater drilling. Available at <http://www.southernstudies.org/2010/06/oil-spill-reveals-dangers-of-deepwater-drilling.html>. Accessed July 12, 2010.

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19. Energy and Environment Subcommittee: Hearing to explore technologies, standards, and practices. Washington, DC: U.S. House of Representatives, July 12, 2010.
 20. Energy and Commerce Committee: Memorandum from Henry A. Waxman (Chair) and Rep. Bart Stupak (Ranking Minority Member) to Members of the Subcommittee on Oversight and Investigations. Washington, DC: U.S. House of Representatives, May 25, 2010.
 21. Bolstad E, Goodman J, Taylor M: After argument, BP official made fatal decision on drilling. Available at <http://www.mcclatchydc.com/2010/05/26/94859/after-long-argument-bp-official.html>. Accessed June 1, 2010.
 22. Associated Press: Oil spill oversight. Available at http://www.cleveland.com/nation/index.ssf/2010/05/oil_spill_oversight_offshore_d.html. Accessed July 14, 2010.
 23. Urbina I: Ethical lapses: The BP oil spill. *New York Times*, May 24, 2010.
 24. Potter J: *Disaster by Oil*. New York, NY: Macmillan, 1973.
 25. Satchell M, Carpenter B: A disaster that wasn't. *US News and World Report*, September 18, 1989: 61-69.
 26. Hartenstein M: BP oil leak by the numbers. *New York Daily News*, June 24, 2010.