



From Ship to Shore:

Reforming the National Contingency Plan to Improve Protections for Oil Spill Cleanup Workers

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Executive Summary

Eleven workers died on April 20, 2010, when the Deepwater Horizon oil drilling platform exploded beneath them. Since then, tens of thousands of workers have toiled under difficult conditions to stop the leak and clean up the mess. For these workers, the spill is more than an environmental and economic disaster; it poses straightforward and serious risks to their health and safety. Oil is toxic, as are the dispersants used liberally by BP to contain it.

BP's foul up is not the first significant oil spill in the nation's history, nor even the first in the Gulf. The oil companies and government agencies with a stake in guarding against and cleaning up the spills that inevitably accompany oil drilling have had ample opportunity and motivation to devise and hone plans for protecting workers. And yet, thousands of cleanup workers began their work in the Gulf without the training and guidance necessary to ensure their safety in the face of hazardous conditions.

The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) eventually settled on policies for training workers and requiring appropriate safety gear. Their response undoubtedly helped limit the risks the workers faced. But the time it took to settle these policies put into sharp focus a significant problem in our nation's emergency response policies: OSHA and NIOSH had only limited roles in the planning process and in the development of implementing regulations, a failing that badly slowed the government's response on the worker-safety front. From this "original sin" flowed a number of negative consequences, some of which compromised the health and safety of cleanup workers.

- Too many workers in the Gulf were given inadequate training on the use of personal protective equipment. Employers and individual workers were thus left to determine on their own how to resolve the difficult question of what level of PPE was appropriate for their particular work environments. The most difficult issue was respirator use. A properly worn and properly functioning respirator puts additional stresses on the cardiovascular system, creating acute hazards that might be more dangerous than the long-term hazards of exposure to the air contaminants the respirator is designed to filter, particularly in the heat and humidity of the Gulf coast summer.
- Contractor and individual worker decisions about safety gear were complicated by an insufficient understanding of the chemical exposures faced by workers engaged in various tasks. No one knew the precise contents of the oil dispersants applied by BP because they were protected for several months as confidential business information under EPA's liberal trade secrets policies. Moreover, toxicity testing required by the Oil Pollution Act only assessed ecological toxicity, not toxicity to human health.
- Air quality monitoring designed to characterize worker exposures was inconsistently summarized and published by BP and OSHA.

- BP's medical recordkeeping following the explosion of Deepwater Horizon appeared to under-report workers' injuries and illnesses, in part because OSHA's regulatory definitions enabled employers to avoid reporting certain health effects.

Significantly, OSHA and NIOSH also did a number of things well.

- OSHA quickly moved additional personnel to the region, thus enabling frequent site visits to address worker safety and health hazards.
- OSHA overcame an early and significant jurisdictional problem, extending through a Memorandum of Understanding with the federal on-scene coordinator the reach of its worker safety authority beyond the three nautical mile limit from the shoreline.
- OSHA and NIOSH developed a "matrix" of various tasks in which cleanup workers were engaged, a model that could be used to improve planning for future oil spills.
- NIOSH attempted to compile a roster of all workers involved in the cleanup so that it could more readily track health effects.
- NIOSH began a Health Hazard Evaluation and published interim reports of its work.

This report offers five specific recommendations:

- EPA and the Coast Guard should require Regional Response Teams and the oil industry to develop a matrix of likely or foreseeable cleanup tasks for each level of spill, from routine to worst case scenario, in consultation with NIOSH and OSHA. The cleanup task matrix should be the basis for planning task-specific levels of training, air quality monitoring and sampling protocols, and personal protection equipment (PPE) choices.
- EPA and the Coast Guard should include OSHA in the chain of command that approves Regional Contingency Plans and site-specific contingency plans in order to ensure that cleanup workers' health and safety are properly addressed.
- EPA and the Coast Guard should require a NIOSH Health Hazard Evaluation for any spill that demands a significant number of cleanup workers or long-term cleanup efforts, paid by the company responsible for the oil spill.
- As they revise the National Contingency Plan, EPA and the Coast Guard should consult with volunteers, employees of oil spill response organizations, and occupational health specialists who have been involved in major disasters including the *Valdez*, *Prestige*, and *Horizon* spills.
- To ensure that adequate training and worker protection are provided, regulators should permanently adopt the provisions of the June 10 Memorandum of Understanding between OSHA and the federal on-scene coordinator that guarantee OSHA's leadership is included in all consultations about the implementation of cleanup under the national and regional contingency plans.
- The White House should seek an emergency, supplemental appropriation for OSHA to support the substantial extra resources required to participate in this unprecedented response. Already operating on a shoestring budget, the failure to grant substantial additional resources to the agency will only endanger other workers for the sake of workers in the Gulf.

Introduction

“Tonight, I’ve returned from a trip to the Gulf Coast to speak with you about the battle we’re waging against an oil spill that is assaulting our shores and our citizens.”

– *President Barack Obama, June 15, 2010*¹

President Obama, Admiral Thad Allen, and seemingly every other public figure involved in the response to the explosion of the BP Deepwater Horizon drilling platform referred to the oil spill in terms more befitting a military operation than an uncontrolled plume of hydrocarbons. But for the people on the front line of the response and cleanup who are being assaulted daily by the sun, oppressive humidity, crude and weathered oil, and air contaminants from multiple sources, the military analogy might be welcome—if it were to bring them protection. In the place of boot camp, they would get week-long training in recognizing and avoiding occupational hazards. In the place of flak jackets and gas masks, they would be issued appropriate protective clothing and fit-tested respirators. And in the place of commanders who constantly adjust tactics and strategies, they would be supported by public health professionals who carefully monitor health threats and insist on rigorous risk management.

In the months following the Deepwater Horizon explosion, occupational health professionals both inside and outside the government raised serious concerns about the issues of cleanup workers’ training, workers’ personal protective equipment, monitoring for air contaminants, health and safety recordkeeping, and jurisdictional limitations on federal agencies’ authority to protect workers. The Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH) have only limited roles in the planning process and development of implementing regulations under the Oil Pollution Act of 1990, the statute governing oil spill response. In part for that reason, thousands of cleanup workers began their work in the Gulf without the training and guidance necessary to ensure a safe workplace. Insufficient training was a serious concern because many of those workers had little experience dealing with the hazards of an oil spill and a significant number of them were dealing with economic vulnerabilities directly caused by the spill and the very companies that were now paying their wages to clean the mess. After the well was plugged on a contingent basis and the story faded from the nightly news, the thousands of workers who had spent days, weeks, or months cleaning the spill headed home to confront the economic and health consequences of spilled oil, dispersants, and long hours working in hazardous conditions.

OSHA and NIOSH staff developed workable solutions to problems with training, air monitoring, personal protective equipment, and recordkeeping in the weeks following the spill, demonstrating how invaluable their expertise is during the response—and would have been in developing initial regulations, had they been involved in that process. Unfortunately, the failure to bring OSHA and NIOSH into the advance planning for spills meant that

several weeks of cleanup work were undertaken before their expertise was brought fully to bear, a high and gratuitous price to pay. Records indicate that hundreds of workers have fallen ill or suffered injuries since the start of cleanup work. The failure to fully involve OSHA and NIOSH in the disaster-response planning process is unacceptable, given the lessons learned during other catastrophes, such as the extended response to the terrorist attacks of September 11, 2001, when lack of training and implementation mistakes led to chronic adverse health effects.

By almost any measure, the toll of the BP spill has been high. On the worker safety front, eleven lives were lost, and tens of thousands of workers streamed to the region to take on hazardous assignments in the midst of uncertainty over the ramifications for their own health. Since good data are not available, no one knows the precise number and distribution of workers exposed to the oil, its byproducts, chemical dispersants, or any of the other physical and chemical hazards associated with the cleanup. But the influx of cleanup workers, particularly workers who do not have experience cleaning oil spills, raised concerns in the occupational health and safety community about the workers' well-being, their training, and the government's role in protecting workers.

Wholly apart from the reexamination of the environmental issues involved in the spill and in deepwater drilling in general, worker safety during cleanups is an area that demands thorough rethinking. Workers doing the difficult work of cleaning up after spills should have confidence that the risks they face are being properly managed. The agencies responsible for overseeing such cleanup must therefore develop regulations that establish baseline protective measures, based on well-designed hazard analyses, consultation with experts at OSHA and NIOSH, and a proper balance of acute and chronic risks.

The lead agencies in implementing the Oil Pollution Act, the Environmental Protection Agency (EPA) and the Coast Guard, need not wait for Congress to act. The law instructs them to amend the National Contingency Plan "from time to time," and the lessons learned during the course of the response to the BP spill provide a roadmap for reform.

After assessing how well federal agencies carried out their role of protecting workers engaged in the clean-up effort, this report offers a series of specific recommendations for improving the government's response in future disasters. They focus on requiring better planning from industry, involving OSHA in the planning process in advance, collecting data during such incidents in order to help with future planning, creating permanent regulations based on the temporary rules used to ensure the safety of workers responding to the Gulf spill, and securing funding to support these efforts.

Before the Spill – The Oil Pollution Act, the National Contingency Plan, and Willful Disregard for Cleanup Worker Safety

In the aftermath of the Exxon *Valdez* spill, Congress passed the Oil Pollution Act of 1990, which, among other things, revised the federal government's approach to planning for and responding to oil spills. The National Contingency Plan is a joint program of EPA and the Coast Guard that establishes a coordinated system of response plans. With specificity that increases as the plans are more geographically focused, the National Contingency Plan, Regional Contingency Plans, Area Contingency Plans, and facility- or vessel-specific plans outline the command structure and basic elements of a response to oil spills of all sizes. The National Contingency Plan is laid out in the Code of Federal Regulations. It was drafted through notice-and-comment rulemaking. Thirteen Regional Contingency Plans provide the next level of detail. They are drafted by Regional Response Teams (RRTs) comprising representatives from the various federal agencies that would have jurisdiction over issues related to oil spills and some local officials. The third level of government planning is the series of Area Contingency Plans, which are drafted to complement the Regional Contingency Plans and go so far as to list specific materials that facility and vessel operators should have on hand to respond to a spill. They are approved by either EPA (for onshore facilities) or the Coast Guard (for vessels). Finally, industry is responsible for drafting site-specific Oil Spill Response Plans, based on regulations and guidance from EPA (for inland facilities), the Coast Guard (for vessels), and the Minerals Management Service (MMS) (for facilities on the Outer Continental Shelf).

These documents, beginning at the national level, consistently pass responsibility for ensuring worker safety down the line to the next entity that has a duty to participate in planning process, ending with the subcontractors that the oil companies hire to be “on call” in the event of a spill. But as they pass the buck, they never establish mechanisms for ensuring accountability at the next level for worker safety and health. The final entities, the oil companies' subcontractors, have failed to fill in the gap, a lapse that regulators have not seen fit to correct.

The National Contingency Plan gives OSHA inspection authority after a spill and a seat on the National and Regional Response Teams, but the Plan itself simplistically states that response actions should comply with OSHA standards, including the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, without including any mechanisms to verify compliance.² In 1994, during the public comment period on the last major revisions to the National Contingency Plan, one stakeholder raised concerns about worker safety issues that foreshadowed a major problem in the early response to the BP spill:

[The National Contingency Plan should] clarify the applicable Federal, State, and local roles in determining and enforcing worker training and safety requirements, particularly in the maritime environment where there

The National Contingency Plan does not establish proper mechanisms for ensuring accountability for worker safety and health.

is the greatest potential for overlapping jurisdiction. The commenter asserted that two agencies, USCG and the Occupational Safety and Health Administration (OSHA), potentially are charged with enforcing worker safety requirements during spill response. The commenter explained that it is essential that safety training requirements be established and clearly understood so that appropriate training can be conducted prior to an actual spill.³

In response, EPA concluded that it is sufficient to simply state that all aspects of the National Contingency Plan must comply with all applicable OSHA regulations, because “[t]he details involved in implementing these requirements will be addressed during the Area Committee/area contingency planning process.”⁴

At the regional level, the story is the same: the authors of these supposedly more specific and detailed plans delegate responsibility to the next level down without establishing procedures for verifying that cleanup workers’ health and safety are being properly considered. In fact, the Regional Contingency Plans may be the worst offenders, since OSHA staff are directly involved in the development of the Regional Contingency Plans and yet the plans fail to adequately provide assurances that cleanup workers will have safe and healthy work environments. For example, the Region IV Regional Contingency Plan, which covers spills in the Gulf of Mexico, has little detail on protecting worker safety other than stating that response efforts should comply with HAZWOPER and other OSHA standards and that OSHA should provide technical assistance to the federal on-scene coordinator (OSC). In fairness, the Region IV Regional Contingency Plan includes a well-conceived requirement that the OSC “review and ensure that a health and safety plan has been prepared and implemented “[u]pon the arrival of the OSC at an incident.”⁵ However, no such plan for the BP spill is available on the Unified Command, OSHA, NIOSH, or Region IV Regional Response Team websites.

The Area Contingency Plans tend to follow a standard format, based on the structure of the relevant regional plan. A review of the plans gives the impression that they are designed for the small spills that are more common to the region. For the most part, Area Contingency Plans are nothing more than operational checklists that aid in mobilizing government agencies and the contractors who clean up most oil spills, and EPA’s expectation that worker safety and training issues would be addressed in the area planning process is not met. The only discussion of cleanup workers’ health and safety is a blanket assumption that all responders working for organizations identified in the plan have received proper HAZWOPER training. There is no mechanism for testing that assumption since neither the HAZWOPER regulations nor the contingency plans establish a means by which OSHA could verify training, other than through a normal workplace records inspection. Moreover, by definition, the HAZWOPER regulations do not apply to volunteers or any public sector workers, and temporary workers with employment terms other than the standard employee-employer relationship could easily fall through the cracks.

Finally, there are the site-specific plans, which are equally light on specifics about how cleanup workers will be protected. Consider, for example, BP's much maligned Regional Oil Spill Response Plan for the Gulf of Mexico, which is the effective vessel/facility-specific plan for the Transocean Deepwater Horizon.⁶ It lacks any real discussion of the need to protect for cleanup workers' health and safety. It could more accurately be described as documentation of BP unloading that responsibility on the Oil Spill Response Organizations (OSROs)—the subcontractors it has hired to handle spill cleanup. The contracts between BP and the OSROs are not readily available, so we are left with nothing more than BP's assurance that the OSROs will train their workers according to OSHA's HAZWOPER regulations.

If subcontractor employees were the only workers involved in spill cleanup (e.g., in the case of a small spill), then an assurance from the OSRO that all workers are trained according to the HAZWOPER regulations would probably be reasonable. The regulations have a generally good approach to worker health and safety, including:

- A requirement that employers establish an occupational safety and health program;
- Training requirements that vary with employees' responsibilities;
- Appropriate use of personal protective equipment, depending on exposure; and
- Air quality monitoring requirements.

However, in a major spill, everything changes. The number of workers involved in cleanup efforts increase dramatically, as does the time they spend on those efforts. Workers who do not normally work in the oil spill response field take on new responsibilities. Response tactics expand from simply skimming the oil off of the water or removing it from land to in-situ burning and application of chemical dispersants. Each of these factors affects exposure scenarios, risks, and, ultimately, how industry and government should plan to protect workers. But since planning for the worst case spill has been treated as simply preparing to clean up more oil rather than a fundamentally different endeavor, provisions for cleanup workers' health and safety have been left in limbo until their work begins.



PHOTO COURTESY OF WIKICOMMONS

Here, workers clean up a beach in Port Fourchon, La. in May.

After the Spill – Questions about Cleanup Worker Health and Safety

An appropriate program to protect cleanup workers involves four elements of occupational safety and health policy:

1. Workers' training;
2. The availability and use of personal protective equipment (PPE);
3. Air quality monitoring; and
4. Injury and illness recordkeeping.

The design of these protective elements should be based on the precautionary principle in light of our lack of basic knowledge about the long-term health effects of this type of work on the cleanup crews. While the precise definition of the precautionary principle is a matter of ongoing debate, its implementation in this situation is clear. We know that thousands of workers are being exposed over an extended period of time to a variable mixture of hazardous chemicals, potentially through multiple routes of exposure, but we do not understand the long-term effects of those exposures on an individual or population scale.⁷ In the face of likely—even if ill-defined—adverse health outcomes, employers have an obligation to institute protective risk management practices and the government has a responsibility to take swift and effective enforcement action against those who do not do so. Those obligations include thorough training that will enable workers to identify and respond to hazards, proper PPE depending on exposure, and expansive monitoring and recordkeeping to track workers' health and aid in development of better data for future planning.

Training

Since the magnitude of the spill overwhelmed the capabilities of the OSROs in the Gulf Region, BP, its contractors and subcontractors, as well as state and local government agencies, hired thousands of new workers and employed numerous shrimp boats, fishing boats, and other “Vessels of Opportunity.” Volunteers, including members of the National Guard, also provided unpaid assistance to the cleanup efforts. Even local prisoners combed the beaches for oil. Three characteristics of the workforce underscore the necessity of good training: the sheer size of the workforce (roughly 50,000 workers at its peak); the large percentage of the workforce that lacked oil spill cleanup experience; and the vulnerability of workers who were employed on a temporary basis or were put out of work by the same companies now offering them an opportunity to get at least some income from their idled equipment.

The agencies involved in oil spill responses developed a range of training courses, from 45-minute basic training provided to support staff who would not be in the field, up to a comprehensive 40-hour course for supervisory positions. Workers who would experience direct and extended exposure to the full array of chemical and physical hazards at the spill

site (e.g., workers with “skimming” or “booming” responsibilities) were eventually required to take an 8-hour course, although that course was a shortened version of the 24-hour training normally required under OSHA’s HAZWOPER standards. BP and the Unified Command relied on a 1990 OSHA guidance determination that allows employers to provide less than the standard 24-hour HAZWOPER training course in order to mobilize as many oil spill cleanup workers as possible as quickly as possible.⁸

But Joseph Hughes, director of the National Institute of Environmental Health Sciences (NIEHS) worker training program, has pointed out that the exemption from normal training requirements was predicated on an assumption that the workers who would receive the shortened training would not be exposed to crude or weathered oil, an assumption that has been overlooked in the Gulf, where most workers were allowed to begin work after eight hours of training or less.⁹ Staff from NIOSH have also suggested that workers did not receive proper training. In its second interim Health Hazard Evaluation, NIOSH reviewed records from an infirmary set up for workers in the Venice, Louisiana area. Workers visited the infirmary more than 1000 times in June 2010, and 25 percent of those visits resulted in a referral to a clinic or medical transport offsite. The interim report bluntly states, “Health and safety training should be provided to workers on an ongoing basis to prevent work-related injuries and illnesses.”¹⁰

Media reports indicated that OSHA delayed releasing new training guidelines because it was not “satisfied with BP’s proposed improvements.”¹¹ This information supports the concerns of workers and their advocates that the Unified Command decisionmaking system was being manipulated by BP. The company was paying the full cost of all workers’ training but has, in the past, promoted a corporate culture of simplistic cost-benefit analysis in making safety determinations.¹² To assuage these concerns—and as a matter of traditional administrative policy—OSHA or the Unified Command should provide a public justification and rationale for deviating from the HAZWOPER training standards.

Shortcomings in the oil spill contingency planning process are also partly to blame for the confused policies on worker training. The process does not require the government or oil companies to predict the various tasks that would be required of cleanup workers employed for different types of spills or link those tasks to specific training requirements. As a result, the Unified Command, with assistance from OSHA, NIOSH, NIEHS, and others, had to make on-the-spot decisions about training requirements.

Personal Protective Equipment

A failure to predict and plan for the full spectrum of cleanup activities also led to confusion over the proper use of personal protective equipment (PPE). OSHA’s PPE strategy was not clearly articulated until late June, when the agency published a “PPE matrix” and interim guidance document.¹³ The PPE matrix highlighted sixteen different cleanup tasks that were performed in the Gulf and describes OSHA’s PPE recommendations for each task. The

guidance document provided additional detail, including a full discussion of engineering and administrative controls that should be exercised before resorting to respirator use.

In the two months between the start of the spill and the publication of these documents, thousands of workers arrived on the scene, began cleanup activities, and established habits respecting the use of PPE based on assurances from BP that the weathered oil on the beaches and near shore is minimally toxic and that airborne chemical exposures present negligible risks. During that time, OSHA and NIOSH remained mostly quiet about protective equipment, usually referring to general regulations and guidelines.

Employers and individual workers were thus left to determine on their own how to resolve the difficult question of what level of PPE was appropriate for their particular work environments. Resolution of the question was complicated by an insufficient understanding of the chemical exposures faced by workers engaged in various tasks and the heat and humidity of working in the Gulf region in the summer. No one knew the precise contents of the dispersants because they were protected for several months as confidential business information under EPA's liberal trade secrets policies. Moreover, the toxicity testing required by the Oil Pollution Act only assessed the dispersants' ecological toxicity, not their effects on human health. Finally, although the constituents of the crude oil are fairly well characterized, a full understanding of their individual and cumulative toxicity has not been reached.

Employers and workers also lacked guidance concerning respirator use. A properly worn and properly functioning respirator puts additional stresses on the cardiovascular system, creating acute hazards that might be more dangerous than the long-term hazards of exposure to the air contaminants the respirator is designed to filter, particularly in the heat and humidity of the Gulf coast summer. Choosing the proper respirator depends on an individual worker's baseline respiratory health and the respirator must be fit-tested by qualified personnel to ensure proper functionality, two additional layers of concern for the thousands of new and inexperienced workers involved in the cleanup.

As if the decisions regarding the proper PPE for a given work environment were not difficult enough, workers—particularly temporary workers and workers who were supplementing or replacing lost income caused by the spill—had to contend with employment relationships in which they were not empowered to demand proper health and safety protections. Clint Guidry is the head of the Louisiana Shrimp Association, whose members operate many of the booming and skimming Vessels of Opportunity. In testimony before federal investigators in May, he highlighted the workers' vulnerability when he disclosed that some of his members were threatened with termination of their contracts with BP if they brought respirators to the job.¹⁴

The delay in OSHA's and NIOSH's development of the PPE matrix and related guidance left many workers without a trusted voice of reason. In the end, the government's guidance reflects the conventions that had developed in the Gulf. OSHA and NIOSH suggest widespread use of protective clothing to shield workers from dermal contact with crude

and weathered oil, but the agencies promote only the most limited use of respirators. The guidance document published alongside the PPE matrix provides a qualitative discussion of the risks that OSHA and NIOSH assessed in making their decisions, making it clear that, from the agencies' perspective, the acute risks of heat stroke, impacts on mobility, and general discomfort of full PPE outweigh the risks posed by airborne chemical exposure.

The PPE matrix and supporting guidance should have been developed in the planning process, and likely would have been if OSHA had been given a more significant role.

Air quality monitoring

A functional understanding of the hazards to which workers are exposed is the first step in choosing the right training, PPE, and other risk management techniques. The Unified Command relied on BP to develop an air monitoring plan to address worker exposure as the spill unfolded. The hastily drawn up plan calls for collection of an impressive amount of data, but it lacks any mechanisms to ensure the data are shared with relevant federal officials.¹⁵ Eileen Senn, a former OSHA inspector, has criticized the plan for not requiring all of the right sampling techniques and analyses.¹⁶ Media reports suggest that OSHA has access to at least some of BP's data, but the extent and terms of OSHA's access are unclear. OSHA has conducted its own sampling and provided some analysis through its website but, again, the initial reports were criticized for a lack of clarity. Updates to the website have significantly improved the quality of the reports. However, the amount of data being made available to the public remains paltry as compared to the amount of data that should be being generated under BP's plan. OSHA and the Unified Command are asking workers and the public to trust them that chemical exposures do not present health risks. But from past experience with the government's treatment of air quality concerns at disaster sites—in particular, the World Trade Center—the federal response team needs to build trust on a foundation of transparency.

Critics of BP's and OSHA's monitoring raised three concerns: Are exposures being monitored in a structured, task-specific way? Are the sampling methods and analytical protocols capable of fully characterizing exposures? And, is too much emphasis being placed on comparison of exposures to outdated or irrelevant Permissible Exposure Limits (PELs)? OSHA appears to have considered these issues. Their air monitoring program is designed and reported in a task-specific format. Sampling has expanded beyond BP's original design. And OSHA's top official, David Michaels, has plainly stated: "No one should be using a PEL to make a statement about safety or lack of safety of an exposure. ... In the Gulf and elsewhere, we're not relying on the PELs in terms of protecting workers. Exposures below the PEL are still dangerous."¹⁷ But, without public access to the results of the monitoring, it cannot be verified that workers have been properly protected. BP will undoubtedly have to release its air monitoring data in the course of litigation, but immediate publication will allow for precautionary policies to protect cleanup workers and will ensure that BP cannot get the data kept under seal as part of the litigation (as happened after the *Valdez* spill).

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Injury and illness recordkeeping

Regulators should use injury and illness data collected during the early stages of a response to a major spill to alter risk management decisions that apply through the remainder of the cleanup efforts. Unfortunately, BP's recordkeeping following the Horizon explosion, in striking similarity to recordkeeping following the *Valdez* spill, reflects concern more for limiting corporate liability than for protecting cleanup workers. In its second interim Health Hazard Evaluation, NIOSH found that BP reported only 1017 injuries and illnesses in all of Louisiana over a two month period, whereas NIOSH found records of 1004 visits to a single infirmary in the state during the final four weeks of the same period.¹⁸

Besides BP's desire to limit its liability to injured workers, the discrepancy is related to OSHA's regulatory definition of reportable injuries and illnesses. Common symptoms reported by cleanup workers, such as headaches, dizziness, nausea, and decreased respiratory function might not be considered "recordable" under OSHA regulations, thereby enabling employers to avoid reporting health effects that may need to be addressed through changes to work practices or other controls. The "*Valdez* crud" was a term coined to describe what Exxon argued were just cold or flu symptoms, but which some workers and public health advocates argue were adverse health effects caused by exposure to chemicals in the spill response. When cleanup workers in the Gulf of Mexico reported similar symptoms, BP's CEO hypothesized that the cause might be food poisoning rather than hazardous working conditions. Congressman Jared Polis, in a June 23 hearing on cleanup worker health and safety, questioned whether OSHA's recordkeeping regulations, which include exemptions for food poisoning and the common cold or flu, would prevent OSHA and NIOSH from fully understanding the health effects of cleanup work.¹⁹ David Michaels, presaging the release of the second interim HHE, replied that OSHA and NIOSH are taking steps to gather reports of spill-related injuries and illnesses that are not "recordable" under existing regulations. Expanded recordkeeping could enable better analysis of health risks and risk management options, and improve planning for future response efforts.

Successes

The things that OSHA, NIOSH, NIEHS, and other members of the Unified Command have done well in terms of worker health and safety are often overlooked. Ignoring the lessons that the agencies are learning threatens the health and safety of future cleanup workers, who would benefit from reforms to the National Contingency Plan based on the best practices being established now. Four key elements of the agencies' response to the BP spill should serve as the building blocks for reform.

To begin, OSHA moved additional personnel to the region in a timely manner. The influx of OSHA staff to the region created a concentration of inspectors that could help ferret out problems and ensure they are addressed quickly. By the end of July, OSHA inspectors had made over 2,600 visits to cleanup sites and had assigned 32 staff to duties exclusively related to the spill.²⁰

OSHA also signed a Memorandum of Understanding (MOU)²¹ with the federal OSC that helped resolve some of the jurisdictional and bureaucratic problems that were built into the National Contingency Plan. The MOU essentially erases the barrier at three nautical miles from the shoreline that could have limited OSHA's ability to inspect worksites and ensure all workers are properly protected. It formalizes a referral policy whereby the federal OSC and OSHA have reciprocal duties to notify each other of potential hazards within the other agency's jurisdiction. The MOU also ensures the federal OSC and OSHA will share press releases and other public statements before they are made, thereby giving OSHA a stronger voice in the recovery and cleanup efforts.

The "PPE matrix" and interim guidance that OSHA developed should be the basis of revisions to the Regional Contingency Plans. They provide a starting point for predicting the multitude of cleanup tasks and defining the proper administrative or technological controls and protective equipment that employers should use to protect workers from occupational hazards.

NIOSH undertook efforts to establish a roster of all workers involved in the cleanup. We learned from the post-9/11 World Trade Center response and cleanup that the task of tracking health effects is incredibly difficult without baseline data on health and records regarding workers' activities. The roster will be an element of a larger Health Hazard Evaluation (HHE), which NIOSH has begun and which will be an important tool for understanding the long-term impacts of cleanup activities on the workers who perform them. At a June 22 meeting hosted by the National Academies' Institute of Medicine, epidemiologist Nalini Sathiakumar noted that of the 38 supertanker oil spills that have occurred, just seven have been followed by epidemiological studies.²² NIOSH could help close the gap in research about long-term effects of oil spill response work if a request for an HHE were automatically made when a major spill occurs.

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Preparing for the next “big one”

The United States’ remaining oil reserves are located in hard-to-reach areas that increase the risk of accidents and spills. EPA and the Coast Guard, as the lead agencies in the National Contingency Plan/Regional Contingency Plan system, must recognize the substantial risk of other large-scale spills and improve plans for ensuring cleanup worker safety in the event those spills happen.

Many of the concerns that arose during the course of the cleanup efforts could be addressed if the National Contingency Plan regulations required Regional Response Teams and the oil industry to develop a “matrix” of likely or foreseeable cleanup tasks for each level of spill, from routine to worst case scenario. NIOSH and OSHA should provide guidance on development of the matrix, based on their experience in developing one for the BP spill. The cleanup task matrix should be the basis for planning task-specific levels of training, monitoring and air sampling protocols, and PPE choices. OSHA and NIOSH should base certain elements of the guidance on specific concentrations of air contaminants. For example, the volatile chemicals in crude oil are well known, so OSHA and NIOSH could establish requirements for respirator use and administrative controls that are triggered by specific airborne concentrations of those chemicals, with allowances for exemptions or reduced use based on worker health and environmental conditions. Given the broad recognition that OSHA’s Permissible Exposure Limits are outdated and not adequately protective, the numbers should be based on NIOSH Recommended Exposure Limits, ACGIH Threshold Limit Values, or other appropriate guidelines. If the OSHA and NIOSH guidance is detailed enough, it could be incorporated directly into Regional and Area Contingency Plans or site-specific plans.

To ensure that cleanup workers’ health and safety are properly addressed at all levels of the planning process, OSHA should also be given a greater role in approving Regional Contingency Plans and site-specific contingency plans. These back-end protections are necessary to verify that generic guidance is not just repeated verbatim throughout the planning process, but rather that each successive level of planning incorporates additional detail based on the generic guidance.

The National Contingency Plan and the various regulations governing the content of site-specific plans should also be revised to mandate a NIOSH Health Hazard Evaluation for any spill that requires a significant number of cleanup workers or long-term cleanup efforts. In its current form, the HHE program offers evaluations to employers who request them, free of charge. By contrast, after making an HHE request standard operating procedure for certain oil spills, NIOSH should have the authority to demand payment for the HHE from the responsible party.

As the relevant agencies prepare changes to the National Contingency Plan and related regulations, they should consult with volunteers, OSRO employees, and occupational health specialists who have been involved in major disasters including the *Valdez*, *Prestige*, and Horizon spills. Their perspective on implementation of the contingency plans could greatly improve the utility of the plans.

The procedures for sharing information and coordinating oversight of worker health and safety that were memorialized in the June 10 Memorandum of Understanding between OSHA and the federal OSC should be incorporated into the National Contingency Plan and all Regional Contingency Plans. OSHA's role in the hierarchy of command must be commensurate with the number of workers and volunteers involved in oil spill response activities, and jurisdictional boundaries must be loosened to ensure that every individual involved in the response efforts has a safe and healthy work environment.

Finally, OSHA and NIOSH need additional resources. Adjusted for inflation, OSHA's budget has remained roughly stagnant since the early 1980s, despite a growing workforce and increasingly complex occupational hazards.²³ Congress should provide OSHA and NIOSH dedicated funds for normal oversight of the National Contingency Plan development process, as well as emergency appropriations or a renewable fund that could be tapped on an emergency basis to respond to future spills.

Conclusion

The National Contingency Plan needs to be improved so that it is more than just a checklist of agencies to be notified and materials that should be on hand in case of an oil spill. It needs to account more fully for the human consequences of a spill. To that end, it should embody the “plan-do-review-repeat” concept found in good occupational safety and health programs. It should be a structured, iterative process for ensuring workers are safe and employers and the government are always improving worker protections. The agencies responsible for implementing the National Contingency Plan can start changing the regulations immediately, as Congress has provided ample authority to reform the plan at any time.

Endnotes

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