BP's Deepwater Horizon Oil Spill

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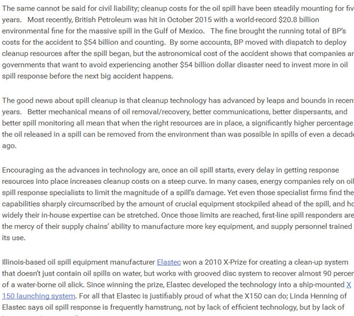
David Vidrine, one of the two rig supervisors of the Deepwater Horizon offshore oil platform, will probably have a happier holiday season this year than he'd been anticipating. On Dec. 2, 2015, the Justice department dropped manslaughter charges against Vidrine for the 2010 accident on the Deepwater Horizon that caused 11 deaths and the nation's worst offshore oil spill. Vidrine will instead be allowed to plead to a misdemeanor violation of the Clean Water Act. With the reduction of charges against Vidrine and another supervisor, Robert Kaluza, to misdemeanors, all British Petroleum (BP) employees now seem to have avoided serious criminal liability for the accident.



The same cannot be said for civil liability; cleanup costs for the oil spill have been steadily mounting for five years. Most recently, British Petroleum was hit in October 2015 with a world-record $20.8 billion environmental fine for the massive spill in the Gulf of Mexico. The fine brought the running total of BP's costs for the accident to $54 billion and counting. By some accounts, BP moved with dispatch to deploy cleanup resources after the spill began, but the astronomical cost of the accident shows that companies and governments that want to avoid experiencing another $54 billion dollar disaster need to invest more in oil spill response before the next big accident happens.

The good news about spill cleanup is that cleanup technology has advanced by leaps and bounds in recent years. Better mechanical means of oil removal/recovery, better communications, better dispersants, and better spill monitoring all mean that when the right resources are in place, a significantly higher percentage of the oil released in a spill can be removed from the environment than was possible in spills of even a decade ago.

Encouraging as the advances in technology are, once an oil spill starts, every delay in getting response resources into place increases cleanup costs on a steep curve. In many cases, energy companies rely on oil spill response specialists to limit the magnitude of a spill's damage. Yet even those specialist firms find their capabilities sharply circumscribed by the amount of crucial equipment stockpiled ahead of the spill, and how widely their in-house expertise can be stretched. Once those limits are reached, first-line spill responders are at the mercy of their supply chains' ability to manufacture more key equipment, and supply personnel trained on its use.

Illinois-based oil spill equipment manufacturer Elastec won a 2010 X-Prize for creating a clean-up system that doesn't just contain oil spills on water, but works with grooved disc system to recover almost 90 percent of a water-borne oil slick. Since winning the prize, Elastec developed the technology into a ship-mounted X 150 launching system. For all that Elastec is justifiably proud of what the X150 can do; Linda Henning of Elastec says oil spill response is frequently hamstrung, not by lack of efficient technology, but by lack of investment in preparedness.

"With the current low price of oil, capital costs are relatively higher and market investment in spill preparedness is way down. When a big spill hits, we move to get our production capacity up to speed as fast as possible, but the X150 is sophisticated machinery and a unit can't be built in just a few days."

Henning believes that energy firms need to fundamentally change the way they conceive of oil spill response.

"Nobody wants them, but spills are going to happen. The industry needs to think of spills like we've come to think of fire response. We build fire stations and fire engines and put them where they're likely to be needed so they're ready when fires break out. Energy companies need to analyze where their greatest points of vulnerability are and get at least some response equipment positioned nearby. Some of the smartest companies we sell to are already doing this, but many more aren't."

PowerPlus Disaster Clean Up (DCU) of Anaheim, CA supported dozens of cleanup teams in the Gulf of Mexico during the 2010 BP Deepwater Horizon spill. DCU's founder and owner, Kevin Wang, has nothing but praise for BP during his interaction with the company during the spill.

"They told me do everything you can, do it as fast as you can, and don't worry about what it costs."

Despite BP's post-spill flexibility, DCU had to conquer similar production challenges to those Elastec faced. To meet the demand that exploded literally overnight once the leak started, Wang had to accelerate the production line that builds his flagship oil extraction unit, the Prodigy Bio, to three shifts a day operating at 100% capacity. That was possible only because DCU had already invested time and money developing training materials and techniques for a crash employee education program long before the spill occurred.

Wang noted,

"We've spent years setting up a training system that lets us take someone off the street and get them rapidly trained with videos, hands-on practice, and color-coded samples as production templates, so they could be integrated literally overnight into the Prodigy production line."

Wang is not shy in extolling the Prodigy, noting DCU has spent more than 25 years refining it so it can be configured to clean up anything from nuclear contamination, to anthrax, to oil spills. It can be used on a huge variety of surfaces, including living animals and plants, dirt and sand, underwater structures, ships at sea, and homes and businesses.

However, the very versatility of the Prodigy, which can be configured to run at anywhere from room temperature and pressure up to 4,000 lbs psi of pressure, using super-heated water, and near-perfect vacuum extraction, means it has to be handled with care; at max temp and pressure, the machine can easily blow a 2'x4' into pieces. Knowledgeable crews are a necessity so they can work at maximum efficiency while operating the gear at appropriate power levels to avoid damaging the flora and fauna at spill sites.

During the BP oil spill, while half of Wang's company was rushing to crank-up his production line, the other half was fighting to make sure the units they produced were used correctly when they got to spill sites.

Wang explains,

"While part of the company was building Prodigies as fast as possible, another big chunk of the staff, me included, were chained to the our phones, talking to clean-up teams and creating 'prescriptions' for each spill site. Every oil spill site is unique. You have to consider wind direction, temperature, remaining daylight, what kind of material is contaminated, what chemistry is needed to extract oil from the material, which tool heads to use, and in what order to carry out cleaning operations."

One of Wang's chief laments of the spill-cleanup process is the chronic shortage of experienced cleanup crews.

"Once we create the right prescription, a lot of times we have to get someone out to the cleanup site to train the inexperienced crews how to use the Prodigy. A lot of the cleanup contractors are forced to hire low-skilled workers with little or no cleanup experience, which means in the midst of a crisis, response is delayed because DCU has to train (and sometimes retrain if the first course didn't take) cleanup crews."

So frustrated has Wang become with the uneven quality of the crews hired by cleanup contractors, he is working on plans to avoid the frustrating chore of educating virgin cleanup crews during future spills by offering to supply to local cleanup contractors already-trained and experienced cleanup crews to operate the Prodigy.

With 48 years in the spill cleanup industry, Oil spill cleanup consultant Al Allen of Spiltec is perhaps the most experience spill-fighter on earth. Moving past production and site-specific challenges, Alan identified two other areas where oil spill preparedness still falls short.

One improvement to preparedness Allen would like to see is the creation of more robust spill surveillance capabilities, including manned aircraft with trained spotters, as well as more use of aerial drones where appropriate. When cleanup bosses can track oil concentrations on a minute-by-minute basis, containment and removal resources can be employed with maximized efficiency.

The other shortcoming in spill preparation Allen discussed were that energy companies weren't investing enough effort in education so that they can manage expectations for oil spill cleanup one a spill happens.

According to Allen,

"The whole energy industry needs to do a better job of educating both the public and the government to manage expectations when it comes to spill cleanup. Most people have no idea that a removal or recovery rate of 40-50% is outstanding for a spill. 10-30% can still be really good. Take the 2010 BP spill. I've seen figures that between 30-50% of the oil released never made it to the surface of the Gulf. Of the oil that made it to the surface, at least 20% of that evaporated before anybody could get to it. How much we can recover or eliminate in place for any spill depends on what percentage of the spilled oil is available and remains in a condition that can be skimmed, burned or dispersed."

Allen also noted the decades-old pattern in which the public's weak understanding of spills and cleanups is manipulated into a media feeding frenzy, which often interferes with cleanup efforts.

"My first major spill was on January 28, 1969. It was the Santa Barbra blowout; around five thousand barrels of oil were released each day for 10 days. Oil spread from 5 ½ miles offshore and blackened nearby beaches. No question there was significant impact before it was cleaned up, but the reaction of a lot of people in Santa Barbra was way out of line. Rich widows were hiring helicopters and flying out to sea to hang a fishing line out of the helicopter and pretend to fish in the oil slick. It was all designed to play up the damage, and attack offshore drilling, without a balanced perspective on the risks/benefits of offshore drilling and the difficulties of cleanup. Of course that stunt generated a lot of media coverage and articles filled with misinformation that just made the frenzy worse."

Allen illustrated how much media coverage of oil spills has become about attacking energy companies by noting how little coverage is generated by ongoing natural oil seepage.

"For thousands, if not millions, of years," he noted wryly, "oil has naturally seeped from the sea floor out into the environment, dwarfing the volume of oil released from man-made spills, but the public doesn't know about that, because naturally occurring seeps don't get major media coverage."

Even as recently as the 2010 BP Horizon spill, Allen saw how a lack of understanding of the fundamentals of oil spill cleanup persisted and continued to impair cleanup efforts.

"One of the primary techniques for getting rid of oil floating on water is simply to burn it in place, typically removing 90% or more of the oil when it can be contained within fire-resistant booms. The industry has known what the combustion byproducts are from burning the oil, and how to protect the cleanup crews doing the burns and the general public, for more than 30 years. The controlled burning of oil is a well-established tactic, especially for burns far removed from populated areas. Yet companies I consulted with during the BP spill were required to tow balloons from vessels to sample the air near the burnoffs, and report the results. Expecting burn crews to spend time redoing basic research in the midst of a crisis, when we've known for decades what the sampling would tell us, is not exactly the best way to use response personnel and resources. "

Henning, Wang, and Allen all declined to speak on record about what government bodies were the worst offenders, but all agreed that they'd personally seen how overlapping jurisdictions, bureaucratic turf contests, and poor inter-agency coordination slowed oil spill response just as much as failures to invest in necessary equipment or assemble the various kinds of expertise needed for rapid cleanups. Their shared collective opinion suggests energy firms' lobbying dollars might be very well spent in defensive measures to contain future spill costs by pushing lawmakers to create clearer cleanup guidelines and better intergovernmental coordination.

What remains unclear even now is how much of the public anger, not to mention the size of the huge penalty recently imposed on BP, came about as a result of government agencies beating up on BP to hide their own portion of the blame for the flawed oil-spill response. As a New York Times article stated while the 2010 spill was ongoing, "The federal government also had opportunities to move more quickly, but did not do so…" Indeed, the Coast Guard's final report on the accident released in March 2011 acknowledged the BP accident became as severe as it did at least partly because, "Over the past decade, both public and private sector investment in planning and preparedness for and response to oil spills has decreased."

As long as modern society remains addicted to inexpensive oil and the huge range of goods made with petroleum, there will always be another major spill waiting to happen; human-designed and run systems are inherently imperfect. Energy companies and government regulators around the world need to recognizing the unpleasant but undeniable reality that future oils spills are the cost of doing business. Coming to grips with that ugly truth is the first necessary step along the path to investing more time, money, and intellectual effort into getting ready for the next major oil spill, so the next big one won't turn into another $54 billion mistake.