

power regulation, and could be adapted to oil drilling. Improvements in modeling will improve not just BOEMRE safety regulations but also compliance with statutes, like the NEPA and the Endangered Species Act.

In a sector where catastrophic failure is possible but not likely and where the technology is constantly evolving, prescriptive safety approaches are not the best regulatory framework. Instead, a risk-based approach under which government and industry can work together to improve safety and lower the risks of a catastrophic spill to acceptable limits is preferable. This

approach should go hand in hand with the development of a culture of safety within industry, and BOEMRE should do what it can to support and promote such a culture.

Adopting a risk-based approach with quantifiable targets would also allow for a transparent answer to the question: How safe is safe enough? Once quantified, stakeholders can weigh in and others can independently review and critique risk analyses, facilitating analytic improvements and public acceptance of agency risk management choices. ●

PREVENTING OFFSHORE OIL SPILLS

Roger Cooke, Heather Ross, and Adam Stern

Events that open the door to offshore oil spills happen all the time. They are the first steps in accident sequences that are generally cut short by safety mechanisms before well control is lost. But not always—as reported in the *Wall Street Journal*, there were 28 major drilling-related spills, natural gas releases, or incidents in which workers lost control of a well in the U.S. Gulf of Mexico in 2009, up over 60 percent from 2006. As drilling activity extends to deeper water and higher-pressure horizons, these events are increasing, coming dramatically to our attention with the Macondo well blowout, the biggest system failure yet.

The first order of business to prevent offshore spills is observing what is going wrong and correcting it. No amount of planning, training, standard setting, incentive structuring, institution-building or culture-imbuing can substitute for this fundamental recognition. Problems will arise and we must spot them when they occur and prevent them from occurring again. This is the centerpiece of any risk management effort: collect data, track performance, learn lessons, and improve results. Offshore, this means setting up a quantitative risk-performance tracking system that reports real-time operating data to feed spill-focused learning models that use experience in the Gulf to illuminate patterns of mishaps occurring as drilling proceeds. A successful system will do for offshore oil and gas what the Nuclear Regulatory Commission accomplished in the U.S. nuclear sector with its Accident Sequence Precursor (ASP) program developed after Three Mile Island. Thirty years on, that sector, both government and industry, is among the most sophisticated users of quantitative risk assessment and has not had another significant core meltdown.

Further Reading

Gold, Russell and Ben Casselman. 2010. Far Offshore, a Rash of Close Calls. *Wall Street Journal*. Dec. 8. Business.