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Deepwater Horizon Oil Spill

High on Emotions, the Desire to Survive and Evolve, a Commitment to

The tragic accident on the *Deepwater Horizon* oil rig in the Gulf of Mexico on April 20, 2010, that caused the loss of 11 lives, and the resulting oil spill that continued for months, was not an easy one for the New Orleans community to deal with, a community that was already ailing from the blow of hurricane Katrina in 2005.

The large-scale spill and its impact on the environment, flora, and fauna, in addition to the adverse effects on human health and the livelihood of the communities, were widely discussed in the national and international media. This intense focus kept people engaged on the oil spill topic and the consequences, irrespective of their educational background, ideology, race, and nationality. An explosion of emotions to do something to stop the spill, to save the environment, to protect the community from damage was felt by many from all walks of life, particularly in the Gulf Coast region. Whether at work, at the grocery store, or at a restaurant, people felt an adrenaline rush that connected us to one another. The feeling of togetherness was strong to save the region. And, of course, the common topic of discussion was how we were going to stop the spill.

I have lived in the New Orleans region since 1991, and apart from hurricane Katrina, no other event has caused such a large-scale distress in our community. My peers and fellow professionals from across the world contacted me and initiated a dialogue to share their feelings and ideas. Questions were raised. How can we stop the spill? Why not mobilize the spill response equipment from other countries like The Netherlands where they have common shared resources and spill response strategies to address large scale spills? The distress

was so high during the spill that people felt as though they were experiencing pain from a bleeding wound.

Being a professor of environmental engineering at the University of New Orleans (UNO), located so close to the spill site, I saw another opportunity to educate our graduate students. It was easy to tap their emotions, their high level of energy, and their interest to be engaged in an event happening in front of their eyes. Their desire to learn from the real-world and timely challenges of the *Deepwater Horizon* spill would transform them into highly productive and committed graduate students.

Many students volunteered to carry out field sampling, laboratory experiments, literature reviews, and other related tasks. Graduate and undergraduate students helped in collecting information, writing short articles, and compiling videos for the Web page of the Maritime Environmental Resources and Information Center at UNO to disseminate scientific and engineering knowledge. This existing Web page that had focused on shipbuilding and ship repair facilities was expanded to cover the aspects of off-shore oil spills, spill response, and the resulting impact on the environment. Some of the work done by UNO graduate students on the *Deepwater Horizon* oil spill can be viewed at <http://coe.uno.edu/meric/>. Field sampling and

Downtown New Orleans as seen from West Bank of Mississippi river



of 2010 in the Gulf of Mexico

Help an Already Ailing Community, and the Opportunity to Learn and Educate

monitoring of air quality and water quality were carried out in a joint effort by UNO and the Arizona State University by renting a shrimper's boat and using the air sampling and monitoring equipment available at UNO. The oil spill's field monitoring by the research team was covered by the local TV station and can be viewed online at www.youtube.com/watch?v=jMsTT_YVUQY.

To use the *Deepwater Horizon* environmental disaster as an educational and learning opportunity, I developed a specialty graduate course, titled "Oil Spill: Environment, Health, and Safety Management." The course was offered during the fall of 2010 to quench the thirst of highly motivated graduate students in the environmental engineering program at UNO. The broad scope of the course addressed all aspects of an oil spill—policies, regulations, spill prevention measures, spill response, short-/long-term remediation, evaluation of impacts on the environment, health, economy, and other related topics. Students were asked to select topics based on their academic background, interests, and strengths to review, discuss, debate, and analyze the facts; to measure and monitor environmental quality; to conduct simple experiments to evaluate impacts, designs, methodologies, and strategies to respond to spills on both a short- and long-term basis. Further, students were asked to select topics and develop their study approach based on the following questions:

1. What is the relevance of the topic to the *Deepwater Horizon* spill?
2. How applicable is the topic/technology/response/strategy to the *Deepwater Horizon* spill?
3. What are the advantages and disadvantages of question 2?
4. How can the demonstrated success of question 2 be applied elsewhere (other spills, etc.)?
5. What are the technical and economic feasibilities of question 2?
6. Has the strategy/response of question 2 been implemented/tried in the Gulf Coast?
7. If so, was it successful?
8. Are there distinct short-term and long-term aspects to the (question 2) strategy/response?
9. What approach do you recommend in order to be successful?
10. How was your education enhanced by studying the *Deepwater Horizon* spill?

Students were required to adopt one specific topic and conduct research under the guidance of the instructor and present findings on the selected topics to the rest of the class. This prompted cross-learning among students and helped in critical review of the approaches and strategies discussed. A total of 12 students enrolled in the specialty course. From these, selected students were asked to develop short articles based on their topics, which are presented in this issue of *EM*. Furthermore, many graduate students are using oil spill-related research topics for their thesis and dissertation research.

To further understand the impacts of oil spills and the management of future impacts on the environment, public health, and worker health, I am continuing to collaborate with many experts in various specialties of environmental engineering and industrial hygiene, from whom I welcome participation and collaboration. **em**

