

# Will Drillers Respect the Environment?

By Sue Smith-Heavenrich

Extracting energy requires trade-offs. "We want clean air, but we also like the convenience of electricity," said Richard Haut during a lunch-hour seminar last Tuesday. Haut, founder and senior research scientist at Houston Advanced Research Center (HARC), visited Cornell to promote what he calls "environmentally friendly drilling systems."

But his talk left many people hungry for answers.

About nine years ago Haut sat down with two colleagues and one question: what do we need to do to develop resources in a safe and environmentally friendly manner? Industry had already adopted safety as a core value, so, Haut asked, how could the three scientists encourage industry to adopt environmentally friendly drilling as a core value?

They created a coalition of academic institutions, regulatory agencies, 24 industry sponsors and four environmental groups—one of which is the Ground Water Protection Council, with strong ties to the oil and gas industry.

In the context of industrialized gas drilling, Haut notes, "environmentally friendly" has become shorthand for developing energy resources in a manner that minimizes impact on the environment.

While showing a slide of the Jonah (Wyoming) gas field, he said drilling companies must consider biodiversity fragmentation.

"But how do we get industry to look at this issue?" he asked. Showing a slide of wells drilled

along the banks of the Colorado River, Haut asked how communities could ensure that their water is protected.

Haut's goal is to "move knowledge to action, to get unbiased science facts into policy." He listed some specific problems that drillers must address: water withdrawal during droughts, coastal issues and impacts of urban drilling on noise and air quality. He offered photos showing examples of technological solutions. What was missing, though, was a clear blueprint for how to implement those low-impact alternatives in the existing drilling culture.

Instead, Haut embraces the idea that drilling is coming and the only question is how to minimize the damage. Take hydraulic fracturing: about 50 percent of all wells drilled into shale, tight gas and coal-bed methane formations use fracking. Within 25 years, he said, 75 percent of all gas wells will be fracked.

"But the typical frack site is an accident waiting to happen," Haut said, pointing out potential spills, pit leaks and heavy truck traffic. Another issue is dealing with flow-back and produced waste fluids. Haut showed examples of mobile treatment units but never described the technology under development.

Perhaps the most interesting proposal Haut discussed was creating an "Environmental Friendly Scorecard." The idea is similar to the required nutrition labels found on packages of chips and the sides of cereal boxes—or the scorecard for Leadership in Energy and Environmental Design (LEED) cer-

tification developed by the U.S. Green Building Council.

The LEED scorecard provides builders a concise framework for identifying and implementing specific and measurable "green" building design, construction, operations and maintenance solutions. That's what Haut hopes an environmentally friendly drilling (EFD) scorecard would do for gas exploration and drilling: identify specific attributes of their activity and identifying measurable ways to minimize the impact.

What would such a scorecard look like? Haut listed six areas impacted by drilling: air, water, well site, waste management, biodiversity and habitat, and social structure. Each scorecard would list "prerequisites," or those items that must be addressed before the well can be drilled, and "credits," or actions for which a driller could receive "points" that would add up to the EFD score. Companies could gain credits through reduction in air emissions, suppressing dust, and implementing "green completion" technologies, such as using valves that recapture fugitive methane emissions and return them to the storage tanks.

Before water credits could be earned, a driller would have to file an acceptable storm water management plan and conduct integrity testing of cement casings. Despite regulations, some companies continue to resist compliance with these two critical items, as evidenced by the hundreds of violations Pennsylvania's Department of Environmental Protection issues each year. Drillers could

earn credits by increasing their setbacks from streams and water sources (although though Haut doesn't specify any distances) and reducing their water use.

The problem with Haut's environmentally friendly drilling approach, says Cornell engineering professor Tony Ingraffea, is that it reflects the worldview that shale gas development is inevitable, so we just have to "do it right." This precludes true scientific investigation of many issues that this development presents, he said, noting that instead it focused on technology, such as how to build a well less likely to leak. "Such a view is also an admission that the thousands of shale gas wells already made, and those underway now, are not 'being done right,'" Ingraffea said.

Physicist Bill Podulka agrees. "The wide array of acknowledged problems and lack of currently available solutions underscores what many gas drilling critics have been saying: this technology is not ready." What was missing, Podulka says, is discussion about excluding drilling from areas too socially or environmentally fragile. Instead, he said, the context boiled down to "how do we allow business as usual while bringing environmental damage down to a level we can tolerate?"

As for the EFD scorecard, that's just a way to "greenwash" gas extraction, says Hilary Acton. "It's diverting us from the real direction that we as a nation need to be headed – moving forward with sustainable energy."

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