



# Texas Weakens Chemical Exposure Guidelines, Opens Doors for Polluters

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AUSTIN—In 2007, Texas regulators quietly relaxed the state’s long-term air pollution guideline for benzene, one of the world’s most toxic and thoroughly studied chemicals. The number they came up with, still in effect, was 40 percent weaker, or less health-protective, than the old one.

The decision by the Texas Commission on Environmental Quality (TCEQ) was a boon for oil refineries, petrochemical plants and other benzene-emitting facilities, because it allowed them to release more benzene into the air without triggering regulatory scrutiny. But it defied the trend of scientific research, which shows that even small amounts of benzene can cause leukemia. The American Petroleum Institute, lobbyist for some of the nation’s largest benzene producers, privately acknowledged as early as 1948 that the only “absolutely safe” dose was zero.

It’s “the most irresponsible action I’ve heard of in my life,” said Jim Tarr, an air-quality consultant who worked for the TCEQ’s predecessor agency in the 1970s. “I certainly can’t find another regulatory agency in the U.S. that’s done that.”

The benzene decision was part of Texas’ sweeping overhaul of its air pollution guidelines. An analysis by InsideClimate News shows that the TCEQ has loosened two-thirds of the protections for the 45 chemicals it has re-assessed since 2007, even though the state’s guidelines at the time were already among the nation’s weakest.

The changes are being supervised by TCEQ toxicologist Michael Honeycutt, who began updating the way Texas develops its guidelines in 2003, when he was promoted to division chief. A genial, bespectacled man who takes great pride in his work, Honeycutt is a trusted advisor to top TCEQ officials and often acts as the agency's scientific spokesman. He is also a frequent critic of federal efforts to reduce air pollution.



*Michael Honeycutt heads the TCEQ toxicology department. Under his supervision, the agency has loosened two-thirds of the protections for the 45 chemicals it has re-assessed since 2007. (Credit: LinkedIn)*

Honeycutt's actions reflect Texas's pro-industry approach to air quality, which [InsideClimate News and the Center for Public Integrity have been examining for the past year and a half](#). Most of the air-quality guidelines the state's oil and gas producers are supposed to meet are not legally enforceable regulations. That means violators are rarely punished, and residents who complain about foul air near drilling sites have few places to turn for help.

Texas has made its anti-regulatory stance known on the national front. Attorney General Greg Abbott, the state's governor-elect, has taken legal action against the U.S. Environmental Protection Agency 19 times since 2010, arguing that overly restrictive regulations stifle business growth, cost jobs and threaten the state's economy. The EPA is "a runaway federal agency that must be reined in," [Abbott said](#) last year when he challenged greenhouse gas regulations.

Honeycutt has publicly criticized the EPA for being overzealous in its regulation of ozone, which exacerbates asthma; particulate matter, a known respiratory hazard; and hexavalent chromium, the cancer-causing chemical that launched the Erin Brockovich case. In testimony before a congressional committee in 2011, he [said](#) the EPA had been overly cautious in evaluating the toxicity of mercury, a powerful neurotoxin known to lower IQ. Mercury is particularly harmful to developing fetuses.

"EPA ignores the fact that Japanese eat 10 times more fish than Americans do and have higher levels of mercury in their blood, but have lower rates of coronary heart disease and high scores on their IQ tests," [Honeycutt said in a letter](#) responding to written questions from one of the committee members after the hearing.

[State Rep. Lon Burnam](#), a Fort Worth Democrat who has tried for years to strengthen Texas public health regulations, said Honeycutt's role as chief toxicologist is more political than scientific.

"I consider him an apologist for the polluters," Burnam said. "I think he doesn't give a tinker's dam about public health."

Honeycutt said the toxicologists on his staff are good scientists who take their jobs seriously.

"Our friends and family live in this state, too," Honeycutt said. "My son wants to go to school in Houston, and I want him to be just as protected as every other kid in Houston."

Scientists interviewed for this story agree that Texas needed to update the process it uses to set air quality guidelines. When Honeycutt took over, he introduced formalized methods of risk assessment, an interdisciplinary field of science that includes toxicology, epidemiology and biostatistics. Risk assessment has become the most widely used method of determining the health risks chemicals pose to the public.



*Michael Honeycutt and fellow toxicologist Roberta Grant at the Texas Center for Environmental Quality office in Austin. (Credit: Lisa Song)*

But scientists say the process has inherent uncertainties that open the door to bias.

“This is done across the spectrum, not only from those more inclined to have higher permissible standards, but also by those that would like to have lower ones,” said Maria Morandi, a private consultant who formerly worked as a health scientist at the University of Texas School of Public Health in Houston.

The problem, Morandi said, is that finding the scientifically “correct” exposure level for each of the thousands of chemicals industries release into the air is impossible because it would require exorbitantly expensive experiments, or illegal and unethical testing on humans. The best scientists can do, she said, is extrapolate data from existing studies and hope the numbers they produce are low enough to protect a majority of the population.

The potential for bias comes in when the risk assessment team chooses which studies to include or exclude, and how to weigh the available evidence. Some scientists lean toward the side of public health and believe many existing standards aren’t strong enough. Others tend to be more lenient, taking the view that overly protective standards place needless and expensive burdens on industry.

It’s “about what questions you ask, what uncertainties you leave alone and which ones you decide to focus on,” said [Ruthann Rudel](#), director of research at the Silent Spring Institute, a research center in Massachusetts. Bias in risk assessment is rarely a product of fraudulent science, she said, but rather a reflection of how scientists choose to frame their analysis.

The InsideClimate News analysis shows that in Texas, the bias tilts toward industry.

As of September, nearly 60 percent of the new guidelines Honeycutt’s team derived for outdoor air quality are less protective than analogous numbers used by the EPA and by California, whose guidelines are among the strictest in the nation.

A year after its benzene announcement, the TCEQ released a new cancer risk assessment guideline for another high-profile chemical: 1,3-butadiene, which is produced by the

synthetic rubber industry and can cause leukemia. Texas is responsible for the majority of the nation's butadiene emissions.

Ron Melnick, a former scientist at the National Institute of Environmental Health Sciences, analyzed the TCEQ's [139-page description](#) of its butadiene decision-making process for InsideClimate News. When Melnick compared the Texas approach with the EPA's, he said Texas "dismissed anything which might have made the risk seem higher than what they wanted."

The TCEQ's new butadiene number is 60 times less protective than the EPA's and 340 times less protective than California's.

Such glaring discrepancies are possible—and perfectly legal—because the federal government rarely sets legally enforceable air quality standards for the chemicals it has assessed. That leaves each state to come up with its own approach for each chemical, which means people in different states are protected to different levels. A chemical release that could trigger a public-health alert in California, for instance, might not even be noticed by Texas regulators.

"It's confusing, because you cross the state boundary and the toxicity of the chemical changes," said [Loren Raun](#), a health scientist who works for the city of Houston and teaches at Rice University. "That, right there, is a problem."

Few Texans are aware that Honeycutt's department is changing the state's air-quality guidelines. Because they are not legally enforceable standards, the toxicology department can update them without public hearings or approval from top officials, according to former TCEQ Commissioner Larry Soward.

When the TCEQ released its benzene proposal in 2007, the only person who submitted a public comment was a representative of a chemical trade group, who urged the TCEQ to further weaken the guideline. The agency refused.

Soward, who was one of the TCEQ's top three officials when the benzene guideline was changed, said he didn't learn of the revision until InsideClimate News asked him about it in July. Soward [left the agency in 2009](#) and spent several years working for Air Alliance Houston, an environmental group.

When Soward was appointed a TCEQ commissioner in 2003, he said, he often met with Honeycutt to discuss public health issues and thought the toxicologist "was a very scientific-based, impartial person." By 2005, however, Soward felt Honeycutt was advocating for "positions he felt like he was supposed to advocate" for, regardless of the science.

"I think he really believes...that air pollutants don't really have a health effect unless there's such a toxic exposure to them that it leads to direct problems," Soward said. "I used to joke I didn't think there was a toxic pollutant he didn't like."

Burnam, the state representative, blames the TCEQ's governor-appointed commissioners for the agency's pro-industry bent.

“For the past 20 years, you’ve either had oil industry [George W.] Bush or oil industry apologist [Rick] Perry making all the appointments,” said Burnam, who was defeated in the March Democratic primary and leaves office this month. “...The good [employees] at the lower levels are totally frustrated and hamstrung.”

### **‘I Love This Job’**

Honeycutt’s [15-member division](#) is one of the largest state toxicology departments in the country. In addition to setting air-quality guidelines, it reviews air and water monitoring data, advises emergency crews after chemical accidents and provides scientific expertise to agency officials.

“We have probably one of the best toxicology departments in the world,” Commissioner [Toby Baker](#) said at a TCEQ hearing last year.

The division’s size remained relatively steady even when the TCEQ’s operating budget dropped 39 percent from 2008 to 2013. Its stature rose in 2012, when an agency-wide reorganization put Honeycutt’s department directly under the office of the TCEQ’s executive director. The toxicology division now occupies a suite of offices and cubicles in a gleaming blue building in Austin, on the same floor as the executive director and the TCEQ’s three commissioners.

“I love this job,” Honeycutt said in November, during an interview in his spacious office. “This is the job I went to school to learn how to do. I get to sit on the side of the table opposite everybody. One thing we’ve learned is, usually when everybody’s mad at you, you’re probably doing your job right.”

Honeycutt, 48, studied toxicology at the University of Northeast Louisiana at Monroe, 30 miles from his hometown. His high school yearbook reveals he graduated with honors and was a leader, or “beau,” of the library club.

He stayed at Monroe to get his Ph.D. in toxicology. David Roane, who now chairs the pharmacology department at East Tennessee State University, advised Honeycutt on his dissertation about how earthworms dispose of the element cadmium.

“I trusted his work more than most people and found him to be conscientious in a small town kind of way,” Roane said. “He was a real wholesome guy.”

Carey Pope was teaching in the toxicology department when Honeycutt was a graduate student. The two men still occasionally run into each other. Pope describes Honeycutt as “the kind of guy who was always the first in line to help you.”

After graduation, Honeycutt worked three years as a researcher for the Army Corps of Engineers, where he focused on screening for contaminants in sediments and soils. He joined the TCEQ in 1996, when the agency was still known by its former name: the Texas Natural Resource Conservation Commission, or TNRCC. Critics called it “train wreck.”

By the time Honeycutt was promoted to toxicology division chief, TNRCC had become TCEQ and the agency was under fire for the way it managed air quality guidelines. The problem was the haphazard way it set Effects Screening Levels, or ESLs, for thousands of chemicals.

ESLs are critical because the TCEQ uses them to draft the air permits it issues to oil and gas production sites, refineries, power plants and other industries. Companies must show that chemical concentrations at the boundaries of their facilities will meet the ESLs. If they don't, the TCEQ can require them to adjust their operations.

Most chemicals have a short-term ESL (for hour-long exposures) and long-term ESL (for annual average concentrations). For example, the short-term ESL for benzene in 2003 was 25 parts per billion (ppb) of benzene in air. The long-term benzene ESL was 1.0 ppb.

When the [Houston Chronicle reported](#) in 2005 that the TCEQ's ESLs were among the least protective in the country, Honeycutt told the newspaper his department was addressing the problem by changing the way ESLs are established.

The TCEQ hired a nonprofit consulting firm—[Toxicology Excellence for Risk Assessment \(TERA\)](#)—to convene a panel of outside scientists to review the new procedure. TERA was founded by Michael Dourson, a former EPA toxicologist and one of Honeycutt's close friends. TERA often works for industry and runs a database that has raised the profile of industry-funded risk-assessment values.

Morandi, the consultant, sat on the TERA review panel and said she was comfortable with the TCEQ document.

But she said what also matters is how the protocol is applied to individual chemicals.

The TCEQ documents its risk assessments in long, complex reports that are posted online for public comment. Honeycutt said he has tried to encourage more feedback by extending the comment period from 60 to 90 days. But few people outside industry have the time and expertise to understand or critique the highly technical documents.

The Texas environmental community tends to rely on a single expert—[Elena Craft](#) of the Environmental Defense Fund—to weigh in on risk assessment science. Air Alliance Houston Executive Director [Adrian Shelley](#) said he often turns to Craft for help on these issues.

Of the 56 comments that have been filed for the 45 chemicals the TCEQ has assessed, only one came from the environmental community. About 80 percent of the comments came from industry groups, including the American Chemistry Council and ExxonMobil.

[Adam Finkel](#), executive director of the University of Pennsylvania's Penn Program on Regulation and a former director of health standards programs for the Occupational Safety and Health Administration, said environmental groups could help level the playing field by hiring more scientists who understand risk assessment.

Some environmental organizations have multi-million dollar budgets, he said, but they're focused on other issues.

### **'This Is Crazy'**

While the TCEQ was developing its risk-assessment strategy, air pollution was making waves in the Texas press. In January 2005, a TCEQ report linked 1,3-butadiene and

benzene to elevated cancer risks in Harris County. The county is home to Houston and many refineries and petrochemical plants that emit both chemicals.

The butadiene levels corresponded to two additional cancer cases per 10,000 people—20 times what the TCEQ considered acceptable at the time. Benzene levels were seven times higher than the TCEQ’s benchmark cancer risk.

That same month, the *Houston Chronicle* published “In Harm’s Way,” a series by reporter Dina Cappiello. The newspaper had placed air monitors at 100 locations near large industrial sources and [found 84 readings](#) “high enough that they would trigger a full-scale federal investigation if these communities were hazardous waste sites.”

Only a few measurements exceeded the TCEQ’s cancer exposure guidelines, which the paper reported were “among the most lenient in the country.” The *Chronicle* noted that the results “would be considered a serious health risk in other states.”

The two reports hit a nerve with Bill White, a year into his first term as Houston’s mayor. A deputy secretary of energy during the Clinton administration, White made air quality a priority during his three terms as mayor. But he found himself fighting the TCEQ as well as the industries that were polluting his city.

A [policy analysis article](#) by Texas academics summed up the situation:

“The problem in Houston has been compounded by the reluctance of state and regional regulators to assume a strong role in pollution control and environmental enforcement, particularly concerning the chemical and refining industry, which is a key source of jobs and philanthropy in the region.”

The TCEQ increased air monitoring in Harris County, but Houston wanted more concrete action. Honeycutt met frequently with Elena Marks, White’s director of health and environmental policy from 2004 to 2009.

Marks is now [a fellow at Rice University](#), researching health care policy. She said she often came away from those meetings frustrated, because Honeycutt “always seemed to err on the side against human health.”

When city and county officials hosted a town hall meeting to discuss the alarming reports, [the TCEQ didn’t show up](#), despite its pledge to send at least two representatives. Honeycutt later criticized the TCEQ’s own report, [saying it was “overpredictive”](#) about the cancer risks.

When Houston threatened to sue Texas Petrochemicals, the main culprit behind the elevated butadiene levels, Marks said the TCEQ got “pissed off” and worked out a pollution-reduction plan with the company. But the agreement was voluntary, and Houston continued to threaten legal action. Texas Petrochemicals finally reached a legally binding agreement with the city to reduce its emissions, and butadiene levels began to drop.

To tackle the benzene problem, White tried to persuade local businesses and the TCEQ to work together on a regional benzene reduction plan, but he said the TCEQ wasn’t interested.

Benzene levels in Houston did begin to fall. But White, now senior advisor and chairman of the financial firm Lazard Houston, attributes the change to the city's aggressive leadership, which "created a tremendous incentive for compliance and put pressure on the TCEQ."

Marks put it more bluntly. "Every time we found benzene emissions...we were just a pain in the ass—and the plants thought it was just easier to curb benzene."



*Fracking activity takes place near a rural home in South Texas. (Credit: Lance Rosenfield)*

When asked to comment on the TCEQ's role in Houston during those years, agency spokesman Terry Clawson said in an email: "The TCEQ works in partnership with local governmental [entities] to address environmental issues within their communities."

In 2007, as Houston was still struggling to remove benzene from its air, Honeycutt's department weakened the long-term benzene guideline 40 percent, from 1.0 ppb to 1.4 ppb.

The new number was 13 times weaker than California's guideline. It was at the least-protective end of the range recommended by the EPA, which last updated its benzene numbers in 1998.

Marks remembers her shock when she learned of the change.

"My reaction was "This is crazy. Why would you do that?" she said. "The more you learn, the more likely you'd be to tighten any standards or screening levels."

An examination of the TCEQ's decision on butadiene shows how its conclusions could differ so sharply from the EPA's.

The EPA's analysis, done in 2002, relied primarily on an industry-funded University of Alabama-Birmingham study from the 1990s that tracked leukemia rates in workers.

The TCEQ's analysis used a 2004 study by the same researchers, also funded by the industry. They said their original study had vastly underestimated the amount of butadiene the workers were exposed to, which meant it had overestimated the risk.

Melnick, the former NIEHS scientist who analyzed the TCEQ's butadiene document, said it's hard to tell which of the two University of Alabama studies is more accurate—but the discrepancies show the "murky" history of the reports.

Because the TCEQ used the second study as its starting point, it began its analysis with numbers that showed butadiene was less toxic, Melnick said. It then made a series of

subsequent decisions that made the number even less conservative, including using a different statistical model and not adopting some uncertainty factors used by the EPA.

Melnick said it's impossible to say the Texas number is wrong. But it's clear that "Texas tried to load it up to allow the highest exposure possible."

### **'The Things They Didn't Like'**

Texas has invested time and money to oppose two federal efforts that could lead to tighter chemical regulations.

Its first effort was to address a [2009 National Academy of Sciences risk assessment report](#) authored by Finkel, the Penn professor, and 14 other scientists from academia, government and consulting firms. Among other things, the report recommended that scientists reconsider the long-held assumption that any chemical not known to cause cancer has a safety threshold—a level below which it is completely safe. If adopted by risk assessors, the recommendation could lead to additional regulations.

The following year, the TCEQ helped lead a [series of workshops](#) to discuss the National Academies' report. They were sponsored by the Alliance for Risk Assessment, a spinoff of TERA—the consulting firm founded by Honeycutt's friend Michael Dourson. Both Dourson and Honeycutt sit on the alliance steering committee. Dourson said the TCEQ came up with the idea for the workshops.

The TCEQ has awarded TERA at least \$700,000 in contracts since 2010, with \$7,000 going to the alliance to help fund the workshops. Honeycutt said that to avoid conflicts of interest he recuses himself whenever the TCEQ proposes a project to the alliance.

Honeycutt chaired the first workshop, which was held at TCEQ headquarters. Commission Chairman [Bryan Shaw](#) gave the opening speech. The agency has hosted three of the eight workshops that have taken place so far. More than 50 groups from industry, government, consulting and research centers support the workshops, [according to the alliance website](#).

Honeycutt and Dourson say the workshops are designed to expand upon the National Academies' report and foster collaborations to develop practical risk assessment methods. But Finkel and two other health scientists who work in risk assessment say the main focus was to criticize the report, especially the part about the non-carcinogen thresholds.

"They were essentially formed to respond to that report and the things they didn't like," said [Tracey Woodruff](#), a professor at the University of California, San Francisco, who studies reproductive health and the environment.

Finkel said the workshops were so biased toward industry's point of view that he stopped attending them.

### **'He Is Our Expert'**

The TCEQ has also consistently opposed the EPA's handling of ozone, one of six compounds with federal air standards. Ozone is created primarily by fossil fuel emissions and is known to exacerbate respiratory and cardiovascular disease. Exhaustive reviews by EPA scientists

and independent agency advisors have urged that the federal standard of 75 parts per billion be lowered.

In November, the [EPA proposed a new standard](#) of 65-70 ppb, which the agency predicted would prevent thousands of premature deaths and asthma-related emergency room visits each year.

Just minutes after the EPA's announcement, the [TCEQ issued a press release](#) in which chairman Shaw described the decision as "shortsighted."

A lowered standard would create serious problems for Texas' three largest cities—Houston, San Antonio and Dallas—which are out of compliance with the current standard.

Honeycutt has criticized the EPA's ozone science at public hearings, in comments submitted to EPA's ozone panel, in presentations at scientific conferences and his own scientific analyses posted on the TCEQ's website.

In the [TCEQ's October newsletter](#), he said his agency's "in-depth review" of the EPA's scientific analysis found that "further lowering of the ozone standard will fail to provide any measurable increase in human health protection."

"The fervor with which they've been critical of the ozone standard...is unprecedented," said Craft, the Environmental Defense Fund scientist. "I can't think of another state where they've spent the amount of time and resources on this issue as Texas."

Last year, the TCEQ paid a Massachusetts-based consulting firm, [Gradient](#), \$1.65 million to examine the science behind EPA's air quality standards, which include ozone. Clawson, the TCEQ spokesman, [recently told the Texas Tribune](#) that the agency is developing a separate Gradient contract to "provide a comprehensive review" of the science "addressing potential impact of ozone on asthma."

One of Honeycutt's main objections to EPA science is that it's based on an eight-hour ozone exposure. He thinks the standard should be weakened because people are rarely outside for that long.

The problem with that reasoning, Craft said, is that some people, including construction workers, do spend most of their day outside. "And what if someone wanted to stay outside all day? I think most people want the option of being able to go outside and feeling like you're breathing air that is healthy."

Another of Honeycutt's arguments relies on a 2009 study that projects a few dozen more deaths in Houston if the ozone standard is tightened. Those results were based on the assumption that Houston would use a particular cleanup strategy that targets only one class of ozone-forming chemicals, Craft said. The TCEQ can avoid the problem by choosing a different plan, she said.

[Robert Haley](#), an epidemiologist at the University of Texas Southwestern Medical Center, grappled with the TCEQ's position on ozone last year when he was lobbying for the shutdown of three coal-fired power plants that contribute to the ozone problem in Dallas. Haley is a member of the Dallas County Medical Society, which has petitioned for the closures.

Haley spoke with each of the TCEQ commissioners in back-to-back meetings and said Honeycutt sat in on all of them. The commissioners “all deferred to him, [saying] ‘He is our expert.’ ...

“They consult him on everything.”

Not long after those meetings, the TCEQ denied the petition.

“It does no one any good to go and require reducing ozone if we’re not having a beneficial impact,” Shaw said during the petition hearing. “And there’s data...that suggests that [reducing] ozone may not be giving us that benefit.”

### **‘Does Not Necessarily Indicate a Problem’**

The TCEQ’s critics say the agency’s industry-friendly ESLs are just part of the air-quality problem in Texas. The bigger problem, they say, is that violations of the ESLs don’t necessarily trigger regulatory action.

The Texas guidelines are “just a number that they picked, and they said that when the air pollution monitors hit that number, then they would investigate further,” said Marks, the former Houston environmental director. “There was no actual consequence to finding the air quality was above that particular number.”

It’s hard to tell when or how the TCEQ enforces the ESLs.

The [agency’s toxicology website](#) says if airborne concentrations “exceed the screening levels [ESLs], it does not necessarily indicate a problem but rather triggers a review in more depth.”

The website also says ESLs are only used to screen companies that apply for air permits, and should not be used to gauge outdoor air quality. The TCEQ has a separate set of health-based guidelines to evaluate air-monitoring data, and those numbers can be up to three times less protective than the ESLs.

But even when these more lenient numbers are exceeded, the TCEQ doesn’t necessarily see a health risk.

When InsideClimate News asked the TCEQ what happens when air-monitoring data exceed guidelines, spokeswoman Andrea Morrow said the data are examined on a case-by-case basis. For example, she said, if an air monitor showed 5,000 ppb of a chemical whose TCEQ’s guideline was 1,000 ppb, the toxicology department would say “there is a potential for adverse health effects.”

In other words, even a number that’s five times the TCEQ guideline doesn’t automatically trigger enforcement action.

InsideClimate News then asked if the agency had ever penalized or shut down a facility for violating ESLs or air monitoring guidelines. Clawson, the spokesman, said the TCEQ “does not collect and track information on enforcement actions” in a way that would enable him to answer that question. To get that information, he said, it would be necessary to examine individual investigation reports.

When Honeycutt was asked if he thought the ESLs should be turned into legally enforceable standards, he said that decision rests with the state legislature. A 2007 House bill that aimed to do that never made it out of committee.

Honeycutt defended the way his agency reacts when guidelines are exceeded. He said the TCEQ handles the problem by putting neighborhoods or regions with elevated chemical levels on an [Air Pollutant Watch List](#). The agency then dedicates more resources to improving air quality in those areas, perhaps by investigating local industries or doing additional air monitoring.

“We don’t just note [the problem] and go on with our lives,” Honeycutt said. “We do do something about it.”

But being added to the list doesn’t guarantee a speedy solution.

In 1998, a neighborhood in Corpus Christi was placed on the list because annual benzene concentrations exceeded the TCEQ’s 1.0 ppb guideline. The neighborhood was removed from the list 12 years later, in 2010—not because the annual benzene average had dropped below that level, but because the agency had weakened the guideline to 1.4 ppb.

The agency’s website [cited the new guideline](#) as the reason for the delisting.

*This story is part of an ongoing project by InsideClimate News and The Center for Public Integrity. Lisa Song is with InsideClimate News. Rosalind Adams is with CPI. InsideClimate News reporter David Hasemyer contributed to this report.*

# One-stop science shop has become a favorite of industry—and Texas

By Rosalind Adams, The Center for Public Integrity, and Lisa Song, InsideClimate News  
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<http://www.publicintegrity.org/2014/12/19/16546/one-stop-science-shop-has-become-favorite-industry-and-texas>

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Michael Dourson left the U.S. Environmental Protection Agency 20 years ago to start a nonprofit consulting firm that—unlike the federal government—would move swiftly to evaluate chemical hazards.

Toxicology Excellence for Risk Assessment, or **TERA**, would be a sort of one-stop science shop, Dourson decided: It would estimate the risks of cancer and other diseases associated with exposures to certain chemicals. It would peer-review research and publish those findings in a database. It would organize conferences to educate government and industry officials.

Dourson's organization filled a gap left by the EPA, which has evaluated the safety of only 558 of 84,000 chemicals on the market today. The EPA's sluggishness has created major business opportunities for firms like TERA because few state agencies have the resources to conduct their own risk-assessment studies, which are time-consuming and complex.

Dourson, a toxicologist who spent 15 years with the EPA, describes TERA as an independent firm that aims to protect public health by bringing together scientists from government, academia and industry. Through TERA, he has created a self-sustaining network of supporters in which clients, regulators and peer-reviewers often overlap. The firm's reach has helped make Dourson an influential figure in the field of risk assessment—a niche discipline that is used to determine how much of a particular chemical is acceptable in the environment. The results of these studies shape thousands of public health decisions around the country, including the setting of drinking water standards and air pollution guidelines.

"People come to us specifically because they want to build a collaboration," Dourson, 62, said in a recent telephone interview from his office in Cincinnati.



*Texas, Dow Chemicals, Marlboro logo  
from Wikimedia*

But an investigation by the Center for Public Integrity and InsideClimate News shows the firm has close ties to chemical manufacturers, tobacco companies and other industry interests. More than 50 percent of the peer-review panels TERA has organized since 1995 were for studies funded by industry groups. TERA also runs a risk-assessment database that receives financial and in-kind support from many companies and government agencies. Some of those groups have also paid TERA to peer-review studies they hope will be included in the database.



*Michael Dourson. LinkedIn*

A 2011 study on acrylamide—a possible carcinogen found in French fries and potato chips— shows the extent of overlapping interests.

The acrylamide study, which aimed to evaluate the chemical’s oral cancer risk, was funded by Burger King, Frito-Lay and other food companies. Four of its eight authors were TERA scientists, with Dourson the lead. TERA also selected the panel that reviewed the study. The study’s finding—which is 10 times less protective than the EPA’s cancer risk for acrylamide—is now posted on the TERA database. The identities of the study’s funders are buried in footnotes.

“TERA goes out of its way to describe itself as a nonprofit, to emphasize it works for government, not just industry...when in fact [Dourson] and his group engage in industry-funded activities all the time,” said Richard Denison, lead senior scientist at the Environmental Defense Fund.

Dourson isn’t fazed by such complaints. “We get criticized by everyone,” he said. “But that doesn’t change the fact that TERA is neutral.”

No state has taken advantage of TERA’s services more than Texas, where a rush of oil and gas production has created air pollution problems that the Center and InsideClimate News [have been investigating for 20 months](#).

Dourson is a close friend of [Michael Honeycutt](#), who heads the toxicology division at the Texas Commission on Environmental Quality (TCEQ), the primary enforcer of the Clean Air Act and other federal environmental laws in Texas. His department has evaluated the toxicity of 45 chemicals since 2007 through its risk assessment program. Two-thirds of the resulting guidelines are less protective than they used to be.

The TCEQ gave TERA a four-year, \$600,000 contract to help review the agency’s chemical evaluations. Texas has hosted three conferences put on by the [Alliance for Risk Assessment](#) – an affiliate of TERA. Honeycutt sits on the alliance’s steering committee and his agency has petitioned the committee to peer-review the agency’s work.

Luke Metzger, the director of Environment Texas, reacted strongly when told of the relationship between Honeycutt and the alliance by the Center and InsideClimate News. “If it’s not illegal, it certainly raises eyebrows about whether it’s proper,” he said.

Honeycutt is “supposed to be working on behalf of all Texans,” Metzger said. Steering taxpayer dollars toward a firm whose decisions Honeycutt influences “further erodes the quickly diminishing trust we have in him.”

In an email, TCEQ spokesman Terry Clawson said Honeycutt receives no compensation from the Alliance for Risk Assessment and recuses himself from the steering committee whenever the TCEQ proposes a project.

**TERA's Circle of Influence**

TERA, a nonprofit consulting firm founded by Michael Dourson, relies on a core group of scientists and sponsors. This chart shows overlaps between TERA's clients; a TERA spinoff group called the Alliance for Risk Assessment (ARA), where Dourson and Texas regulatory official Michael Honeycutt sit on the steering committee; TERA's work for the tobacco industry; peer-review panels organized by TERA; ITER, the TERA-run risk assessment database; and Regulatory Toxicology and Pharmacology, a scientific journal where Dourson sits on the editorial board.

	Key ARA member	Current or former sponsor of ARA's "Beyond Science + Decisions" Workshops	On ARA steering committee	Listed as approved outside vendor in 2002 Phillip Morris memo	Employees on 10+ TERA-convened panels	ITER sponsor	Hired TERA to peer review a study	Hired TERA to peer review a study for ITER	Helped fund Reg. Tox. & Pharm. as of 2002
<b>The Acrylonitrile Group</b>						✓		✓	
<b>American Chemistry Council</b>		✓				✓	✓	✓	✓
<b>CalEPA</b>					✓				
<b>ChemRisk</b>					✓		✓		
<b>Concurrent Technologies Corporation</b>	✓					✓			
<b>Cytec Industries</b>						✓		✓	
<b>Michael Dourson</b>			✓						
<b>Dow</b>								✓	✓
<b>Environ</b>		✓		✓			✓	✓	
<b>EPA</b>		✓					✓	✓	
<b>Exponent</b>				✓	✓			✓	
<b>Gradient</b>		✓		✓				✓	
<b>Health Canada</b>						✓	✓	✓	
<b>International Copper Association</b>		✓						✓	
<b>Michael Honeycutt</b>			✓						
<b>Noblis</b>	✓	✓				✓			
<b>Proctor &amp; Gamble</b>					✓				✓
<b>The Sapphire Group</b>		✓		✓					✓
<b>Syracuse Research Corporation</b>					✓	✓		✓	
<b>TCEQ</b>		✓				✓	✓		
<b>TERA</b>	✓	✓		✓	✓	✓	✓		

Research by LISA SONG / InsideClimate News and ROSALIND ADAMS / Center for Public Integrity

PAUL HORN / InsideClimate News

## Opportunities for bias

Risk assessment creates inherent opportunities for bias because scientists often make their decisions by extrapolating findings from animal studies to fit humans. Risk assessors decide which questions to ask and which studies to rely on, a process that environmentalists and industry sympathizers can both use to reach conclusions more favorable to their interests.

Scientists often have to “make assumptions, and make decisions at various points,” said Maria Morandi, a consultant who once worked as a health scientist at the University of Texas Health Science Center in Houston. “So there is a large potential for bias, depending on who’s doing the assessment.”

Dourson said he created TERA as a 501(c)(3) organization so he could host conferences that bring together representatives of government, academia and industry. He said he viewed conflict-of-interest rules that prevented EPA scientists from receiving money to attend industry events as an impediment to good science.

He points to the variety of groups TERA has worked with as evidence of the firm’s neutrality.

But Rena Steinzor, a law professor at the University of Maryland who specializes in public health regulation, accuses TERA of “whitewashing the work of industry.”

About one-third of TERA’s business comes from assembling peer-review panels, Dourson said. In each case, TERA selects a group of experts, vets them for potential conflicts of interest and manages the meeting logistics. Having a study reviewed by a disinterested panel of experts is important because it can give legitimacy to a scientist’s work.

An InsideClimate News and the Center analysis of the 68 panels and workshops listed on TERA’s website shows that most are fairly balanced with respect to the scientists’ affiliations. Scientists who usually work for industry are often paired with an equal number of government and academic researchers.

But a further analysis shows that TERA repeatedly uses experts from a core group of companies and consulting firms. At the top of the list is Dourson himself, who sits on 69 percent of the panels that TERA has organized (other TERA scientists appear on an additional 11 percent). Dourson usually chairs any panel he is a part of.

Dourson said TERA has a short list of people with a general toxicology background that it trusts to lead its panels. He said that list happens to include him. According to TERA’s latest federal tax filing, Dourson was paid \$152,392 in 2012.

“We are not going to impact public health by choosing someone on a panel who is not a credible chair,” he said.

A review of the panels on TERA’s website also shows that more than 50 percent of the studies reviewed were funded by the chemical industry. Of the 240 scientists who’ve served on TERA panels over the years, only a few came from the environmental community.

Ruthann Rudel is director of research at the [Silent Spring Institute](#), a nonprofit research center in Massachusetts that focuses on breast cancer and other women’s health issues. Rudel served on the alliance steering committee until 2011 and on nine TERA panels from 1997 to 2007.

She said most risk assessors work for industry groups, and she sometimes felt like a lone stand-in for the environmental health perspective.

TERA's panels are "probably more polarized in reality than it looks" because TERA gets to select the individual scientists, she said. "Many people in government are very supportive of the industry points of view, and in universities also, there's a lot of privatization of the research."

"I struggled often" with whether to join the TERA panels, she said. "By participating, I was giving it some legitimacy. But at the same time, every time I went, I felt like the things I contributed changed the outcome in a material way, so if I wasn't there, it would have been worse."

### **'Decidedly pro-industry'**

It's nearly impossible to keep up with the ever-expanding array of chemicals made and used in the United States. The EPA's [Integrated Risk Information System](#) – IRIS – has evaluated less than one percent of the roughly 84,000 chemicals registered with the agency. Some of the assessments that have been delayed for more than a decade are for chemicals known to cause cancer, including arsenic, formaldehyde and hexavalent chromium.

In 2008, the Government Accountability Office said IRIS was in danger of becoming obsolete because the EPA was completing only a handful of chemical assessments each year, due in part to political interference. The Obama administration has failed to speed up the process, largely because of pressure from Congress and lobbying by the chemical industry.

The EPA's inaction means that the only information about some chemicals comes from their manufacturers—and trying to absorb the flood of corporate-funded science is like "trying to stop Niagara Falls," Rudel said.

"They have lots of resources and lots of bright people, but fundamentally what they want and need to do is limit liability and limit the cost of complying with regulations," she said.

The flaws in this system became apparent when an estimated 10,000 gallons of crude MCHM—a chemical used by the coal industry —leaked from storage tanks into West Virginia's Elk River in January. As 300,000 people were ordered not to use their tap water, regulators scrambled to figure out a safe exposure level for the public. They had little information to work with: The Material Safety Data Sheet created by manufacturer Eastman Chemical used the phrase "no data available" 152 times, including in a section on whether the chemical causes cancer.

In the aftermath of the spill, TERA was hired by a state contractor to convene a panel of health experts. The panel's job was to review the MCHM exposure thresholds set by the Centers for Disease Control and Prevention, which based its analysis on information provided by Eastman Chemical. TERA selected four government and university scientists and made Michael Dourson the panel chair.

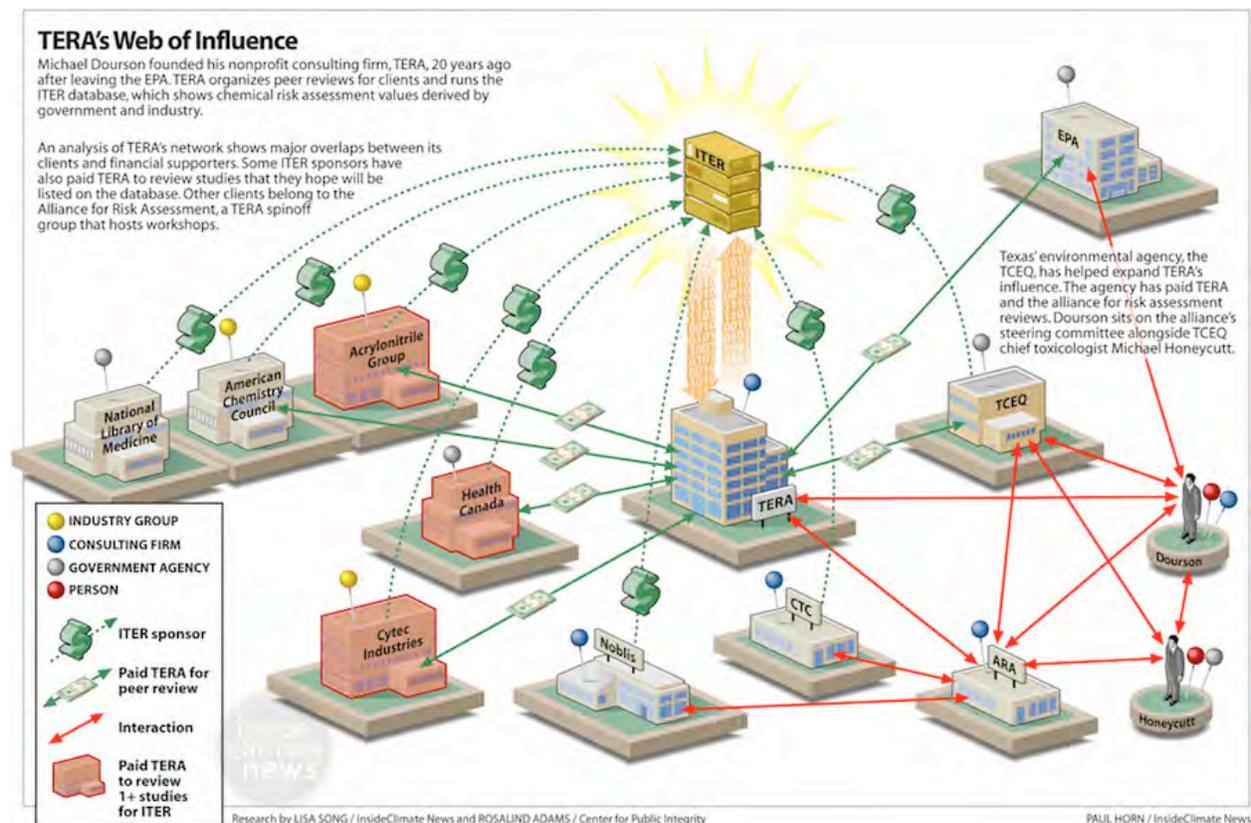
Though Dourson later conceded that he had previously done work for Eastman Chemical, the conflict of interest screening report for the panel did not disclose this.

The panel recommended a short-term exposure level eight times more stringent than the CDC's. Despite that outcome, Denison, of the Environmental Defense Fund, raised questions about Dourson's role in the process.

TERA is “often chosen because of the perspective and approach they take, which is decidedly pro-industry,” he said.

Dourson said TERA’s relationship with state governments proves the firm is independent and neutral—a claim its clients are then able to tout.

In 2003, when Michael Honeycutt became section manager of the TCEQ’s toxicology department, he began overhauling the outdated system Texas was using to review the toxicity of chemicals released into the air and water by polluters. The TCEQ hired TERA in 2005 to review its methodology. And TERA later endorsed TCEQ values for the carcinogens arsenic and hexavalent chromium that were much looser than those used in California or by the EPA. Texas pointed to TERA’s review as a scientific stamp of approval.



## Working for Big Tobacco

When Dourson launched TERA, one of his first projects was to create a database of risk values. Dubbed the International Toxicity Estimates for Risk Assessment, or ITER, it was described by Dourson as an expansion of the EPA’s limited IRIS database.

“The ITER database is not intended to replace IRIS but to supplement it with a more extensive data set that has been independently peer reviewed,” Dourson said, according to minutes of a 1995 meeting of the American Industrial Health Council, a now-defunct trade group funded by the tobacco industry.

From its inception, TERA’s work caught the attention of that industry, which was in desperate need of image rehabilitation.

In 1997, TERA received funding from the Center for Indoor Air Research to study the health impacts of secondhand smoke. A 1999 study lists Dourson as one of the co-authors.

But the center sprang from the tobacco industry's deep pockets and was later discovered to primarily fund research that played down the effects of secondhand smoke. It was disbanded in 1998 by a judge who saw it as a tool to bolster the credibility of tobacco products. Philip Morris revived the group a few years later.

Dourson defended his decision to work with the tobacco industry. "Jesus hung out with prostitutes and tax collectors. He had dinner with them," he said. "We're an independent group that does the best science for all these things. Why should we exclude anyone that needs help?"

Dourson eventually stopped working for the industry because, he said, "they should not be selling cigarettes."

Meanwhile, TERA continued to expand its ITER database. TERA claims it is the only website where risk-assessment values from multiple government agencies are displayed in tables that allow for easy comparison, along with detailed explanations of their methodologies. Scientists say this feature is useful because agencies often come up with different toxicity values for the same chemical based on different studies and analytical methods.

In the two decades since its conception, the database has gained some credibility: the National Library of Medicine links to it, just below the library's link to the EPA's IRIS database.

But the website also publicizes industry-funded studies. For a fee, TERA will organize a peer-review panel for groups that want their results displayed on ITER. Those clients have included Dow Chemical, Frito-Lay and the International Copper Association. If the study passes TERA's review, then the value is entered onto ITER next to the government numbers.

Dourson describes the project as a public service. "If we don't publish those values then the public won't see them," he said.

TERA's critics say the database is misleading and creates a conflict of interest, especially since some of the groups that have paid for ITER reviews—including the American Chemistry Council, the chemical industry's main trade association—have also supported ITER through monetary or in-kind donations.

"The whole thing is self-reinforcing," said Sheldon Krinsky, a Tufts university professor who studies corruption in science. "It stinks. I would view this [ITER] as being full of conflicts and not worthy of being taken seriously."

Of the 28 ITER panels listed [on TERA's website](#), half were convened for industry groups such as Dow Chemical. Most of the rest were done for Health Canada, the Canadian national health agency.

Unlike the industry studies whose funders are not clearly identified on ITER, the Health Canada studies that pass TERA's review are conspicuously labeled as Health Canada products.

Dourson says TERA does not publish every study it is asked to review for the database. He said TERA only considers studies that have been published in peer-reviewed journals.

But getting something published in a peer-reviewed journal doesn't necessarily validate the work, said Adam Finkel, executive director of the University of Pennsylvania's Penn Program on Regulation and a former director of health standards programs for the Occupational Safety and Health Administration.

He said there is a difference between peer reviewers who closely scrutinize the science—EPA's IRIS studies, for instance, pass through layers of internal, external and public review—and others who say, "I laughed, I cried, I ate the popcorn."

Finkel cited *Regulatory Toxicology and Pharmacology*, on whose editorial board Dourson sits, as an example of a publication that is "very clubby and provides an outlet for a certain one-sided part of the spectrum."

The journal has published many industry-backed studies that minimize the risk of bisphenol-A (BPA), a chemical used in food packaging that's been linked to a variety of health problems, including cancer, asthma, heart disease and reproductive problems.

According to PubMed, a site that tracks scientific publications, 19 of the 33 studies Dourson has co-authored in his career were published in *Regulatory Toxicology and Pharmacology*. Krinsky says that's not necessarily a problem. "But when you see a substantial number" of studies by a board member published in his own journal, "you start to wonder if the peer review is just a rubber stamp."

In 2002, more than 40 health experts from academia, government and environmental groups wrote to the journal's editors expressing concern over its apparent conflicts of interest and lack of editorial independence. Among other things, they cited the fact that the journal receives financial support from a number of corporations and trade groups, including Dow AgroSciences, Proctor & Gamble and the American Chemistry Council.

Tracey Woodruff, a former EPA scientist who is now a professor at the University of California-San Francisco Medical School, said TERA's actions show it's "too conflicted."

"I would not be on one of their committees," she said.

Dourson said the only conflict of interest that bothers him is a financial one. "If there's a financial conflict of interest, you're out," he said. That, he said, is different than having a bias, which is unavoidable.

## **No paper trail**

As TERA's reputation grew, Dourson helped found the Alliance for Risk Assessment in 2007. It's a loosely organized group created by TERA and two other nonprofits: Noblis, a research firm, and Concurrent Technologies Corporation, which helped TERA expand ITER back in the 1990's.

Although Dourson says the alliance is an independent entity, he dominates its leadership. He has been a permanent fixture on the alliance's steering committee since its inception, just as he is a permanent board member—and president—of TERA.

The alliance displays a long [list of sponsors](#) on its website, including the American Petroleum Institute, the TCEQ and Georgia Pacific. But there is no paper trail for the group. No corporate filing exists, and TERA's nonprofit tax filings don't mention the alliance.

A joint agreement between the three groups that run the alliance wouldn't require a separate filing, said attorney Marcus Owens, a former director of the Internal Revenue Service's tax-exempt division. But that means "it's virtually impossible to figure out how much money is involved in the activity," Owens said. "It would be buried in the financial statements."

Tax records show founding members Noblis and Concurrent Technologies each earned revenues of approximately \$200 million in 2012. TERA took in just over \$2 million.

One of the alliance's most significant projects is a series of conferences it organized shortly after the alliance was conceived.

The purpose of the meetings, according to the alliance, was to expand upon the findings of a 2009 report on risk assessment science from the National Academy of Sciences. Dourson said the request came from the TCEQ, which has hosted three of the eight conferences at its Austin headquarters.

Rudel, the former alliance steering committee member, said workshop participants did discuss the report's findings but also spent a lot of time criticizing sections unfavorable to industry.

The National Academies' report, dubbed the Silver Book, was "a very mobilizing event" in the TERA community, said Woodruff, the UCSF scientist. The alliance's conferences were "essentially formed to respond to ... the things they didn't like."

Rudel said one the biggest points of contention was the report's recommendation for evaluating non-carcinogens. The traditional approach held that they all have a threshold—a value below which the chemical is completely safe. But the report said scientists shouldn't assume all non-carcinogens have thresholds that will protect everyone, partly because individuals have different reactions to chemical doses.

Woodruff and Rudel said that recommendation could lead to stricter regulations. "That's the thing that's looming that's really freaking everybody out," Rudel said.

Finkel, the Penn professor, attended the first three alliance conferences but quit because he felt participants were using his reputation and viewpoint to help legitimize the group. Finkel was part of the National Academies team that wrote the Silver Book.

The alliance presents itself as a neutral group representing diverse interests, Finkel said. But during his time there, he found that it was overly critical of government risk-assessment methods while assuming "that any 'data', no matter how half-baked, emerging from one of their favored private-sector labs or think-tanks, must be correct."

"After a while, one [starts to] wonder why it always comes out that way," he said.