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The Center for Public Integrity

Environment : Big Oil, Bad Air

As drilling ravages Texas' Eagle Ford Shale, residents 'living in a Petri dish'

Health worries take a back seat in South Texas oil boom



By [Jim Morris](#) [email](#) [Lisa Song](#) [email](#) [David Hasemyer](#)

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Lynn Buehring and her husband Shelby, in Shelby's "man cave" at their home near Karnes City, Texas. Lance Rosenfield/Prime

By **Jim Morris**

May 13, 2014

This story has been jointly reported by the Center for Public Integrity, InsideClimate News and The Weather Channel.

KARNES CITY, Texas — When Lynn Buehring leaves her doctor's office in San Antonio she makes sure her inhaler is on the seat beside her, then steers her red GMC pickup truck southeast on U.S. 181, toward her home on the South Texas prairie.

About 40 miles down the road, between Poth and Falls City, drilling rigs, crude oil storage tanks and flares trailing black smoke appear amid the mesquite, live oak and pecan trees. Depending on the speed and direction of the wind, a yellow-brown haze might stretch across the horizon, filling the car with pungent odors. Sometimes Buehring's eyes burn, her chest tightens and pain stabs at her temples. On those days, she touches her inhaler for reassurance.

In another five miles Buehring, 58, passes into Karnes County, where she was born and once figured on living out her retirement, surrounded by a calm broken only by an occasional thunderstorm.

Today, however, the ranch-style house she shares with her 66-year-old husband, Shelby, is at the epicenter of one of the nation's biggest and least-publicized oil and gas booms. With more than 50 wells drilled within 2½ miles of their home, the days when the Buehrings could sit on the deck that Shelby built and lull away an afternoon are long gone. The fumes won't let them.

Known as the Eagle Ford Shale play, this 400-mile-long, 50-mile-wide bacchanal of oil and gas extraction stretches from Leon County, Texas, in the northeast to the Mexican border in the southwest.

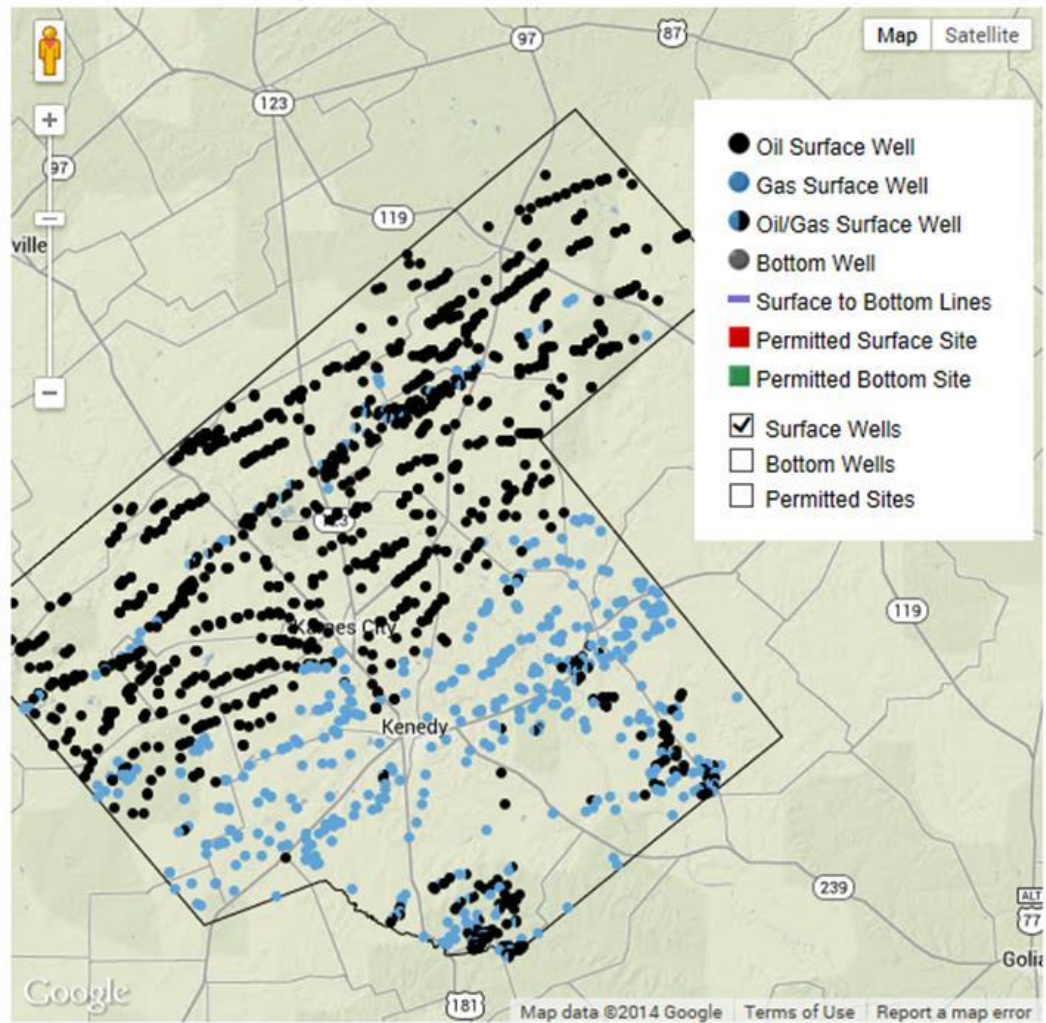
Since 2008, **more than 7,000 oil and gas wells** have been sunk into the brittle, sedimentary rock. Another 5,500 have been **approved by state regulators**, making the Eagle Ford one of the most active drilling sites in America. Energy companies, cheered on by state officials, envision thousands more wells scattered across the plains. It is, an industry spokesman says, an "absolute game-changer" for a long-depressed region of about 1.1 million people, some of whom suddenly find themselves with enough money to ensure their grandchildren's future.

"I believe if
you're anti-oil
and gas, **you're
anti-Texas.**"

-State Rep. Harvey
Hilderbran, a Republican
from Central Texas

Oil and gas wells: Karnes County

Active oil and gas wells in Karnes County as of fall 2013. This map shows the locations of surface wells (where the well is drilled into the ground), bottom wells (where the well ends underground), and permitted sites (wells that have been permitted but not yet drilled). When shown, corresponding surface and bottom wells are connected by lines. The map does not show abandoned wells, drilled wells not yet in production, or bottom wells without a corresponding surface location.



Map by John Bolger. Source: Texas Railroad Commission. Current as of fall 2013.

From the porch of their little white house, the Buehrings can see, and often smell, evidence of the hell-bent rush to tap Texas oil.

In addition to the wells near their home, there are at least nine oil and gas production facilities. Little is known about six of the facilities, because they don't have to file their emissions data with the state. Air permits for the remaining three sites show they house 25 compressor engines, 10 heater treaters, 6 flares, 4 glycol dehydrators and 65 storage tanks for oil, wastewater and condensate. Combined, those sites have the state's permission to release 189 tons of volatile organic compounds, a class of toxic chemicals that includes benzene and formaldehyde, into the air each year. That's about 12 percent more than Valero's Houston Oil Refinery disgorged in 2012.

Those three facilities also are allowed to release 142 tons of nitrogen oxides, 95 tons of carbon monoxide, 19 tons of sulfur dioxide, 8 tons of particulate matter and 0.31 tons of hydrogen sulfide per year. Sometimes the emissions soar high into the sky and are carried by the wind until they drop to the ground miles away. Sometimes they blow straight toward the Buehrings' or their neighbors' homes.

The regulation of oil and gas extraction falls primarily to the states, whose rules vary dramatically. States are also responsible for enforcing the federal Clean Air Act, an arrangement that is problematic in Texas, which has sued the U.S. Environmental Protection Agency 18 times in the last decade.

For the past eight months, the [Center for Public Integrity](#), [InsideClimate News](#) and [The Weather Channel](#) have examined what Texas, the nation's biggest oil producer, has done to protect people in the Eagle Ford from the industry's pollutants. What's happening in the Eagle Ford is important not only for Texas, but also for Pennsylvania, Colorado, North Dakota and other states where horizontal drilling and high-volume hydraulic fracturing, or fracking, have made it profitable to extract oil and gas from deeply buried shale.

Our investigation and records obtained from Texas regulatory agencies reveal a system that does more to protect the industry than the public. Among the findings:

- Texas' air monitoring system is so flawed that the state knows almost nothing about the extent of the pollution in the Eagle Ford. Only five permanent air monitors are installed in the 20,000-square-mile region, and all are at the fringes of the shale play, far from the heavy drilling areas where emissions are highest.
- Thousands of oil and gas facilities, including six of the nine production sites near the Buehrings' house, are allowed to self-audit their emissions without reporting them to the state. The Texas Commission on Environmental Quality (TCEQ), which regulates most air emissions, doesn't even know some of these facilities exist. An [internal agency document](#) acknowledges that the rule allowing this practice "[c]annot be proven to be protective."
- Companies that break the law are rarely fined. Of the 284 oil and gas industry-related complaints filed with the TCEQ by Eagle Ford residents between Jan. 1, 2010, and Nov. 19, 2013, only two resulted in fines despite 164 documented violations. The largest was just \$14,250. (Pending enforcement actions could lead to six more fines.)
- The Texas legislature has cut the TCEQ's budget by a third since the Eagle Ford boom began, [from \\$555 million in 2008 to \\$372 million in 2014](#). At the same time, the [amount allocated for air monitoring equipment](#) dropped from \$1.2 million to \$579,000.

- The Eagle Ford boom is feeding an ominous trend: A 100-percent statewide increase in unplanned toxic air releases associated with oil and gas production since 2009. Known as emission events, these releases are usually caused by human error or faulty equipment.
- Residents of the mostly rural Eagle Ford counties are at a disadvantage even in Texas because they haven't been given air quality protections, such as more permanent monitors, provided to the wealthier, **more suburban Barnett Shale region** near Dallas-Fort Worth.

Texas officials tasked with overseeing the industry are often its strongest defenders, leaving the Buehrings and other families interviewed for this story to mostly fend for themselves. Oil money is so thoroughly ingrained in the Texas culture and economy that there is little interest in or sympathy for those who have become collateral damage in the drive for riches.



Lynn Buehring in her home near Karnes City, Texas.

Lance Rosenfield/Prime

The TCEQ is **led by three commissioners** appointed by Gov. Rick Perry, a Republican who favors dismantling the EPA and voices doubt about climate change. TCEQ officials often go on to jobs as lobbyists for the energy industry they once regulated.

The **Texas Railroad Commission**, which issues drilling permits and regulates all other aspects of oil and gas production, is controlled by three elected commissioners who accepted more than \$2 million in campaign contributions from the industry during the 2012 election cycle, according to data from the **National Institute on Money in State Politics**.

State legislators who enact the laws that regulate the industry are often tied to it. Nearly one in four state legislators, or his or her spouse, has a financial interest in at least one energy company active in the Eagle Ford, a Center for Public Integrity analysis of personal financial disclosure forms shows.



Saturated with oil money, Texas legislature saved industry from pollution rule

By **David Hasemyer**, **Ben Wieder** and **Alan Suderman**

February 18, 2014

“I believe if you're anti-oil and gas, you're anti-Texas,” state Rep. Harvey Hilderbran, a Republican from Central Texas, said during a **media panel discussion** in September.

The TCEQ declined to make any of its commissioners, officials or investigators available for interviews. In a prepared statement, it said air pollution isn't a problem in the Eagle Ford.

“The air monitoring data evaluated to date indicate that air pollutants in the Eagle Ford Shale area have not been a concern either from a long-term or short-term perspective,” the statement said. “Therefore, we would not expect adverse health effects, adverse vegetative effects, or nuisance odors in this area.”

But an interoffice memorandum obtained through the Texas Public Information Act indicates the TCEQ knows its statewide air monitoring system is flawed.

“The executive director has extensive records of underestimated or previously undetected emissions from oil and gas sites. These are not isolated instances but have occurred statewide and indicate a pattern,” Richard A. Hyde, then deputy director of the TCEQ’s Office of Permitting and Registration, [wrote in the Jan. 7, 2011](#), memo. Hyde, now the [TCEQ’s executive director](#), through an agency spokeswoman declined to comment.



Since drilling came to Karnes County, Lynn Buehring’s asthma has worsened. Instead of using a breathing machine once or twice a month, she now needs it several times a week, and sometimes twice a day. She has also developed migraine headaches so intense that they’ve induced temporary blindness and brought her to the brink of unconsciousness.

The Buehrings complained to the TCEQ in 2012, [prompting investigators to check out](#) several Marathon Oil facilities near their home. At one point the emissions were so high, the investigators wrote in their report, that they “[evacuated the area quickly to prevent exposure.](#)” Marathon, a Houston-based company worth nearly \$25 billion at the end of 2013, reported that it fixed the problem and was not fined.

Last summer, the air around the Buehrings’ house was so bad — Lynn described a rancid chicken stench — that she couldn’t sit outside with Shelby and watch the sunset, a nighttime ritual since they bought their house in 1995.

“There’s nothing we can do,” Shelby said. “Nobody is listening to us. They’re not going to stop, so we have to live with it or leave ... This is my home, and I hate it here.”

The health issues faced by people who live in drilling areas — not just in Texas but throughout the United States — simply don’t carry enough weight to counterbalance the

financial benefits derived from oil and gas development, said Robert Forbis Jr., an assistant professor of political science at Texas Tech University.

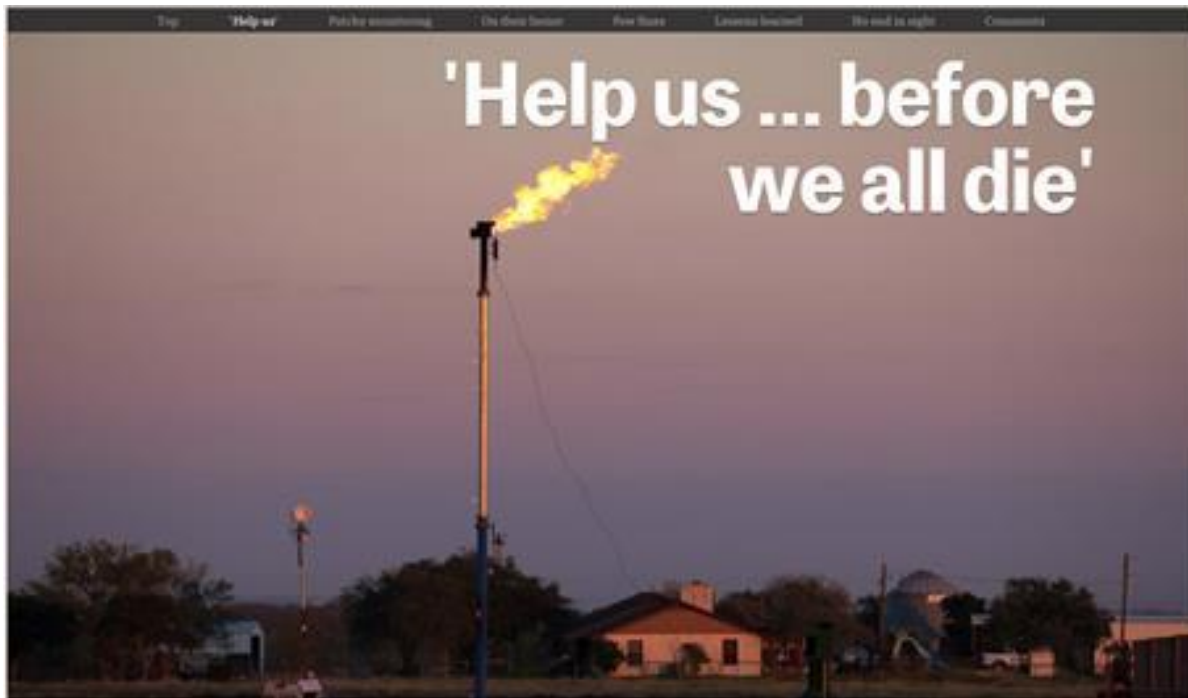
“Energy wins practically every time,” Forbis said. “It seems cynical to say that, but that’s how states see it — promote economic development and minimize risk factors.”





Fracking activity in the Eagle Ford Shale of Texas

Lance Rosenfield



The energy industry's impact on Americans living near drilling areas has been fiercely debated in the last decade, as the shale boom brought drilling to vast stretches of the United States. Much of the concern has centered on how methane and fracking chemicals can contaminate drinking water. But scientists say air pollution is an equally serious problem that receives less attention, in part because it's so difficult to track.



A flare from a well site is situated near a rural home in Karnes County. (Lance Rosenfield/Prime)

Plumes of contaminated air move with the wind. Some of the chemicals break down in sunlight or react with other pollutants to form new compounds. The evidence disappears quickly, while health effects may linger.

People who live close to oil and gas development — whether in Texas' Eagle Ford, Pennsylvania's Marcellus Shale or Wyoming's Green River Basin — tend to report the same symptoms: nausea, nosebleeds, headaches, body rashes and respiratory problems. Public health experts say these shared experiences point to a pressing need for improved air monitoring.

"If you have pockets of communities with the same symptoms downwind of similar sources, then there is a body of evidence," said Isobel Simpson, an atmospheric scientist at the University of California, Irvine, who studies air pollution around the world.



Detail of an entrance to a well site, with a sign warning of "Poisonous Gas: H₂S Present." H₂S is Hydrogen Sulfide gas. (Lance Rosenfield/Prime)

Chemicals released during oil and gas extraction include hydrogen sulfide, a deadly gas found in abundance in Eagle Ford wells; volatile organic compounds (VOCs) like benzene, a known carcinogen; sulfur dioxide and particulate matter, which irritate the lungs; and other harmful substances such as carbon monoxide and carbon disulfide. VOCs also mix with nitrogen oxides emitted from field equipment to create ozone, a major respiratory hazard.

Studies show that, depending on the concentration and length of exposure, these chemicals can cause a range of ailments, from minor headaches to neurological damage and cancer. People in the Eagle Ford face an added layer of risk: hydrogen sulfide, also known as H₂S

or sour gas, a naturally occurring component of crude oil and natural gas that lurks underground.

Like asbestos entombed in a 50-year-old ceiling, H₂S usually isn't a problem if left undisturbed. Once liberated, however, it becomes a formidable threat, capable even in miniscule doses — a few parts per million or less — of aggravating asthma and causing nausea, headaches and eye irritation. It gives off a rotten-egg odor in lower concentrations but at around 100 parts per million the chemical knocks out the sense of smell and begins to act as an asphyxiant. At 1,000 ppm it **kills within minutes**.

Karnes County, in particular, is rich with H₂S. **According to data operators** have submitted to the Railroad Commission, the county's Person field has an average concentration of 16,399 ppm — 16 times the lethal dose — with a maximum concentration of 71,550 ppm. The Panna Maria field has an average concentration of 24,408 ppm and a maximum of 39,000 ppm.

H₂S and some other chemicals emitted during oil and gas production are so dangerous that the federal government has developed safety standards for workers who encounter them on a regular basis.

But there are no clear federal standards to protect people living near drilling sites — including children, the sick and the elderly — who intermittently breathe varying amounts of toxic emissions for years on end.

Scientists “really haven't the foggiest idea” how oil and gas development affects public health, said Aaron Bernstein, associate director of the Center for Health and the Global Environment at Harvard University. Bernstein blames the information gap on a lack of monitoring and research, particularly in the rural, less affluent communities where most of the drilling occurs.

“It's not as though there isn't reason to be concerned,” he said. “These are industrial activities with known emissions that are known to affect people's health.”

Complaints lodged with the TCEQ hint at the scope of air problems in the Eagle Ford.

On Dec. 7, 2011, a woman in Frio County smelled “an oil and rotten egg odor” around 2 a.m. and woke up “with an upset stomach and horrible headaches.”

On April 10, 2012, a family in Atascosa County reported an odor “so bad that their lungs feel as if they will burst.”

“Help us residents of South Texas before we all die,” a Gonzales County resident pleaded the same day. The complaint alleged that an operator had dug a hole in the ground and buried “oily drilling waste...sometimes with diesel fuel, chemicals and oil floating on it.”

Nearly 300 complaints have been filed by Eagle Ford residents since 2010. But for every person who bothers to call the TCEQ, untold others suffer in silence. Among them: Mary Alice Longoria, an X-ray technician at a state prison who lives with her husband in a mobile home near Kenedy, in Karnes County. The Longorias have owned their 2½-acre plot for more than three decades. Until a year ago, Mary Alice could sit on her deck and see only rolling pasture, occupied by horses, cows, deer and the occasional dove hunter.

Now, oil rigs and storage tanks mar her view and send foul odors, noise and blinding lights into her home. A flare ebbs and flows in the distance. She no longer allows her 2-year-old grandson, Gabriel, to play in the backyard because “I’m afraid for his health.” Family barbecues, a staple of South Texas life, have been discontinued.

If the flare burns through the night, Longoria said, she often finds a sticky deposit on the windshield of her pickup truck when she rises before dawn to go to work. Lynn Buehring, who lives about five miles away, described a “greasy, yellow substance” on her windshield.

Longoria hasn’t confronted the operator of the drilling site, having concluded it would do no good. Nor has she tried to contact the state. She wasn’t sure which agency would even field a complaint, she told a reporter; she’d never heard of the TCEQ.

The TCEQ maintains that people like Longoria have nothing to fear.

“[M]onitoring data provides evidence that overall, shale-play activity does not significantly impact air quality or pose a threat to human health,” agency spokeswoman Andrea Morrow wrote in an email. “While improperly operated facilities can result in temporary, local, unauthorized emissions, there are no indications that these emissions are of sufficient concentration or duration to harm residents of the Eagle Ford or Barnett shales.”

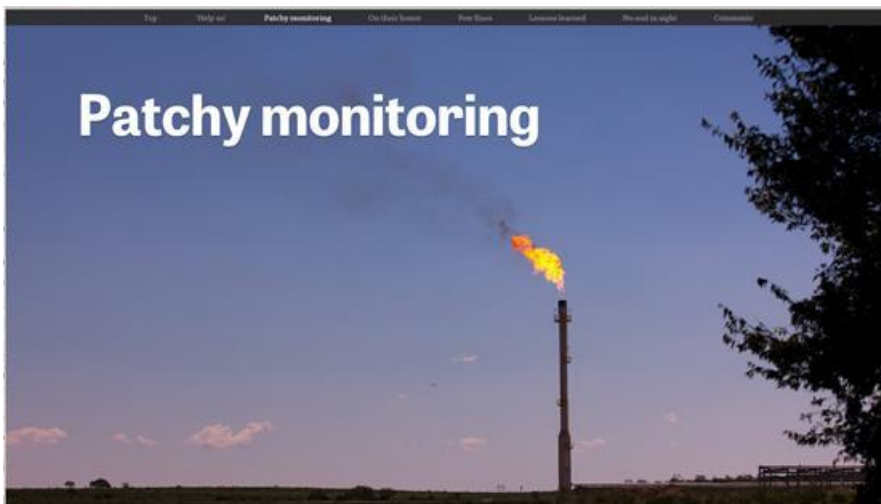
Omar Garcia, president of the South Texas Energy & Economic Roundtable — STEER — the communications arm of the 11 biggest Eagle Ford operators, predicts a “huge reduction in flaring” as more pipelines are installed to capture pollutants.

“The oil and gas industry places a premium on safety and the environment,” Garcia said. “All the operators follow strict guidelines.”



A large flare at a central collection facility emits a dark smoke-like by-product in Karnes County, Texas.

Lance Rosenfield/Prime



The story behind 'Big Oil, Bad Air'

By **Jim Morris**, **David
Hasemyer** and **Lisa Song**

February 18, 2014

Experts interviewed for this story say Texas doesn't have enough data to be able to claim, with any assurance, that the air is safe.

The TCEQ relies primarily on field canister samples, on-the-ground investigations and aerial surveys with infrared cameras to detect emissions. Last summer, the agency used the cameras during two flyovers to capture hundreds of images of the Eagle Ford. A contractor then surveyed 16,015 oil and gas storage tanks and found 800 with leaks, TCEQ spokesman Terry Clawson said.

Asked how the agency dealt with the polluters, Clawson did not respond.

Scientists say that while these spot checks are important, they are no substitute for strategically placed, stationary monitors that continuously measure how air quality changes over time.

The TCEQ has only **five permanent monitors** in the Eagle Ford, all positioned far from the most heavily drilled areas. The Barnett Shale in North Texas, by contrast, has 35 permanent monitors, even though that field covers only about 5,000 square miles — a quarter of the area of the Eagle Ford.

"The biggest challenge with air monitoring is having the measurements in place so you can catch the times when concentrations are high," said Rob Jackson, a Duke University scientist who studies pollution from shale extraction.

The monitor closest to the Buehrings' house is in Floresville, 25 miles away, so it's hard to know how the couple might be affected by the plants and wells that surround them, Jackson said. Their daily exposures would vary dramatically based on wind direction, weather patterns and the rate of emissions from each well and plant.

The TCEQ has no plans to add air monitors in the Eagle Ford, but Clawson said it has contracted with the University of Texas "to conduct mobile monitoring upwind and downwind of the Eagle Ford Shale area."

"This crap is killing me and my family. We went from nice, easy country living to **living in a Petri dish.**"

-Mike Cerny,
former truck driver



Lynn Buehring shows the mask and medicine mist that she relies on for breathing. (Lance Rosenfield/Prime)

The goal of that study, however, isn't to measure air emissions in the Eagle Ford. Instead, it aims to figure out how Eagle Ford pollution may be affecting cities like San Antonio, just beyond the shale play.

The study's director said the data will be gathered from the monitor in Floresville. With no wells nearby, "our sampling wouldn't be overcome by immediate emissions," said David Sullivan, a research associate with the University of Texas' Center for Energy and Environmental Resources.

San Antonio's ozone levels have violated federal standards **dozens of times since the drilling began**. Ozone is one of several greenhouse gases, including methane, released or created during drilling operations. Experts are particularly concerned about methane because it's a powerful greenhouse gas and large-scale leakage could undermine natural gas' reputation as a cleaner alternative to coal.

Even the EPA doesn't know much about methane emissions or the other pollutants from oil and gas production. An **inspector general's report** last year concluded that the agency's air emissions database is incomplete and "likely underestimates" those emissions. The lack of reliable data, the report said, "hampers EPA's ability to accurately assess risks and air quality impacts from oil and gas production activities."

Environmental groups have tried to collect their own air-quality data in the Eagle Ford, but the process is so expensive and time-consuming that they've had little success.



Wilma Subra, left, an environmental scientist and president of Subra Company Inc., and Sharon Wilson, right, of the environmental group Earthworks, present a report on the Eagle Ford to residents of Karnes County and surrounding areas at a public meeting. (Lance Rosenfield/Prime)

Last March, Wilma Subra, an environmental consultant from Louisiana, and Sharon Wilson of the advocacy group Earthworks, accompanied Calvin Tillman, who runs a nonprofit called ShaleTest, as he took air samples near Mike and Myra Cerny's one-acre tract, about a half-mile from the Buehrings.

There are at least 17 oil wells within a mile of the Cernys' small house. Their teenage son, Cameron, gets frequent nosebleeds, and the fumes make his parents dizzy, irritable and nauseous. "This crap is killing me and my family," said Mike, a former oil company truck driver. "We went from nice, easy country living to living in a Petri dish."

Myra complained to the TCEQ in 2012, and **the agency cited Marathon Oil** for operating a broken flare and failing to report thousands of pounds of unauthorized emissions at its Sugarhorn Central gas processing plant. But Marathon paid no penalty. "I feel like we're expendable," Myra said.

The **Cernys have sued Marathon**, hoping to get enough money to move away from the drilling. Marathon spokeswoman Lee Warren said in an email that the company "took corrective actions" after receiving the state citation and engaged in "good faith discussions with [the Cernys] to listen to and address their concerns."

Marathon had monitoring done around the family's house in 2012, prior to the filing of the lawsuit, and found "no levels of air contaminants in excess of regulatory limits," Warren wrote. "The TCEQ conducted further visits to the Sugarhorn site in 2013 and has closed out that case."

The air samples the **environmental groups took** near the Cerny home detected 14 VOCs, including benzene, toluene and xylene, but none in concentrations the TCEQ considers immediately dangerous. Subra said that doesn't mean the air is safe, because the data came from a "grab sample" that represented only a snapshot in time.

She and other scientists say there's another factor that state and federal health guidelines don't consider: the added risks of breathing many chemicals at once.

Guidelines are set for one compound at a time without considering what happens when people are simultaneously exposed to multiple chemicals. To add to the confusion, scientists don't know much about some of the chemicals emitted, and certain proprietary compounds are hidden from public scrutiny.

Neil Carman, who spent 12 years as an investigator with a predecessor to the TCEQ and now works for the Sierra Club, said any of the chemicals could cause illness but become more pernicious when combined. "What you get is a toxic soup," he said. "I would be very concerned about people living there day after day and getting a semi-continuous toxic exposure."

One way to reduce emissions is to identify and crack down on the worst offenders, said Jackson, the Duke scientist. His research in parts of Pennsylvania's Marcellus Shale has shown that while most of the gas wells have relatively low emissions, a small group — 1 percent, 5 percent, or even a tenth of a percent — release an enormous amount of pollutants.

In Texas, however, the fast pace of drilling and the TCEQ's shrinking budget make it difficult to find the culprits.

"If I have just a couple of wells to look at, it's kind of easy to identify the good actors from the bad actors," said David Sterling, chair of the University of North Texas Health Science Center. But that becomes much harder when thousands of wells are being drilled. "As much as I would like to believe that industry can police itself, history has shown that that has not worked without sufficient oversight."

The number of employees in the TCEQ's Office of Compliance and Enforcement, which conducts investigations and performs air monitoring and other health-related duties, has

fallen 13 percent since 2010, when drilling in the Eagle Ford began picking up. Over the same period, the agency's overall budget dropped 34 percent.

"State agencies don't have the resources — and in a lot of cases they don't have the political will — to implement regulations, monitoring and enforcement to keep pace with what's going on in the field," Subra said. "Yet they continue to grant [drilling] permits."

Indeed, the Texas Railroad Commission rarely denies a drilling permit. From January 2003 through September 2013, it issued nearly 200,000 statewide. Only 650 — or 0.3 percent — were rejected.

The Railroad Commission's enforcement record, like the TCEQ's, has come under criticism. In fiscal year 2012, it referred for enforcement action only 2 percent of the 55,000 violations its field staff found statewide, [according to the state Sunset Advisory Commission](#), whose mission is to eliminate "waste, duplication, and inefficiency in government agencies." Of the 217 fines levied, the average was less than \$9,000.

Railroad Commissioner David Porter said fines don't tell the whole story. "We're more concerned about bringing people into compliance than we are in punishment after the fact," he said in an interview. One way to do this, he said, is through a process called severance: The commission can order companies to halt production if they don't adhere to the rules; production can resume only after the problems have been fixed.

The commission has sent out about a quarter-million severance notices over the past 10 years. In 62 percent of the cases, the mere threat of a crippled well was enough to prod the operator into compliance, spokeswoman Ramona Nye wrote in an email. Another 32 percent were resolved after a severance order was issued. The rest required fines or closure.

Asked how many wells were closed by the commission last year, Nye wrote that such information was "not readily available."



The scene at a cattle ranch in Wilson County, Texas.

Lance Rosenfield/Prime

Tough new fracking rules in Colorado drawing keen attention in Texas, where boom rages on

By **Zahra Hirji**, **Lisa Song** and **Jim Morris**

March 20, 2014

Texas' regulatory efforts are also hamstrung by a law that allows thousands of oil and gas facilities — including wells, storage tanks and compressor stations — to operate on an honor system, without reporting their emissions to the state.

Operators can **take advantage of this privilege** — called a permit by rule, or PBR — if their facilities emit no more than 25 tons of VOCs per year and handle natural gas that is low in hydrogen sulfide. Two employees in the TCEQ's air permits office — Anne Inman and John Gott — estimate these PBRs could account for at least half of the hundreds of thousands of air permits the agency has issued for new or modified oil and gas facilities since the 1970s.

"It's probably not even fair to call them permits," said Ilan Levin, an Austin-based lawyer with the Environmental Integrity Project, a research and advocacy organization. "The regulators don't have a clue as to what's really coming out of some of these facilities. They're just ever-so-gently regulated; that's exactly what the state of Texas has intended."

Operators with this type of permit aren't required to file paperwork backing up their self-determined status, so the TCEQ has no record of most of the facilities' locations or emissions.

A [chart generated in 2011](#) by the office of then-TCEQ deputy executive director Zak Covar says the permits "Cannot be proven to be protective. Unclear requirements for records to demonstrate compliance with rules."

Levin said there's some justification for PBRs — "it would overwhelm the [TCEQ] if you had every mom-and-pop oil and gas operator out there filling out applications that had to be reviewed by regulators."

But Levin said the system is open to abuse.

"It's probably not even fair to call them permits. **They're just ever-so-gently regulated**; that's exactly what the state of Texas has intended."

-Ilan Levin



Clearing and grading take place for a new Marathon Oil fracking and well site in the Eagle Ford Shale, near Karnes City, Texas. (Lance Rosenfield/Prime)

Big operators sometimes get a PBR for each component of a facility. Each might be under the 25-ton-per-year threshold that would require a more rigorous permit, but the facility as a whole could emit more than that.

The TCEQ refers to the practice as the “[stacking of multiple authorizations](#),” and the memo from Covar's office said its use “means that protectiveness and compliance with the rules cannot be demonstrated.”

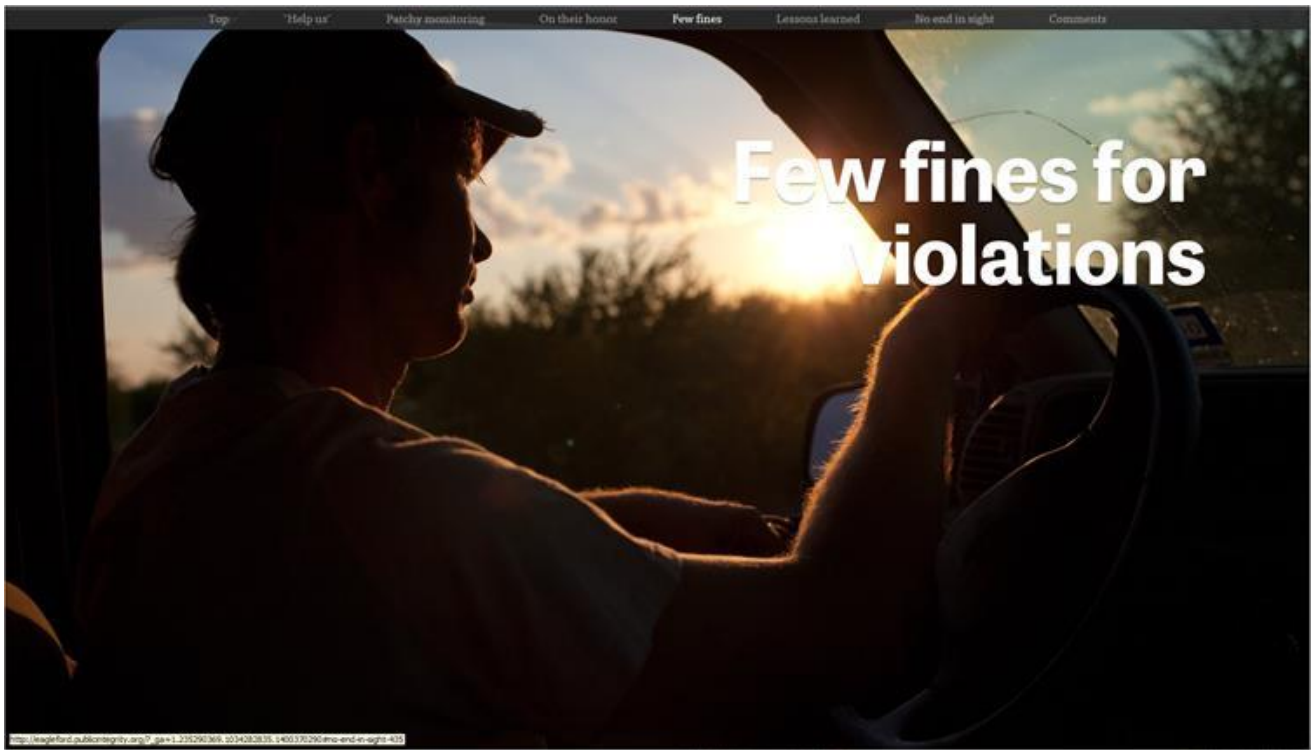
The TCEQ also has trouble dealing with “emission events” — unplanned releases above and beyond what operators are allowed to discharge during standard maintenance, startup and shutdown activities. Emission events are usually caused by human error or faulty equipment.

The number of emission events associated with oil and gas development doubled between fiscal years 2009 and 2013, from 1,012 to 2,023. The amount of air pollutants released into the Texas air during these events increased 39 percent.

A [gas processing plant](#) in McMullen County, in the southwestern portion of the Eagle Ford, reported [166 emission events last year](#), almost one every other day. From 2007 through 2011, the Tilden plant, owned by Regency Energy Partners of Dallas, discharged 1,348 tons of sulfur dioxide during such episodes. That’s more than 30 times the amount it was legally allowed to release during “normal” operations.

Companies are required to report emission events within 24 hours. But they don’t always comply.

Marathon waited three months to report [a 2012 incident](#) at its Sugarhorn plant near the Cernys and Buehrings. It released 26,000 pounds of VOCs in 12 hours, 1,000 times more than [allowed under its air permit](#).



Eagle Ford operators that violate state regulations face few, if any, repercussions.

In an email, the TCEQ's Morrow said the agency has cited Regency's Tilden plant for five air violations over the past decade and that Regency has paid a single, \$3,000 fine.

Even then, Regency — which had a net income of \$48 million in 2012, the last full year for which data are available — wasn't punished for allowing chemicals to taint the air. Instead, it was fined for not reporting a Nov. 30, 2012, leak within 24 hours.

Morrow said fines are based on a facility's compliance history. Each facility receives a score and is rated high, satisfactory or unsatisfactory. The TCEQ considers the Tilden plant to be satisfactory, she said.



A fracking operation ends and the production phase begins at a well site in Karnes County, Texas.

Lance Rosenfield/Prime



Larry Soward, a former commissioner with the Texas Commission on Environmental Quality (TCEQ), and current chairman of Air Alliance Houston.

Lance Rosenfield/Prime



Cattle graze near venting tanks which store produced water (white tanks) and condensate (green tanks) from oil and gas drilling activity nearby. The orange wind sock serves as a protection measure for the poison gas hydrogen sulfide. (Lance Rosenfield/Prime)

A spokeswoman for Regency, Vicki Anderson Granado, said in an email that the plant has been “modernized and improved throughout its history” and “was among the industry leaders” in adopting an acid gas injection technology that sends what would otherwise be air emissions deep underground.

Granado did not respond when asked why the plant had so many emission events last year.

Larry Soward, a former TCEQ commissioner with a reputation for being tough on industry, said the agency’s enforcement strategy is shaped by its top-down management style. Its upper ranks consist of people who share Gov. Perry’s business-friendly point of view, he said. Its middle managers and investigators “know the parameters very well in which they can operate. It’s not unclear, especially to the field staff, who they can go after and who they can’t.

“You have a regulatory system that says, ‘Well, even if you did something bad, we’re just going to say don’t do it again, or slap you on the wrist,’ and companies in industry know that,” Soward said.

He said his greatest regulatory success came after he left the TCEQ in 2009 and joined Air Alliance Houston, an environmental group, as a consultant in 2011. That year the group successfully helped lobby the legislature to increase the maximum TCEQ fine from \$10,000 per violation per day to \$25,000.

But the agency rarely imposes the maximum penalty.

Between January 2012 and October 2013, the TCEQ issued 117 fines statewide for violations related to oil and gas production. Operators paid less than \$25,000 in more than three-quarters of those cases, records show. The two fines that arose from complaints in the Eagle Ford were both lower than that.

Houston psychiatrist Charles Covert, who owns a cattle ranch in La Salle County, filed a [sworn affidavit](#) with the TCEQ in April 2013 saying he had been “poisoned by [hydrogen sulfide] inhalation in his own ranch home compound and was seriously injured.” He said he required “intensive medical treatment by 5 doctors for the past seven months.”

Covert blamed his illness on discharges from the nearby Alderman Ranch Tank Battery, where Houston-based Swift Energy Co. has a well and stores crude oil and natural gas condensate, a mixture of hydrocarbon liquids. Swift, he alleged, operated the site for months without acknowledging the well was sour — a term that refers to high levels of hydrogen sulfide. Covert did not respond to interview requests.

After Covert complained, **TCEQ investigators went to the site four times.** “The staff detected moderate to strong odors and experienced irritation of the eyes and a burning sensation in the throat during odor surveys,” the agency said in a statement.

Swift, which had a net income of \$20.9 million in 2012, was cited for discharging air contaminants “in such concentration and of such duration” that could harm human health or property or impair quality of life. It was fined \$14,250.

In an emailed statement, Paul Vincent, Swift’s director of finance and investor relations, said the TCEQ citation “did not state that Swift Energy was causing adverse health effects, only that a potential for such effects was possible.” He said Swift paid the fine “without any admission of any violation alleged.”



Amber and Fred Lyssy and their three young children mix family time with doing chores on their farm.

Lance Rosenfield/Prime

More often than not, residents' complaints lead nowhere, as Fred and Amber Lyssy discovered in April 2013.

The Lyssys raise pigs, goats and cattle on a 564-acre organic farm in Wilson County outside Floresville. The land is owned by Fred's mother, Agnes Ramos, who for years has refused offers to lease the mineral rights for drilling. Some neighboring landowners have accepted, however, and the Lyssys' land is now surrounded by wells, flares and holding tanks.

When foul odors swept across the farm, the Lyssys suspected a gas processing plant less than a mile away. Fred stopped letting his livestock graze on the pasture next to the facility and moved his and Amber's bedroom to the opposite side of the house. They worry about how their three children — ages seven months, 3½ and 6 — will be affected by the pollution. They fear it will jeopardize their pledge to provide organic food to their customers.

"We are about liberty and freedom," Amber said, "but they are trespassing with their emissions."

The Lyssys' anxiety mounted when six of their dogs — Anatolian Pyrenees that they use to work the farm — suffered mysterious, agonizing deaths. Five died within a few days of one another in February 2013. Amber said they began vomiting, scratching their heads bloody and whining for no apparent reason. Their veterinarian ruled out common substances like antifreeze and rat poison but could provide no explanation. The cost of a necropsy barred any more definitive answers.

After the Lyssys complained to the TCEQ, **inspectors made two visits to the area**. Using an infrared camera and handheld gas monitors, they detected hydrogen sulfide and other unspecified emissions coming from a Hunt Oil complex with 12 crude oil tanks and a flare.



A view of the Lyssy family farm with a fracking operation nearby in rural Wilson County, adjacent to northwest of Karnes County. (Lance Rosenfield/Prime)

A Hunt executive told the TCEQ he had no idea there were leaks and promised to repair the vents and oil tank hatches responsible for the emissions. The agency was satisfied and did not cite the company for any violations.

Three weeks later, the investigators returned for a third visit and again found hydrogen sulfide leaks, according to a TCEQ report. Again, Hunt — a private company with \$4 billion in revenue last year, according to *Forbes* — promised to get things fixed.



Amber Lyssy, center, holds open a chicken coop door while her son, Kaylen, 5, collects eggs. Amber holds her one-month-old son, Landon, while Mirabelle, 3, watches Kaylen. Fred Lyssy stands in the foreground. Fred and Amber and their three children live and work on their 564-acre organic farm near Floresville, Texas. (Lance Rosenfield/Prime)

The investigation was closed in August with a notation that there were “no violations.” The Lyssys’ sixth Pyrenees, Big Boy, died in November after showing the same symptoms as their other dogs.



Fred Lyssy, right, works chores on his family's farm near Floresville, Texas. Two of his three children, Mirabelle, center, and Kaylen, left, look on from the bed of his pickup truck. Fracking operations have cropped up just beyond his fence line. He and wife Amber are concerned about toxic emissions. (Lance Rosenfield/Prime)

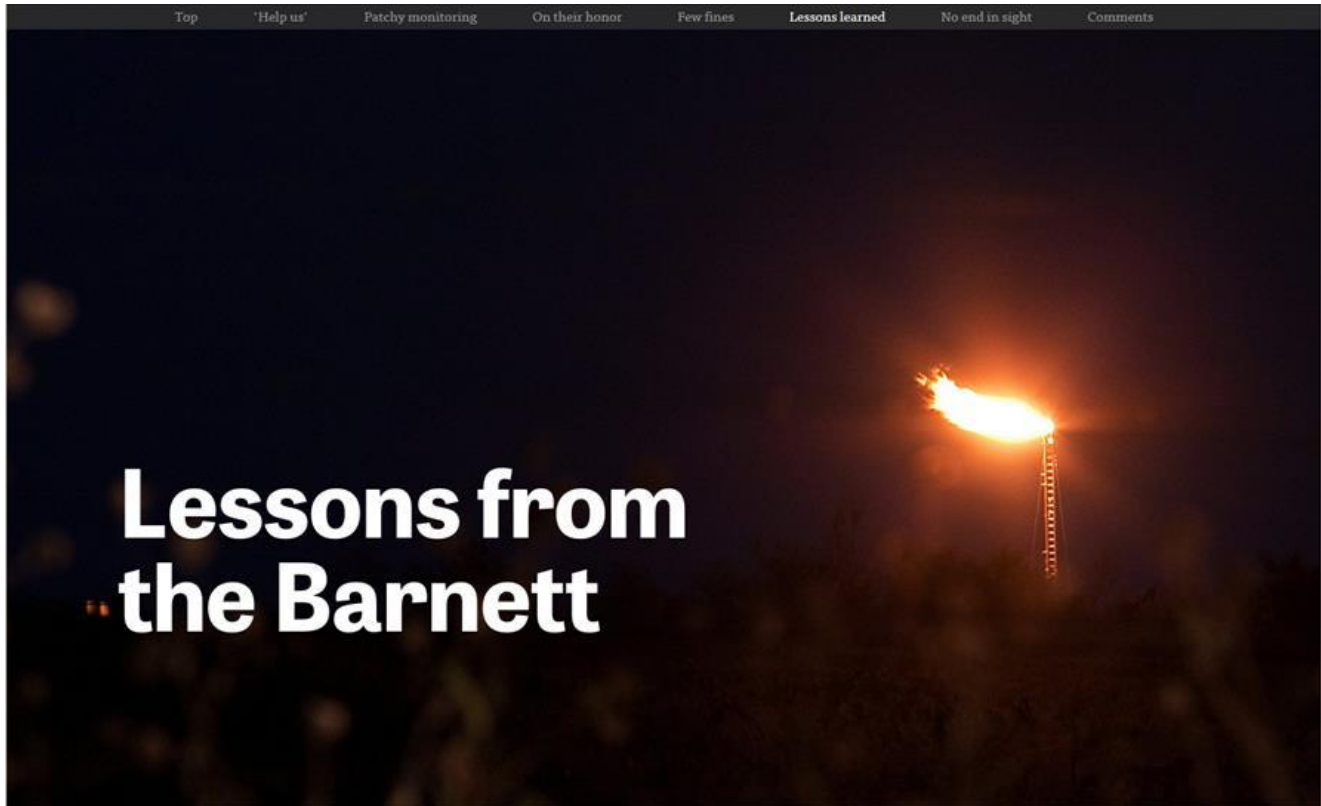
Paul Licata, Hunt's vice president of environmental, health and safety, blamed the leaks found during the TCEQ's follow-up visit on contractors who had done the initial repairs. When the inspectors discovered the site was still leaking, Licata said, Hunt responded immediately.

Jeanne Phillips, a Hunt spokeswoman, said the company "is pleased that the TCEQ found no fault with Hunt and we are proud of our longstanding policy of working closely with communities ... where we have operations."

Oil companies are still pressuring Ramos to lease her mineral rights. They want the land so badly, she said, that company representatives have trespassed, lied, badgered and turned four of her six daughters against her.

"My daughters say, 'But Mom, God put the oil on the land to be used, so you are going against God,'" Ramos said.

Ramos sees it differently. If she gave in to the oil companies, she said, “I would be going against God because he gave us this land to take care of.”



'Close your doors and go away:' readers react to fracking investigation

By **The Center for Public Integrity**

February 21, 2014

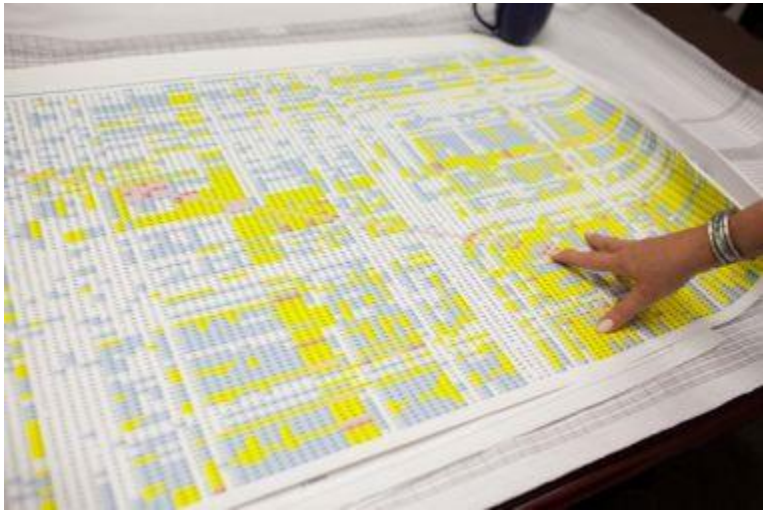
Texas regulators and politicians had a clear idea of the problems that would arise in the Eagle Ford even before the drilling boom began.

Between 2003 and 2011, some 2,000 wells had been drilled within the city of Fort Worth, which lies atop the Barnett Shale formation, and six times that many were drilled in nearby communities. Tanker trucks rumbled past suburban lawns. Flares burned next to schools and playgrounds. An industry normally hidden in rural areas was suddenly visible to suburbanites, some of whom were frightened and incensed by the intrusion.



Fracking activity can be seen on the horizon of south Texas ranch land.

Lance Rosenfield/Prime



Results of from fracking activities in the Barnett Shale around Fort Worth, Texas.

Lance Rosenfield/Prime

Under pressure from residents and the EPA, the TCEQ added more air monitors in the Barnett and agreed to respond to complaints in a timelier fashion. It also tightened its permit-by-rule regulations in the region.

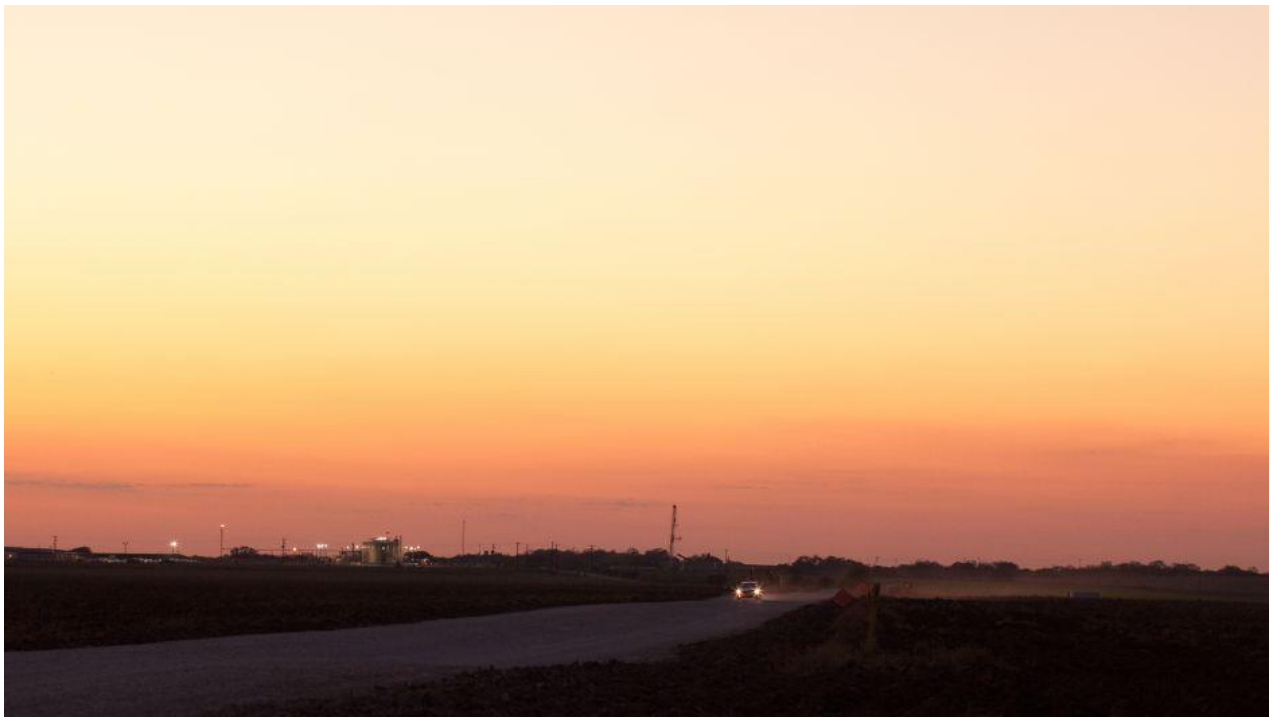
The TCEQ was going to extend the new rules statewide, but in 2011 the legislature stepped in and passed a bill that effectively blocked the plan. The following year, the TCEQ itself limited the rules' use in the Barnett, restricting them to 15 of its 24 counties.

A [2012 agency memo](#) shows the TCEQ was fully aware that drilling companies needed more oversight. Titled "Findings and Lessons Learned from Barnett Shale Oil and Gas Activities," it said "nearly all of the issues documented [in the Barnett] arose from human or mechanical failure that were quickly remedied and could have been avoided through increase [sic] diligence on the part of the operator."

Soward said Barnett residents got at least a little protection because they "yelled and screamed" until the TCEQ responded. But yelling — and organizing — doesn't come naturally to most residents in the Eagle Ford, who tend to have fewer resources and less political power than people in North Texas.

The demographic differences may help explain why the city of Dallas recently passed one of the strictest setback rules in the country: No well can be drilled within 1,500 feet of homes, schools, churches and other sensitive locations. In Colorado, the equivalent rule is 500 to 1,000 feet depending on the type of building; it's 500 feet in Pennsylvania.

Texas has no statewide setbacks, aside from a 1,320-foot buffer zone for facilities with high levels of hydrogen sulfide. For all other oil and gas sites, it relies on communities to take the lead. Eagle Ford counties like Karnes, LaSalle and McMullen have no restrictions despite a glut of drilling.



Dusk in rural Karnes County

Lance Rosenfield/Prime



Pipes carrying water for fracking operations line a gravel road in rural Karnes County.

Lance Rosenfield/Prime

Every month, the Texas Railroad Commission updates an [online map of drilling activity](#) in the Eagle Ford, using green dots to represent oil wells and red dots to represent gas wells. Karnes County is almost entirely obscured by green and red; other counties aren't far behind.

“Karnes County is ground zero,” said its chief administrative officer, County Judge Barbara Shaw. “We always have fears that the federal government is going to stop it.” Shaw, whose husband works in the oil industry, admits that the boom has brought about some unpleasant changes in the county of 15,000. Traffic deaths rose from two in 2010 to 25 in 2012, trucks are tearing up the roads, and monthly rents on houses have quadrupled, pricing out those with modest incomes.



A large pond used in a fracking operation has been constructed in a field in rural Karnes County. (Lance Rosenfield/Prime)

Still, Shaw believes the benefits outweigh the disadvantages. Land that once sold for \$1,500 to \$2,000 acre now brings 10 or 20 times as much. Oil, the judge said, is “a natural resource that’s given by God to allow us to function I don’t think there’s anything wrong with that.”

The tax base for Karnes County's industrial sector — which includes mineral rights, land and building values, and manufacturing — exploded from \$217 million in 2008 to \$6.2 billion in 2013, nearly a 28-fold increase.

“The Eagle Ford Shale is the biggest economic investment zone in the entire world. It may go down as the largest oil and gas field ever discovered in the United States,” said Steve Everley, who works in Washington, D.C., for Energy in Depth, a research, education and public-relations arm of the Independent Petroleum Association of America. A former aide to Newt Gingrich, he’s a polished, thoughtful evangelist for oil and gas extraction.

Asked how poorer residents of places like Karnes City could expect to benefit, Everley said they might be able to find jobs in restaurants, or as truck drivers. The latter can make “six figures,” he said.

What about those whose lives have been disrupted, like the Buehrings and Mary Alice Longoria? Everley was not unsympathetic, saying they should complain to operators or the state if something is wrong, and that the industry “takes questions about air emissions or air pollution very seriously.”

Still, Everley made it clear he believes most of the naysayers are simply anti-drilling.

“I mean, are we going to prevent people from having jobs? Are we going to relegate an entire section of the state to continued poverty or are we going to move forward with economic development?”

Mary and Nolan Jonas accept the industry’s message — for now, at least. The couple, who were both born in Karnes County, began working the land soon after they were married 46 years ago. Nolan ran a farm and cattle ranch. Mary raised the children, two sons and a daughter, and taught math at Karnes City Junior High School for 20 years.

There were a few good years and a lot of bad ones, some really bad. Sometimes the land was so parched the crops withered, and the prairie grass dried so brittle the cattle had little to fill their stomachs.

But Nolan never gave up on his land. This was his home, his livelihood and his way of life.

Then came the Eagle Ford boom, and fortune was right underfoot. The Jonases sold their mineral rights to an oil development company. They won’t say for how much, though Nolan said his grandchildren will never want.

“We had a lot of hard years on this land, but now it is giving back. It has made us prosperous,” he said.

When the wind blows from the north, there’s a piquant reminder of the bargain the Jonases have struck. A processing plant less than 150 yards from their property gives off an odor that Mary can’t quite describe. Rotten eggs? Something oily? “It’s an awful odor,” she said. “I can’t describe it because it’s not like anything that I’ve ever smelled before.” Will it harm them or their grandchildren, who play on a swing set as a bright orange flare trails smoke in the background? “I guess it’s something to be concerned about, but I honestly hadn’t thought about it,” Mary said. “I’ve always just said we take the bad with the good.”

To hear Everley tell it, the good will continue indefinitely. The Eagle Ford figures to produce for many years to come, and the industry is eyeing a new area — the Cline Shale in West Texas — for development.

“There is no end in sight,” Everley said.

Contributors to this report include Alex Cohen, Chris Zubak-Skees, Zahra Hirji, Sabrina Shankman and Marcus Stern.