

'Frack holiday' end is near

After a slowdown over production, the Permian shale play is beginning to heat up. **PAGE B3**



Kelsey-Seybold plans new Kingwood clinic

The multispecialty medical facility will be three times the size of the site damaged by Harvey. **PAGE B4**

Venmo, Zelle adding warnings

If you send money to the wrong person via instant payment apps, it's your responsibility. **PAGE B5**

BUSINESS

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Section B

UT study bolsters link with fracking

Wastewater disposal in deep wells found to spur faults to slip; some eye regulation

By Rye Druzin
STAFF WRITER

A new study by the University of Texas strengthens the links between earthquakes and the disposal of wastewater from oil and gas operations deep underground.

The study found that the depth of wells drilled for wastewater disposal, the volume of water, and the rate at which the water is pumped into the well are factors that contribute to the increase in earthquakes in regions where oil and gas is produced.

The problems come when disposal wells, drilled thousands of feet deep, reach so-called basement rock formations, which are older, more brittle and have larger faults.

The additional pressure from wastewater can cause the faults to slip, leading to earthquakes, according to the study. That helps explain why earthquakes have been more prevalent in Oklahoma, where basement formations can be reached in as little as 4,000 feet, less than half the depth in the Permian Basin in West Texas.

"The issue is injecting water and creating this pressure," said Bridget Scanlon, the lead author of the study.

Extracting oil and gas produces millions of gallons of wastewater, from the brine left from ancient seas that flows out with oil to the chemical-laced water used in hydraulic fracturing.

In the days of conventional drilling, when wells were sunk straight down into oil reservoirs, the water was simply pumped back into the reservoir from which it came. But horizontal drilling, which cuts across shale rock that will be fractured to release oil and gas, requires companies to find other places to dispose of the water, typically in disposal wells that are drilled deep underground.

Since the fracking boom got underway, earthquakes have occurred in areas that rarely experienced them before. Oklahoma, for example, experienced fewer than two earthquakes a year between 1978 and 1999. Between 2014 and 2016, more than 2,100 earthquakes occurred.

Making the link between oil and gas operations and increased earthquakes was controversial, with both industry officials and regulators expressing skepticism that disposal wells were causing earthquakes. The Texas Legislature, in its 2015 and 2017 sessions, established the TexNet Seismic Monitoring Program, which includes a network of seismic sensors overseen by the University of Texas' Bureau of Economic Geology.

The program's responsibilities
Quakes continues on B6

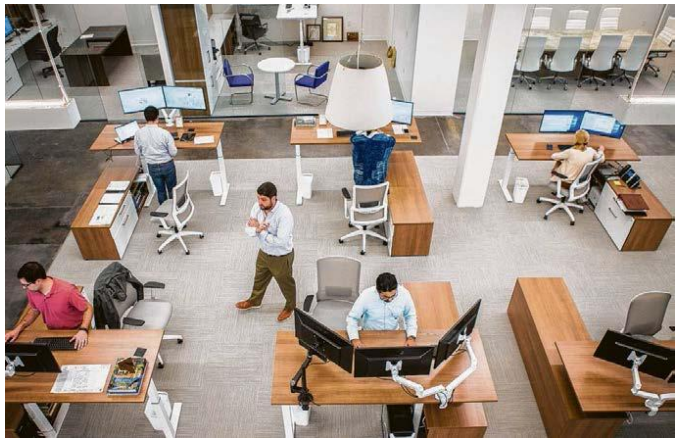
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Will not appear in today's paper



DEVELOPMENT

Strength in numbers



Mark Mulligan / Staff photographer

Frankel Building Group relocated from Woodway to the design district to take advantage of services customers need.

A cluster of design-related firms grows in west Houston, creating a one-stop specialty district of talent, services and retail that can drive economic growth

By R.A. Schuetz
STAFF WRITER

In the course of a recent afternoon, interior designer Pamela O'Brien picked up porcelain tile samples at Thornton, ordered samples of wallpaper from Fabric House, shopped for office furniture at Johnson Simon, and checked orders for plumbing parts at Fixtures and Fittings. She then visited three more building specialty stores, all found within the same half-mile radius.

"You really could build a house here," she said, "going from shop to shop."

O'Brien's shopping spree represents just a smattering of the design-related businesses squeezed into a square-mile wedge of west Houston bordered by Interstates 10 and 610 and the former MKT railroad. At least 95 businesses — ranging from flooring to lighting to archi-



Mark Mulligan / Staff photographer

"You really could build a house here, going from shop to shop," said interior designer Pamela O'Brien, center.

tectural services — have cropped up here, with more on the way, including custom home builder Frankel Building Group Studio, stone and tile provider Pomgranit-ADR and wood flooring company Vision Wood.

The area, which some have dubbed the Houston Design District, has become a classic

example of what economic development specialists call a cluster, a dense concentration of similar companies that testifies to the enduring benefits of physical proximity, even in the internet age. Clusters — think movies in Hollywood and, of course, energy in Houston — provide the kind

of access to customers, talent pools, support services and the exchange of knowledge that attracts more companies, talent and investment in the kind of virtuous circle that drives economic growth.

For example, Scott Frankel, co-president of Frankel Building Group, said he decided to relocate from Woodway to the Design District because he recognized the advantages of being closer to services that his company and customers need. He said he envisioned a future in which people wanting a custom home could chat with architects in the office, then walk next door to the Lado Design Center, where Frankel has a showroom, to consult with designers.

"We look at this as more of a campus approach," Frankel said. "We want to be where the action is."

The development of the design district holds lessons
Design continues on B7

AGRIBUSINESS

Cargill expanding traceable turkey program

Blockchain technology allows users to add to 'digital ledger' about where food is grown

By Kristen Leigh Painter
STAR TRIBUNE

Cargill is expanding its traceable turkey program this holiday season so more consumers can know the name of the farmer who raised their Thanksgiving bird.

The agribusiness, based in Minnetonka, Minn., tested its program in Texas last year with its Honeysuckle White brand. Consumers responded so favorably the company decided to nearly quadruple the number of traceable birds available in

stores this November and December.

Cargill is also broadening the availability to major metropolitan areas in about 30 states. A limited number of fresh whole birds are also available through online retailer Amazon.

It's the latest example of a large food manufacturer responding to consumers' desire for more information about how and where their food was grown.

"We knew it was something consumers said they wanted,
Turkeys continues on B7



Justin Sullivan / Getty Images

Cargill, the third-largest turkey company in the U.S., is offering traceable services of its birds to major cities in about 30 states.

BUSINESS

DESIGN

From page B1

for efforts aimed at spurring new clusters, including Houston's attempts to build a tech sector. Clusters don't pop up overnight, but rather grow over decades, fertilized by an almost magical mix of capital, talent and entrepreneurial vision, research shows.

They build on the particular strengths and advantages of a region and typically develop around anchor companies and institutions. Silicon Valley grew up near Stanford University and the tech pioneer Hewlett Packard while Boston's biotechnology cluster took root near Harvard University, the Massachusetts Institute of Technology and leading research hospitals.

Gaby Rowe, CEO of the local startup hub Station Houston, is trying to build a local technology hub by providing a central location where entrepreneurs and investors can get together, whether by appointment or serendipity. Ideally, Rowe said, a center brings "interaction among different people trying to solve similar problems, leading to unexpected innovations."

"Having those moments of physical overlap is the firm's magical ingredient that gives each member an exponential boost," Rowe said.

The Design District can trace its roots to the 1980s, when both Ladco Design Center and the Houston Design Center moved to the area, then filled with warehouses along the railroad. Ladco was originally a furniture warehouse that used the railroad to receive shipments, but eventually evolved from a distributor into a showroom, where



Mark Mulligan / Staff photographer

Interior designer Pamela O'Brien, left, and Patricia Rocha, with Fixtures & Fittings, look at choices of knobs in the showroom.

designers could browse and purchase furniture. Ladco later launched an in-house team of designers to help people reimagine their homes and began offering an expanded selection, including textiles and lighting fixtures. The Houston Design Center, originally known as the Resource Center, rented space for vendors to show and sell furniture, flooring and other materials to interior designers. Those businesses attracted an even wider range of tenants to the Houston Design Center, including architects, commercial developer, and the suppliers artwork to grace a corporate lobby.

Some of the Houston Design Center's businesses served as incubators for

new ones. Leighton Hale, for example, worked at the front desk of Memorial Antiques and Interiors, which leases space from the design center and subleases it to small antique dealers selling everything from Country French antiques to mid-century modern furnishings and art. After several years, Hale launched his own antiques company, leasing space from Memorial Antiques, before opening his own 12,000-foot store, Back Row Home, nearby in 2012.

Hale said it was important for him to stay in the area because that's where designers shop. "Usually the way it works," he said, "is they come out and hit all at one time."

The concentration of

cause architects, designers and other furniture dealers are located nearby, with more moving to the area soon.

Silsby added that the variety of specialty businesses is an added perk that allows her to provide extra levels of services to her clients. When a client needs something outside of her specialty, she can just walk them over to an expert, as she recently did for an energy company that also needed patio furniture and umbrellas. "We tend to share and recommend and work together on things," she said.

Pomogranit-ADR, which sells stones ranging from subtle grays to fantastically striated greens and golds, recently signed a lease to open a location in the Design District for similar reasons. "We do business with a lot of architects and designers whose offices are 10 minutes of there," said the owner, Jay Sebia. "For us, the most important thing, trying to find a location, is its proximity to the actual Design Center."

As the Design District has gathered momentum, the Houston Design Center and Ladco Design Center have made further investments in the area. Ladco, for example, is adding 20,000 square feet to its 80,000 square-foot facility and has partnered with two other companies to develop an additional 60,000 square feet in adjacent properties that it acquired.

The redeveloped space will be leased to architects, flooring providers and other tenants, including Frankel Building Group. The plans also call for attracting a restaurant, where architects and designers could bring clients to discuss their visions over a quick bite and a repot.

On a recent visit to his new office, Frankel he reflected on a experience he had about 13 years ago, while touring one of his buildings with a real estate agent. The agent pointed to window frames, counters and other details that had gone out of style within the previous year.

"And I'm telling you this guy was right," Frankel said. "As a home builder, you fall into a repetition."

Frankel doesn't want to fall behind on the most current trends in homes again. "That's part of the edge he hopes to gain from the move at the end of October into the Design District."

"We want to continue to evolve," Frankel said. "And it requires our architectural staff and our interior design staff and, most importantly, the other designers we collaborate with and people like the good people at Ladco to help us keep tabs on what's evolving and how things are flowing. Because the interior design space — it doesn't slow down."

Paul Takahashi contributed to this report.

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TURKEYS

From page B1

but then to actually see a lot of positive response really sealed the deal on why were doing it and why we should continue to do it," said Cassie Leung, Cargill's brand manager for HoneySuckle White.

The tracing is enabled through a technology called blockchain that allows multiple users to add information to a "digital ledger" that is shared across a network of computers. Because the data are constantly updated and stored in countless places, it is harder to hack and easier to verify.

The food industry likes the idea of using blockchain for food safety so contaminated food could immediately be traced. But beyond some of the obvious internal incentives for companies, many manufacturers are beginning to see the emotional benefit blockchain could play with consumers, said Lauren Demeritt, chief executive of the Hartman Group, a consumer foods research firm.

"Consumers really want to hear the narrative," Demeritt said. "Narratives about the care and intent that went into products can really drive sales. If you can trace that back to people and families, there is a halo around (the product)."

The traceable birds have coded packaging that a shopper can enter in a text message or on the company's website and then immediately receive the location of the farm, the name of the farmer or family, images and any other information the producer wanted to share.

Farmers have been enthusiastic about the program, Long said, as it gives them a chance to share more about themselves directly with consumers who may not know much about raising turkeys.

Cargill's HoneySuckle team has spent the last year growing its network

of farms in the program from four to 70 independent turkey operators in Texas and Missouri. That raised the number of traceable turkeys in the marketplace from 60,000 to 200,000 at thousands of U.S. retailers. The company is still selling them only during the winter holiday season, but said it is considering other key sales during the year.

Cargill said it is not charging more for the traceable turkeys, but it's up to retailers to set the price it sells them to consumers. Traceable HoneySuckle White turkeys on Amazon will cost more than in stores to cover shipping costs, a company spokesman said.

Farmers markets have long offered consumers a place to buy food with details about its origins. This has spilled into co-ops, boutique food stores and now mass-market retailers. Cargill, the world's largest agricultural commodities supplier, is synonymous with the consolidated food system.

But even large producers and manufacturers are recognizing the benefit of giving consumers more information about their processes and sourcing — even if traceable stock is a small fraction of its overall production.

"Transparency in our food system is always a good thing. Companies are all looking for ways to differentiate themselves, and I think anything that gives consumers more information is good," said Helene Murray, executive director of the Minnesota Institute for Sustainable Agriculture at the University of Minnesota.

There are other ways for consumers to trace their Thanksgiving birds, Murray said. She buys hers from Minnesota-based Callister Farm at the St. Paul farmers market but applauds any company trying to improve transparency in the supply chain.

Demeritt said public concern is fading over greenwashing — a problem

where companies use marketing to make their products appear better for the environment and people than they might actually be.

"Mainstream consumers are wanting some of these premium attributes that maybe only a small group wanted a few years ago," Demeritt said. If advances in technology can be applied to the way food values have changed, then that's positive for most consumers, she said. "They now have access to these narratives and stories that they can buy at a price that is much more palatable than it probably was in the past."

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