



SIERRA  
CLUB  
FOUNDED 1892

Houston Regional Group

~~P. O. Box 3021~~

~~Houston, Texas 77253-3021~~

~~713-895-9309~~

<http://texas.sierraclub.org/houston/>

December 31, 2019

Oil & Gas EIS Project  
Mr. Robert Potts  
Natural Resources and Planning Team Leader  
National Forests and Grasslands in Texas  
2221 North Raguet  
Lufkin, Texas 75904

Dear Rob,

The Houston Regional Group and Lone Star Chapter of the Sierra Club (Sierra Club) provide this eleventh set of comments for scoping for the U.S. Forest Service (FS) oil/gas leasing environmental impact statement (OGLEIS) under the National Environmental Policy Act (NEPA) for the National Forests and Grasslands in Texas (NFGT).

Although the official scoping period is over, the Sierra Club will continue to send the FS documents and articles that relate to the OGLEIS. The Sierra Club has been told in the past that although there is an official scoping comment period, that scoping extends from the beginning of the scoping comment period until the draft EIS is released. There are additional articles that the Sierra Club provides to the FS with this letter.

1. "Permian natural gas disposal problem is getting worse", Rachel Adams-Heard and Catherine Ngai, Bloomberg News, Houston Chronicle, December 29, 2019.

This article documents how release of methane is increasing in the Permian Basin which causes more climate change pollution.

2. "2019 Milestones reaffirmed decade's story of abundance", Grant Smith, Bloomberg News, Houston Chronicle, December 29, 2019.

This article documents the overproduction of oil/gas which has created lower prices in the in the latter part of this year.

"Oil, gas industry closes a lackluster year", Sergio Chapa and Erin Douglas, Houston Chronicle, December 28, 2019.

This article documents the "boom and bust" economy that oil/gas production has had this year.

"When we try to pick out anything by itself, we find it hitched to everything else in the universe." *John Muir* <sup>1</sup>

The Sierra Club appreciates this opportunity to provide these additional initial scoping comments about the social, economic, and environmental impacts of the OGLEIS. Thank you.

Sincerely,

A handwritten signature in black ink, reading "Brandt Mannchen". The signature is written in a cursive, flowing style with a large initial 'B'.

Brandt Mannchen  
Forest Management Issue Chair  
Lone Star Chapter of the Sierra Club  
Chair, Forestry Subcommittee  
Houston Regional Group of the Sierra Club  
20923 Kings Clover Court  
Humble, Texas 77346  
281-570-7212  
[brandt\\_mannchen@comcast.net](mailto:brandt_mannchen@comcast.net)

# fuel fix

THE WORLD OF ENERGY  
FROM FUELFIX.COM

OIL

## 2019 milestones reaffirmed decade's story of abundance

## MARKETPLACE

Light, sweet crude  
Dollars per barrel:

	12/27	12/20	ago
West light	\$61.72	\$61.22	\$44.61
Spot sour	\$61.57	\$60.31	\$36.31

## Natural gas

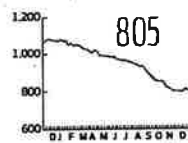
Dollars per million  
British thermal units:

	12/27	12/20	ago
West	\$2.158	\$2.773	\$3.642
Henry Hub	\$2.09	\$2.27	\$3.42

Source: Bloomberg

## Rig count

U.S. drilling activity was down eight at 805 rigs. Drilling in Texas was down 14 at 404 rigs. The offshore rig marketed utilization rate in the Gulf was 78.6 percent, down from last year's 83.7 percent.



Rigs drilling	12/27	12/20	ago
Texas	404	418	532
Colorado	22	22	34
Louisiana	58	58	67
New Mexico	105	103	106
North Dakota	50	49	53
Oklahoma	52	51	140
Pennsylvania	25	24	47
Wyoming	26	25	34
Canada	99	149	70

Source: Baker Hughes

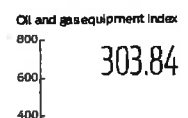
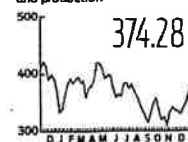
U.S. Gas	125	125	198
U.S. Horizontal	703	706	945

Source: IHS Markit

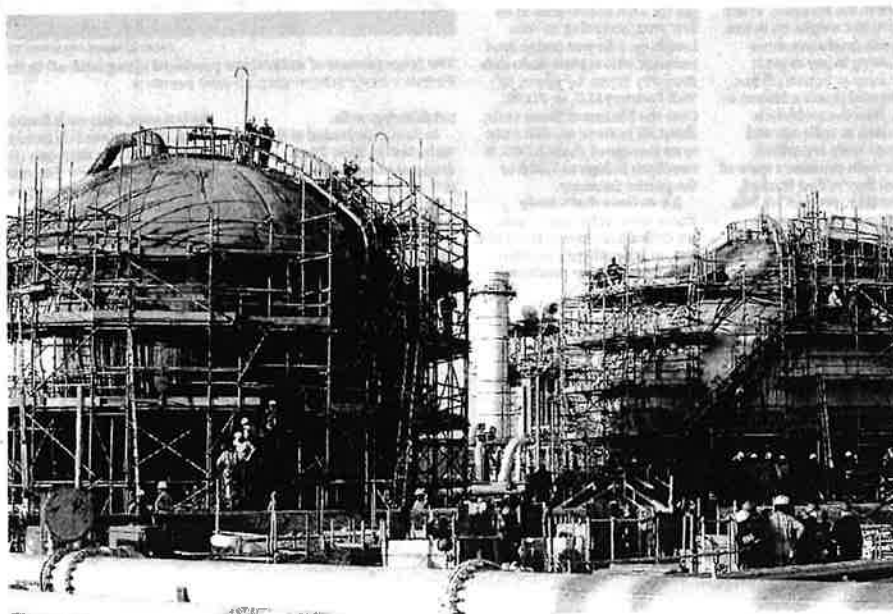
Marketed rigs under contract	U.S. Gulf	33	32	36
------------------------------	-----------	----	----	----

Source: IHS Markit

## S&amp;P's energy

stock indexes  
Oil and gas exploration  
and production

Oil and gas equipment index



Faisal Al Nasser / Bloomberg

Workers repair Saudi Aramco's Abqaiq crude oil processing plant following a drone attack in Saudi Arabia on Sept. 20.

By Grant Smith  
BLOOMBERG NEWS

Global oil markets notched up a number of milestones this year that echoed the story of the past decade: the world has shifted from an era of supply tightness to plenty.

What distinguished the developments of 2019 was not just how big they were but often how little impact they had. From the world's biggest-ever initial public offering to its worst-ever supply disruption, a barrage of sanctions on exporters to two OPEC interventions, never before had so many momentous events left investors so unmoved.

At the heart of that indifference was the force that has transformed world energy balances over the past 10 years: the American revolution in shale oil and gas, which is cushioning global markets against shocks that would once have sent prices rocketing. This too achieved a landmark in 2019, turning the U.S. into an net exporter of crude and refined oil.

And there was another turning point showing the years ahead may also be

The year's major setbacks — including a missile strike at a Saudi processing facility — had little impact on world energy levels

— once expected to keep growing almost indefinitely — will stall at the turn of the next decade.

"This year is probably the first in my recollection where oil prices so extremely decoupled from geopolitical risk," said Amy Myers Jaffe, senior energy and environment fellow at the Council on Foreign Relations in New York. "It was also the year when analysts and car companies started to talk about the possibility of peak car and peak demand with increasing probability."

The biggest headlines of 2019 came out of the world's largest oil exporter, Saudi Arabia.

The Riyadh finally floated part of state oil giant Saudi Aramco after a laborious three-year process, securing a valuation of \$2 trillion that made it the world's biggest company.

Yet the 1.5 percent stake sold was just a portion of the original plan, and mostly

price.

A far more traumatic ordeal rocked Saudi Arabia in September, when a swarm of missiles and armed drones blasted its Abqaiq processing facility and briefly disabled half the kingdom's output capacity. Yemen's Houthi rebel group claimed responsibility, although the U.S. Secretary of State Michael Pompeo blamed Iran directly.

The sudden loss of 5.7 million barrels a day was exactly the crisis the industry had feared for decades, and in previous years might have triggered a prolonged rally. Although prices initially rocketed 19 percent in an unprecedented surge, the gains dissipated in two weeks.

Riyadh's attempts to shore up oil prices also yielded lackluster results. The Saudis led the OPEC cartel and its partners in not one but two coordinated production cutbacks this year, an unusual level of activity for the organization, and reduced its own output

involvement in the oil market, as U.S. sanctions squeezed exports from OPEC members Iran and Venezuela to the lowest in decades. Yet prices remain about 12 percent below this year's high, trading near \$66 a barrel in London.

The main source of the cartel's struggle remained the U.S. shale-oil industry, which has turned the country into the world's biggest oil producer, and propelled nationwide production to a new record of almost 13 million barrels a day this year.

Even as the shale boom shows some signs of slowing, production from offshore deposits once thought unviable in an era of low prices — such as Brazil and Norway — is springing to life.

"Despite major geopolitical tensions around the world, oil markets have remained surprisingly calm," said Fath Birol, executive director of the International Energy Agency in Paris. "This is mainly due to significant amounts of oil supply coming into the market from the U.S. as a result of the shale revolution, and from other non-OPEC producers."

The change is increasingly



marked by supply abundance. For the first time, the world's leading energy institution predicted that demand for oil

marketed to local buyers instead of the foreign investors once courted, as fund managers balked at the lofty asking

far more than initially planned.

Their efforts were amplified by extreme levels of political

occupying financial investors, who are shifting their portfolios from fossil fuels to more sustainable energy sources.

## ENERGY PRODUCTION

# Permian natural gas disposal problem is getting worse

Falling prices and massive glut are forcing more producers to burn it or pay for removal

By Rachel Adams-Heard and Catherine Ngai  
BLOOMBERG NEWS

America's top shale field is becoming increasingly gassy as drilling slows down, undercutting profits for explorers at a time when investors are demanding better returns.

Natural gas has long been a nuisance in the Permian, where a massive glut weighs on prices, with crude producers sometimes having to pay to get it hauled away or burn it off in a controversial practice known as flaring. Now the problem is intensifying as wells age and fewer new wells are drilled.

Shale wells produce a spew of oil when they're first fracked, but over time, production falls — sometimes as much as 70 percent in the first year — and gas becomes a bigger part of the mix.

"Activity levels are no longer what they were," said Artem Abramov, head of shale research at Rystad Energy. "The oil ratio is no longer sufficient to offset gas in older wells, so we're seeing some increase in basin-wide" gas-to-oil ratios.

In the Midland portion of the Permian, the average well produces about 2,000 cubic feet of gas for each barrel of oil in its first year, according to Tom Loughrey, a former hedge fund manager who started shale data company Friezo Loughrey Oil Well Partners LLC, or FLOW.

Over the lifetime of those wells, about 30 years or so, that rises to an average of about 5,000. It can climb as high as 7,000 in the gassier Delaware.

It's an issue that's made worse when subsequent wells are drilled too close to the initial one, or when there's interference from another producer's



The large amount of natural gas produced along with oil in the Permian Basin is becoming a bigger problem.

neighboring wells.

In April, gas traded at the Waha hub in West Texas dropped to minus \$4.63 per million British Thermal units. In other words, producers had to pay to get their gas taken away.

Smaller producers with rising gas ratios have taken the hardest hit as prices tanked. Over

the last year, Approach Resources Inc. has reported oil production that was less than one quarter of its total output. The company filed for bankruptcy protection in November.

Producers in the Permian are already flaring record levels of natural gas. The Texas Railroad Commission, which oversees

the oil and gas industry in the state, has granted nearly 6,000 permits allowing explorers to flare or vent natural gas this year. That's more than 40 times as many permits granted at the start of the supply boom a decade ago.

While flaring gets rid of the methane, it still releases carbon dioxide and other particulates into the air. The agency's tendency to approve all flaring permits is now the subject of a lawsuit brought by pipeline operator Williams Cos. The company recently lost a case in front of the commission, arguing that producer Exco Resources Inc. should use Williams' pipeline system instead of burning off unwanted gas.

U.S. Energy Secretary Dan Brouillette put the Permian's gas problem down to infrastructure.

"Even if we could capture the gas, it's not clear we could get it to the marketplace," he said in an interview in Washington last week. "We just need more pipeline capacity."

# BUSINESS

HOUSTON CHRONICLE • SATURDAY, DECEMBER 28, 2019 • SECTION B ★★

• DOW: 28,645.26, up 23.87, +0.1% | • S&P: 3,240.02, up 0.11, +0.0% | • OIL: \$61.72, up 4¢, +0.1% | • NATURAL GAS: \$2.158, down -13.6¢, -5.9%

## Oil, gas industry closes a lackluster year

**ENERGY:** 2019 ends on mixed notes with drops in rigs, drilling, inventories

By Sergio Chapa and Erin Douglas  
STAFF WRITERS

The oil and natural gas industry is ending the year on mixed notes, with three recent indicators painting an uninspiring picture of a lackluster year as the sector heads into the next decade. With the number of U.S.

oil and gas drilling rigs continuing to fall, drilling activity remains anemic while new figures from the Federal Reserve Bank of Dallas' energy survey show that the Texas oil and gas industry contracted in the fourth quarter.

At the same time, the nation's crude oil inventories *Energy continues on B6*



Tamir Kalia / New York Times  
An oil drilling rig on a Parsley Energy facility near Midland. The number of rigs continues to fall.

**OPEC:** Russia chafes at output cuts, says it must mull leaving accord

By Dina Khrennikova and Olga Tanas  
BLOOMBERG

OPEC+ output cuts have stabilized the global oil market but can't last forever, Russia said as uncertainty persists over the future of the agreement beyond March.

"Oil-production cuts can't be eternal; we will gradually need to make a decision on exiting" the accord, Energy Minister Alexander Novak said in an interview with state television channel Rossiya24. As one of the architects of the OPEC+ deal, Russia's view is key, though the nation's oil *OPEC continues on B6*

## Trust, but verify: Keeping an eye out for fraud

By Gwendolyn Wu  
STAFF WRITER

Whether it's duplicate billing, false invoices or payroll theft, occupational fraud is costing businesses dearly in the United States, according to the Association of Certified Fraud Examiners.

Fraud examiners think businesses are losing the war on financial crimes, said David Kirtland, vice president of the ACFE's Houston chapter. The association trains auditors, business owners and law enforcement on how to spot cons and prevent companies from losing large amounts.

In a study conducted by ACFE that looked at 1,000 fraud cases reported in the U.S. since 2016, small businesses lost an average of \$104,000 and larger companies lost an average of \$200,000 in fraud cases — and rarely do they ever see it back.

Kirtland sat down with the Chronicle to discuss trends businesses are seeing in fraud cases.

**Q:** What does the Houston chapter of ACFE do?

**A:** We try to provide a broad array of training that is applicable to law enforcement, prosecutors, defenders, corporate attorneys, internal auditors, legal counsel, compliance functions and management in general on what sort of fraud trends are out there. What to be aware of, how to identify it, how to fight it, how to prosecute it, what the documentation requirements are, when you should get

### GENOMICS



Photos by Michael Wyle / Contributor

Christy Smejkal, a senior forensic scientist, removes vials of DNA samples from a centrifuge at Othram, a company set up to analyze DNA to help solve cold crime cases and identify bodies from unmarked graves.

## Cold case, hot technology

By Andrea Leinfelder  
STAFF WRITER

The Woodlands-based firm Othram applies DNA sequencing

patients for gene mutations that might be passed to children and cause uncommon

certain entities involved to help with that. We prefer to target prevention.

**Q:** How does fraud impact large and small businesses differently?

**A:** It's less pervasive in highly regulated entities, but a lot of those entities have higher scrutiny over things. You've got not only internal groups looking at things, but you have external auditors, state regulators who see that sort of thing.

Take financial institutions, for example. They've got more people coming in and they require processes in a certain way so consumers are protected. Whereas if you take a local coffee shop, they don't

*Fraud continues on B7*

**D**avid Mittelman spent the majority of his career in genomics, the study of people's complete sets of DNA. He worked five years on the Human Genome Project, an international scientific effort that stretched from 1990 to 2003 to map all the genes that make up humans.

More recently, he's watched the science become the foundation for an industry that has grown quickly. Consumers buy cheek swab kits to discover a family tree or connect with distant relatives. The health care sector screens

to aid investigations



CEO David Mittelman raised \$4 million in venture capital to build Othram's lab and buy equipment.

diseases.

Now, Mittelman is targeting what he believes is another market that could benefit from genetic testing. He launched the firm Othram in The Woodlands last year to analyze DNA to help solve cold crime cases and identify bodies from unmarked graves. To do this, Othram extracts DNA from decades-old evidence or bones, reconstructs the complete set of DNA, called the genome, and uses software to store an electronic version of the genome for analysis.

"Once you can digitize it, it  
*DNA continues on B6*



Associated Press file photo

The booming Austin economy has spurred European air travel, boosted by tech companies including Apple and Dell.

## TRAVEL

# Austin flights to Europe on rise

By Randy Diamond  
STAFF WRITER

Austin-Bergstrom International Airport is quickly scoring direct flights to Europe, adding routes to Amsterdam and Paris next year on top of recently launched service to Frankfurt.

The additions are striking. Austin landed its first direct service to Europe, a British Airways flight to London, just shy of six years ago. By next May, travelers will board four flights a day to Eu-

rope.

Convincing British Airways that the Austin market could support the trans-Atlantic service was a multiyear effort, said Kevin Schorr, vice president of Campbell-Hill Aviation, which Austin-Bergstrom officials hired to help convince an airline to start European service.

"There's no question — getting that first route is always the hardest," he said.

In 2016, two years after British Airways started its Austin-to-Lon-

don route, Condor Airlines began offering seasonal service to Frankfurt.

In 2018, the competition among international carriers heated up in Austin.

Low-cost carrier Norwegian Air added three-day-a-week service to London, competing with British Airways on that route. Meanwhile, German flagship carrier Lufthansa announced round-trip service from Austin to Frankfurt five days a week, start-

*Austin continues on B7*

## BUSINESS

## ENERGY

From page B1

dipped last week, typically a bullish sign for the market because it indicates higher demand for oil and is considered to be a precursor of higher commodity prices. U.S. commercial crude oil inventories stood at just above 441 million barrels last week, a modest decrease of 5.5 million barrels from a week prior, according to the U.S. Energy Department.

U.S. refineries, operating at 93.3 percent capacity for the week ended Dec. 20, increased production of gasoline, diesel and other products as more Americans drove and flew for the holiday season, boosting demand. Refineries processed an average of 17 million barrels of crude oil per day last week, an in-

crease of 449,000 barrels per day on average from the previous week. Crude oil inventories are about 2 percent above the five-year average for this time of year.

Despite the bump from the inventories report, oil prices were little changed on Friday. West Texas Intermediate crude edged 4 cents higher, settling at \$61.72 per barrel.

Sluggish commodity prices, lackluster enthusiasm from investors, and concerns that global demand for refined products will wane next year have put pressure on U.S. energy companies to cut back through the latter half of 2019.

The U.S. rig count has plunged by more than 25 percent in the last 12 months due to the slowdown. This week, the number of U.S. oil and gas drilling rigs fell by eight, returning its decline after jumping by

14 last week, according to the Baker Hughes rig count. The nation now has 805 oil and gas rigs operating, more than 270 fewer than at the same time last year.

The Permian Basin of West Texas, the nation's largest and busiest oil field, led rig count declines this week, losing a net nine rigs.

Business conditions in the nation's oil fields are still constrained, according to a monthly energy survey by the Dallas Fed, which surveys oil and gas executives in Texas, northern Louisiana and southern New Mexico. Operating margins for oilfield service companies in particular are becoming thinner, and 41 percent of energy firms surveyed expect to decrease capital spending in 2020.

erin.douglas@chron.com  
sergio.cluipa@chron.com



Jon Shapley / Staff photographer

A drilling rig operates this month in Reeves County.

## OPEC

From page B1

producers have long pushed for a relaxation of output curbs.

Russia needs to defend its market share and let its oil companies develop new projects, Novak said. The minister didn't specify when the country may decide to withdraw from the agreement, but said he expects to discuss the matter with his OPEC+ counterparts next year. Global oil demand may surge as soon as next summer, he said.

Russia, which helped to cement the original deal between the Organization of Petroleum Exporting Countries and its partners back in 2016, has shown this year that it's getting weary of limiting supply. The nation has consistently failed to comply with its quota, overshooting its target for eight months so far in 2019, according to Bloomberg calculations based on official statistics.

That trend has continued in December, with Russia pumping 11.252 million barrels a day so far this month, about 62,000 a day above target, according to official data seen by Bloomberg.

The country has come up with various explanations for its lack of compliance — from the limitations of a harsh climate to technical issues resulting from the Druzhba oil-contamination crisis. The nation's largest oil producer, Rosneft PJSC, has criticized the OPEC+ deal, saying it serves the interests of Saudi Arabia — the de facto leader of OPEC — and the U.S.

In a revision to the deal in early December, Russia and its OPEC+ partners agreed to deepen their curbs in the first quarter of 2020 to 1.7 million barrels a day. Russia is set to enlarge its cuts by 70,000 barrels a day to about 300,000 a day.

Nevertheless, the nation requested that condensate be excluded from its target. Novak has denied that the change is a loophole allowing Russia to pump more oil and claim compliance. While Russia's official statistics don't provide a breakdown for crude and condensate, the Energy Ministry will regularly inform analysts, the media and OPEC about the composition of its output, Novak said.

OPEC+ will meet in early March to discuss options for future cooperation on supply.

## DNA

From page B1

lasts forever," Mittelman said. "Otherwise, evidence decays, it gets lost. I want to digitize, build a digital library of all the evidence that's out there. And then we can empower law enforcement or other organizations to go out and do these searches."

Mittelman was first struck that DNA sequencing could be used outside of medicine as an associate professor and researcher at Virginia Tech from 2010 to 2013. And as he researched possible applications for DNA sequencing, he noted that forensics was using 30-year-old technology that looks at a narrow sliver of DNA rather than the entire genome. He also noticed massive backlogs in rape kit testings and efforts to identify remains.

So he raised \$4 million in venture capital in November 2018 to build Othram's lab and buy equipment for DNA extraction and sequencing, opening the lab in April. Othram's customers, mostly law enforcement, pay for the company's DNA extraction and sequencing services.

Mittelman had Othram's business plan underway when the alleged Golden State Killer, said to have murdered at least a dozen people in California in the 1970s and '80s, was captured in April

2018. Authorities took DNA from the evidence and uploaded it to a public DNA database, where people voluntarily upload DNA tests, often in hopes of finding relatives.

The DNA matched that of a distant relative of the Golden State Killer suspect, which narrowed the pool of suspects. Police combined those findings with investigative techniques to zero in on the Golden State Killer suspect, Joseph James DeAngelo.

The case encouraged Mittelman's work and efforts to launch his business. Today, Othram, which employs 12 people including Mittelman, helps solve such cases.

Let's say a police department has a 30-year-old cold case, and part of the evidence is a blood-stained shirt. Othram's forensic scientists would soak the fabric in a solution that removes the blood and some of the shirt's materials. A chemical is then added to break the blood cell membranes and release DNA contents. The solution is spun in a centrifuge and put through a variety of filters until just one drop of liquid, teeming with DNA, remains.

For the analysis, that drop is divided into smaller drops and placed into machines that assess how much of the DNA is human (old bones could be contaminated with bacteria) and if the DNA is of high enough quality to sequence.

Another machine is used for

DNA sequencing, which determines the pattern of the basic chemical components in DNA. This allows scientists to reconstruct a person's unique genome. Technological advances have dramatically brought down the cost of DNA sequencing, making it commercially viable, while increased computing power has enabled software that can analyze the DNA sequences to reconstruct the genome — or something very close to it.

Mittelman said information learned by reconstructing genomes can complement the FBI's Combined DNA Index System, or CODIS, which is used to confirm a person's identity. CODIS has limitations because, in most scenarios, it can search only the DNA of people in the system, such as those who have been arrested or convicted. Othram's ability to reconstruct genomes can help identify ancestral information or living relatives to narrow a pool of suspects.

Othram has extracted and digitized DNA that's helped the DNA Doe Project make tentative identifications on multiple cold cases. The DNA Doe Project is a volunteer organization that uses genetic genealogy to determine the names of unidentified crime victims, who are known as John or Jane Doe until identified.

Othram will also sequence DNA from the 95 bodies found at a Sugar Land cemetery for people who

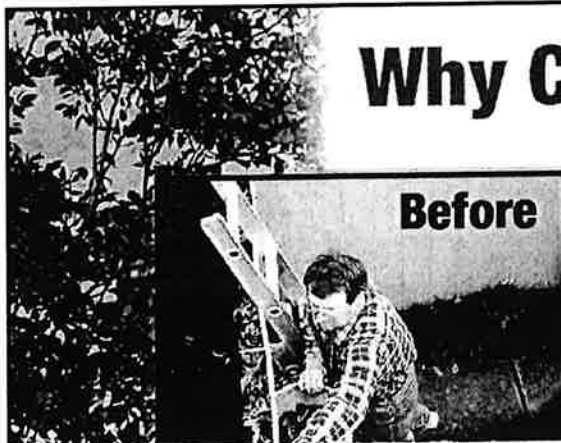
died while serving a sentence in the state's convict leasing system. This program, initiated shortly after slavery was outlawed following the Civil War and extended into the early 20th century, allowed prisoners, primarily African-Americans, to be contracted out for labor.

The University of Connecticut will extract DNA from teeth and bone fragments and send the DNA to Othram for sequencing in the hope of identifying living descendants.

"This is the very first cemetery of this type that has been found, and we're learning about how bad these camps were," said Reign Clark, the archaeological project manager of the cemetery's exhumation and part of its research group moving forward. "It's our opportunity to not only tell about what these men endured but give their names back."

This desire to identify victims has prompted Othram to create DNASolves.com, a database for which people voluntarily submit DNA data to help solve crimes and identify victims. Companies such as Ancestry and 23andMe don't willingly share DNA data with law enforcement.

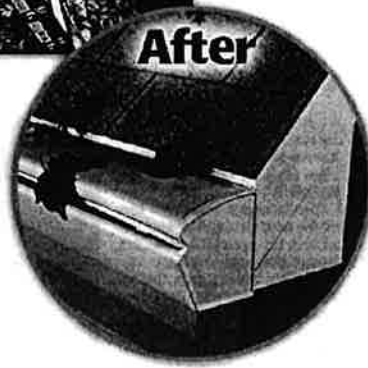
"I'm betting on the fact that there are enough people in this country who want to do their civic duty," Mittelman said, "and are as excited as I am to give a voice to the nameless."



## Why Clean Out Gutters?

Eliminate the expense, effort & danger of cleaning your gutters. Beautiful enough for the most gracious home. With a no-nonsense guarantee: if it ever clogs, we clean it! It's the leaf-free gutter system that really works!





**Save  
\$300<sup>00</sup>**

***On a  
Gutter Installation***

**gutterMaxx**  
America's finest leaf-free gutter

**Free Estimates**

**(888) 750-2242**

**R-1**