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PIPELINES



JAMES NIELSEN : CHRONICLE

Thousands of miles of pipelines crisscross the Gulf Coast carrying volatile fuels, oil and gas. But **NOBODY SEEMS TO KNOW EXACTLY WHERE THEY ARE LOCATED.**

What lies beneath

PIPELINES OUT OF POSITION

While all pipelines in the National Pipeline Mapping System are supposed to be within 500 feet of their actual location, researchers in Louisiana have found them more than a half-mile out of place, like the example below. That error since has been fixed.

Pipelines from the ground up

Witness posts

Researchers take down the latitude and longitude of posts connecting them to make a map.

Pipes

Buried in trenches on well-drained bedding material.

Anode

Fill

Mississippi River

Mapped location

The red line shows the location of the natural gas pipeline according to the National Pipeline Mapping System.

Actual location

The blue line shows where the pipeline was found in the field.

Data entry point

The blue cylinders show where researchers logged in latitude and longitude.

Area of study

The researchers have mapped 15 of Louisiana's 64 parishes. Below is an example from a parish south of New Orleans.



ON THE WEB

For more information on pipelines and the federal mapping system, or to find pipelines in Texas, log onto the following Web sites:

National Pipeline Mapping System: www.npms.rspa.dot.gov

General information on pipelines: www.pipeline101.com

To map pipelines in Texas: www.rrc.state.tx.us/gis/index.html

STATES' MILEAGE

A comparison of the pipeline mileage in different states:

TEXAS: 52,934.70

LOUISIANA: 15,818.10

OKLAHOMA: 10,834.60

KANSAS: 10,023.50

CALIFORNIA: 7,397.90

Sources: Louisiana Geological Survey; National Pipeline Mapping System

ALBERTO CUADRA : CHRONICLE

By DINA CAPPIELLO
HOUSTON CHRONICLE

ON THE CALCASIEU RIVER, LA. — The state-issued Boston Whaler plowed through the beer-bottle-brown Calcasieu River, stirring the calm waters that concealed what coursed below.

From their boat, John Snead and Robert Paulsell were tracking Louisiana's man-made rivers of commerce: the thousands of miles of pipeline that crisscross the state

Nowhere is the problem more acute than in Oklahoma, Louisiana and Texas, home to the most extensive and oldest pipeline networks in the nation.

transporting fuel, oil and natural gas mined and refined along the Gulf Coast to distant gas stations and homes.

The two men, mapmakers with the Louisiana Geological Survey, knew the pipelines were down there. They just

weren't sure where.

"A map of pipelines in Louisiana looks like a web made by a spider on LSD," Snead said.

The problem is that Louisiana — like many other states, including Texas —

doesn't know exactly where all its pipelines are. And the federal government, which is supposed to keep maps of pipelines crossing state lines nationwide, may not be much help, a Houston Chronicle review shows.

Interviews with safety officials in nine states, home to more than 100,000 miles of buried pipe, reveal huge differences in the accuracy of maps relied on by emergency responders and, in some cases, by urban planners deciding

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BATTLE FOR THE MLS CUP



Let's go Dynamo

We preview today's MLS Cup in Frisco and outline the Dynamo's keys to bringing home the championship.

FOUR-PAGE PULLOUT IN SECTION C



HOW THE HAMMER FELL ON HIS OWN PARTY

The iron hand of **TOM DeLAY** built a GOP empire — and may have contributed to its undoing

By BENNETT ROTH and MICHAEL HEDGES
WASHINGTON BUREAU

WASHINGTON — The legacy of the once powerful Republican Tom DeLay of Sugar Land cast a long shadow over last week's elections, in which voters shrank the ranks of a party accused of being too partisan, too cozy with special interests and too fond of big spending.

As majority whip and later majority leader of the House, DeLay helped build a Republican political empire that he tried to make immune from

TEXAS POLITICS The state's Democrats hope to maintain gains. **PAGE B1**

erosion by pushing the 2003 Texas redistricting plan that threw several veteran House Democrats out of office.

For years the former pest exterminator ruled with an iron hand that brought his party legislative victories but also intensified the poisonous partisan mood in Washington.

DeLay's combative style indeed was one of the factors in turning the electorate away from the GOP, said Ross Baker, a political scientist at Rutgers University.

"I don't think Tom DeLay as an individual was in the minds of many voters. But the election was very much a reaction to the kind of bare-knuckles politics he practiced," Baker said. "People thought this ex-

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Democratic battle cry

SEN. HARRY REID, the Nevada Democrat poised to become the majority leader, is among the congressional Democrats who intend to push legislation this week to resurrect a federal agency in charge of eliminating waste and corruption in Iraq and greatly increase its oversight.

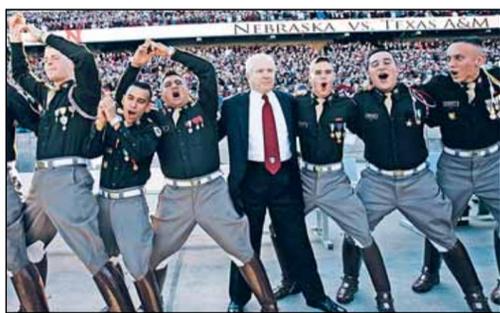
STORY ON PAGE A6



Under new management

REP. CHARLES RANGEL, D-N.Y., will take the reins of the powerful House Ways and Means Committee, which writes tax policy and oversees major federal entitlement programs, when chairmanships of key panels fall into Democratic hands.

STORY ON PAGE A14



NICK de la TORRE : CHRONICLE

In tune with Aggie pride

TEXAS A&M University President and defense secretary nominee Robert Gates, center, joins Corps of Cadets members in *The Aggie War Hymn* at the A&M-Nebraska matchup Saturday in College Station. Gates long has had a close relationship with the corps, once saying he came to A&M in large part because of the famous military training group.

Houston artists have been scattering from the traditional enclaves

By PATRICIA C. JOHNSON
HOUSTON CHRONICLE

Painter Pat Colville was working in a Brooklyn loft, but two years ago, when looking for a place to live part of the year, she bought a 2-acre farm in northwest Houston, on the edge of Acres Homes. There's a chicken coop on the property and a horse her son tends.

She expected to be the only artist in the neighborhood. But she was wrong. She had, in fact, landed in Houston's newest art enclave.

In Houston, artists do what artists everywhere have done for centuries: revitalize neglected areas by revamping cheap old buildings and warehouses to use as housing and studio space.

But rising property values



STEVE CAMPBELL : CHRONICLE

STILL LIFE: Pieces of art and old cars dot the landscape at "Itchy Acres," an enclave in northwest Houston.

AN ARTISTIC MOVEMENT

have begun to drive them from close-in neighborhoods. Now, they're building brand-new metal houses and studios outside the Loop.

That movement is most visible north of Loop 610 and west of Interstate 45 in wooded, historically black neighborhoods such as Acres Homes and Inde-

chron.com
EXTRA: More images of neighborhood artists at chron.com/metropolitan

pendence Heights. Some of Houston's best-known artists either already live and work there or have bought property with plans to build. The roster includes The

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COLLEGE FOOTBALL

SCORES
Nebraska . . . 28
Texas A&M . . . 27
Oklahoma . . . 34
Texas Tech . . . 24



UH QB KEVIN KOLB

SPORTS

UH and Rice win on road; UT falls

Cougars clinch berth in C-USA title game with win, while Kansas State shocks the Horns 45-42. **PAGE F1**

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PIPELINE: Inaccuracies affect first responders

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where to build the next subdivision.

Nowhere is the problem more acute than in Oklahoma, Louisiana and Texas, home to the most extensive and oldest pipeline networks in the nation. In the past five years, these three states have led the nation in the number of accidents and volume spilled from pipelines, according to federal records.

But perhaps the most startling finding is that maps mandated by the federally run National Pipeline Mapping System contain significant errors, pipeline-mapping experts and state officials say. The system relies on the companies that operate pipelines to disclose where they are. The system is supposed to have the location of all 182,833 miles of hazardous-liquid interstate pipes within a margin of error of 500 feet. It's used by more than 30 percent of the nation's counties for planning, zoning and spill response.

Yet if a pipe breaks, releasing a harmful chemical into a neighborhood or spilling oil into a river, emergency workers still would have to perform some geographic guesswork to find it, experts say.

"The information is not nearly as accurate as they claim it to be," said Snead, who served on a technical team that helped design the federal mapping program in the late 1990s. "We have found pipelines a half-mile out of position, being run by the wrong company and filled with the wrong product."

Getting it right

Armed with maps and aerial photographs, and a device that calculates their exact position from satellites in space, Snead and Paulsell slowly are finding, and mapping, the 15,000 miles of pipeline that traverse Louisiana. The pipes shuttle gasoline, oil and an entire periodic table's worth of chemicals across the state, linking oil wells with refineries and refineries with terminals and chemical plants in an industrial-scale connect-the-dots.

Over the course of their research, about 30 percent of the pipelines mapped in the federal system have not been where they are supposed to be. In one case, south of New Orleans, a pipe was a half-mile from its mapped location, a difference that had it running through a neighborhood instead of a naval base.

"It is an issue in every state. It depends on the level of detail of the mapping," said Don Davis, administrator of Louisiana's Oil Spill Research and Development Program, which has funded Snead and Paulsell's work since 1999 with about \$50,000 a year from taxes on the oil and gas industry.

Snead and Paulsell's work was triggered by a flood along the San Jacinto River in 1994. The waters ruptured eight pipelines, and emergency-response teams had to scramble to identify the operators in an attempt to shut down the leaks.

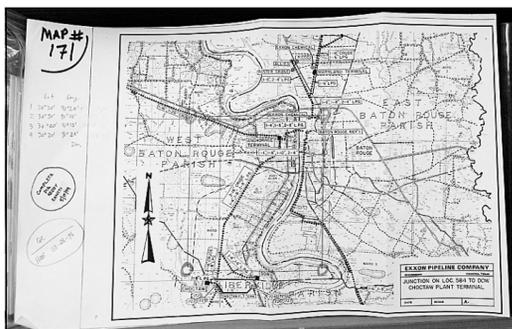
Few states beyond Louisiana are trying to more precisely map pipelines. Those that are, such as Washington, also have found problems when putting the U.S. mapping system to the test.

The system has "based the



CLOSE TO HOME: Nine Exxon pipeline posts, indicating a laboratory's worth of chemicals, line the fence at Steve Williams' home in Scotlandville, La.

JAMES NIELSEN PHOTOS: CHRONICLE



MAP: Exxon pipelines in Louisiana's East and West Baton Rouge Parish.

Some states, including New Mexico, Iowa and Louisiana, don't regularly collect information at all.

success of their program on the number of miles collected, not the accuracy of miles collected," said David Cullom, a Geographic Information System analyst with the Washington Utilities and Transportation Commission, which finished mapping its pipelines in 2005, using money from the Pipeline and Hazardous Materials Safety Administration.

"We had found, depending on the operator, large discrepancies," he said. The administration does not verify the pipeline information it receives from companies in the field and concedes that at least 7 percent of the pipeline mileage received since June 2005 is outside the 500-foot requirement. About 25 percent is accurate to within 50 feet. Though the agency corrects the mistakes it knows about, it never has penalized a company for submitting inaccurate pipeline locations.

It also recommends against using its maps for emergency response. Last year alone, the agency recorded 135 accidents along hazardous-liquid pipelines — incidents that caused \$93.8 million in property damage and killed two.

People responding to these incidents should use "higher accuracy" maps from local pipeline companies and planning and zoning offices to respond to spills, the administration said.

However, a bill before Congress seeks more money for states, which oversee pipelines within their borders, to improve their maps. If the bill passes, the federal mapping program, which tracks mostly interstate pipelines will also improve its accuracy.

"We want better fidelity. . . . There is a lot of activity in the underground, and, to avoid conflicts, you really need to understand with more precision where your liquid and gas lines are," said Adm. Tom Barrett, the safety administration's administrator.

The quality of maps in the hands of states varies, depending on requirements.

In Texas, companies must submit pipeline locations within a margin of error of plus or minus 1,000 feet. In

California, officials require companies to map their portions of the state's 5,500 miles of hazardous-liquid pipelines within 100 feet. In Washington, a deadly pipeline incident in Bellingham prompted efforts to locate all pipelines in urban areas to within 10 feet.

Some states, including New Mexico, Iowa and Louisiana, don't regularly collect information at all.

Bruno Carrara, general manager for the Pipeline Safety Bureau at the New Mexico Public Regulation Commission, said emergency workers and response teams "can go on the national system and look at maps."

And in cases in which the pipeline is not in the federal database, emergency responders need to know what company to call and where the pipeline is, Carrara said.

Texas subscribes to the same policy, even though the San Jacinto River incident, which spilled gasoline, diesel, natural gas and crude oil into the river and later was set on fire by a house gas heater, raised questions about how well-versed first responders were on pipeline locations. The fire burned for days, and nearly 600 people were sent to local hospitals with burns and other injuries. Soon afterward, the Port of Houston Authority stiffened its licensing requirements for pipelines crossing navigable waterways, requiring companies to submit maps based on where the pipeline was built.

"All I can say is that we have not had any issues with our first responders. We have not had anyone say that what we provided them has not been adequate for their needs," said Mary McDaniel, director of the Texas Railroad Commission's safety division.

However, McDaniel acknowledged that Texas' maps are not accurate enough to locate the exact position of a line for construction, for example.

Accuracy often comes down to how well the company operating the line does its mapping. Some use sophisticated software; others have pipes hand-drawn with marker across nothing much more than a road map.

Homeowners worry

For people living next to pipelines, a few hundred feet of uncertainty could mean the difference between a pipeline beneath a driveway — or a pipeline beneath a house.

Steve Williams' home in Scotlandville, a working-class, black neighborhood north of Baton Rouge, sits on the shoulder of a pipeline superhighway. Nine Exxon pipeline posts, carrying a laboratory's worth of chemicals, are lined up single-file along his chain-link fence. Where orange and yellow lilies once grew, all that's left is a grass-covered hump. Beneath it, a ridge of cement covers the



DESIGNATOR: A painted line shows where a petroleum pipeline crosses through East Baton Rouge Parish in Louisiana.

pipes.

There could be as many as 20 in all, based on maps of the area. But the network is so dense here that Paulsell couldn't separate one from another when he mapped Baton Rouge Parish in 1991. The marker posts don't help, either, because their order changes across the street.

"These pipes shouldn't be near someone's home. There is somewhere else they could be," said Edith Williams Pride, Williams' daughter. The oil companies "are doing quite well, and they will always want to find the cheapest land, so they come to black communities."

In Louisiana, the hope is to map the location of all of the state's pipelines within a margin of error of 50 feet or less.

"It behooves us to know where those pipelines are, in case there is a rupture," said Davis, who works for the state oil-spill office. "We need to know what is in close proximity so we can respond responsibly."

The pipeline industry, which initially resisted disclosing pipeline locations to the government, recently has become an advocate for accuracy. It comes down to money. It's a waste for an operator to be sent to stake a pipeline for an excavation only to find the project is nowhere near the line.

"It's fundamentally in our

interest to have people know where pipelines are," said Ben Cooper, a spokesman for the Association of Oil Pipelines, a consortium of the nation's major pipeline operators.

Paulsell and Snead are doing their small part in Louisiana, where so far they have mapped all of the major rivers and parts of 15 of 64 parishes, despite little cooperation from pipeline companies.

Forging ahead

That summer morning on the Calcasieu River, they mapped 20 miles. Along the way, they would float over 25 pipelines buried deep within the river's muck. In three cases, they found pipelines not marked on any map. In one case, they could not find a pipeline even though it appeared on the map.

Their search took them to reaches of the river so dark and shallow that they debated whether to forge ahead.

"We're at the end of the river. Let's go home," Paulsell said. "This is not navigable."

"Yeah it is, just go up and get the next pipeline," Snead replied.

Finally, they hit a dead end. But somewhere ahead, beneath the coffee-colored water, among the palms and tangled mass of the Louisiana swamp was another pipeline — or so the map said.



ACCURACY: John Snead, left, and Robert Paulsell, mapmakers with the Louisiana Geological Survey, photograph and log the location of an underground pipe on the Calcasieu River.

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