

Gushers, Reservoirs, and Pipelines

TRACING HOUSTON'S RISE TO ENERGY PROMINENCE

by James McSwain

THE FIRST BIG DISCOVERIES of oil in the United States were in Pennsylvania not Texas. As late as 1900, Texas produced a fraction of the total United States output. Standard Oil, based on the East Coast, held a near monopoly on oil production, refining, and marketing. By 1908, however, Texas was well on its way to energy prominence with Houston as a major center of the industry.

At the intersection of industrial archaeology and the transportation of petroleum in the twentieth century is the enormous complex of pipelines that run under and around Houston. What is little understood is how this complex took root in the metropolitan area, making Houston the epicenter of a nationwide network of pipelines and therefore the center of the petrochemical industry.

Joseph Cullinan (1860-1937) is often the lead character in early histories of Texas oil, and archival material available on him is extensive. But many of the most important players operated quietly and few records remain. The material history provides crucial details. What follows is a history of the astonishingly rapid development of the prospecting, production, and transportation of crude oil along the Texas-Louisiana Gulf coast at the beginning of the twentieth century.

Gushers and Earthen Ponds

The history of this enormous industrial and engineering achievement begins in January 1901 when A. F. Lucas, an experienced mining engineer, along with veteran oil men James M. Guffey and John H. Galey, brought in the famous Spindletop or Lucas Well in a sandy area south of Beaumont. Crude oil shot high above the derrick, poured downhill, and backed up against a railroad grade forming a lagoon. It soon caught fire from the spark of a passing train. Production estimates ranged from 45,000-76,000 barrels per day.

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Others quickly tapped the same source from nearby locations. D. R. Beatty, for instance, brought in a huge gusher for Texas Western in March, only two months after the Lucas well came in. The district was soon covered in a forest of

wooden derricks.

Storage at Spindletop was an immediate problem because most of the companies in the field were not heavily capitalized. Operators were disinclined to build expensive steel tanks until they were certain they had a producing well. Production pressures and steel-tank costs led many oil firms to use earthen in-ground reservoirs, which were sometimes lined

with clay, lumber, or concrete. In the early days of the Spindletop field, Sun Oil Company built an earthen reservoir that could hold 110,000 barrels. Workers soon excavated large craters that in one instance could hold up to 200,000 barrels. They lined them with several layers of lumber and topped them off with a waterproof covering.

In August of 1901, Alamo Oil began work on a 250,000 barrel reservoir. In March 1902, George A. Burt, allegedly a front man for Standard Oil, arranged to have a reservoir built to hold 500,000 barrels of oil. The following May he closed a contract for the construction of 10,000,000 barrels of earthen storage.

Pipelines

Pipelines had been in use for decades outside of Texas and on a small scale within the state; however, the unprecedented and prodigious volume of oil at Spindletop required massive pipeline investments.

Production companies needed crude oil storage and pipeline transportation, first to railroad tankcar racks at Gladys City, and then to deep water wharfage at Port Arthur and Sabine, Texas, where steamers could take on oil bound for the East Coast and Europe. Beatty told the 1901 meeting of the Trans-Mississippi Congress that, since the Beaumont field was only 20 miles from deep water, "competing pipelines" would soon traverse this distance. He predicted that oil-burning steamers would eventually carry "our commodities all over the world" with manufacturers following in their wake.

KEY DEVELOPMENTS 1901-1908

TIMEFRAME	JANUARY 1901	MARCH-MAY 1901	AUGUST 1901	AUGUST 1901	NOVEMBER 1901	NOVEMBER 1901
PLAYERS	A. F. LUCAS, JAMES M. GUFFEY, JOHN H. GALEY	D. R. BEATTY AND TEXAS WESTERN; LONE STAR AND CRESCENT OIL COMPANY; SCOTT HEYWOOD; JAMES S. HOGG & JAMES W. SWAYNE OIL.	ALAMO OIL	NATIONAL OIL AND PIPELINE	PATILLO HIGGINS	SUN OIL
MATERIALS	OIL DERRICKS REACH GUSHER AT SPINDLETOP NEAR BEAUMONT.	MORE BIG GUSHERS AT SPINDLETOP, MAJOR DIFFICULTIES WITH STORAGE AND DISTRIBUTION	COMMENCEMENT OF WORK ON A 250,000 BARREL EARTHEN RESERVOIR	COMPLETION OF SIX-INCH PIPELINE FROM SPINDLETOP TO PORT ARTHUR	\$10 MILLION INVESTMENT FOR PIPELINE FROM BEAUMONT TO HOUSTON	PIPELINE TO PORT ARTHUR, PURCHASE OF LONE STAR AND CRESCENT OIL PIPELINES





ABOVE: Pipeline construction crew.
LEFT: Humble oil field.



Arthur and deepwater access in May 1901 so it could penetrate Gulf coast, Atlantic coast, and European markets by means of tank steamers.

In November, Patillo Higgins and associates organized a company capitalized at \$10,000,000 to build a pipeline from Beaumont to Houston. Several other companies invested in pipelines as well. (See Key Developments, below.)

Joseph Cullinan was also instrumental in setting up the Gulf Coast pipeline system. He learned oilfield work from the age of fourteen in Pennsylvania, moving up the managerial ranks of Standard

At the end of August 1901, seven months after the Spindletop discovery, National Oil & Pipeline Company completed a six-inch pipeline from the Spindletop field to storage tanks in Port Arthur. Spokesmen for the company said that this represented “one of the most important points in the material development of shipping facilities of the field.”

The J. M. Guffey Petroleum Company, later known as Gulf Oil, completed its pipeline to Port

Oil. He came to Texas in 1898, before Spindletop, to build gathering lines to service the comparatively small wells around Corsicana. After the Lucas Well gusher, Cullinan bought up crude production and constructed feeder pipelines and storage tanks in the Beaumont-Port Arthur area through his Texas Fuel Company.

Production declined from late 1902 to 1909 in Gulf Coast fields and attention shifted to the lucrative In-

dian Territory field, an area that would become part of the new state of Oklahoma, where Robert Galbreath and Frank Chesley found the famous Glenn Pool. Cullinan finished a pipeline from Oklahoma to the Texas Fuel Company’s Port Arthur refinery in January 1908. This line ran southwest through Fort Worth-Dallas and then southeast to the Humble field near Houston. The company tacked on an additional twenty-mile line to the Houston Ship Channel and open water access. Accordingly, in 1908, Cullinan moved headquarters of the company from Beaumont to Houston, because he foresaw Houston’s role as the center of the southwestern oil business. Shortly thereafter, the Texas Fuel Company became Texaco. Cullinan also developed the neighborhood of Shadyside for his friends, family, and business associates.

From Production to Command Post

On the eve of WWII Houston had 1,200 oil companies, oil-equipment manufacturers, and suppliers. Long-distance trunk pipelines constructed in the 1920s and natural gas lines built from 1926 to 1938 connected the Midwest to Houston’s burgeoning refining and oil production capacity. By 1939 the Houston area received via pipelines twelve percent of U.S. oil production for refining and distribution. War-time energy demands led to the construction of the *Little Inch* pipeline linking the Northeast to the Houston-Gulf Coast refining area. Today, the enormous number of pipelines in the Houston area remain instrumental to the city’s central role in energy enterprise.

As the twentieth century passed, many oil companies placed central or regional offices in Houston to take advantage of investment capital, oil-field expertise, extensive railroad and pipeline infrastructure, and talented entrepreneurs. The infrastructure created to transport oil produced in the region set the stage for Houston as the nation’s preeminent hub for refining oil, turning fuel into petrochemicals, and distributing a variety of hydrocarbons. 🏠

JANUARY 1902	FEBRUARY 1902	MARCH-MAY 1902	MARCH 1902	LATE 1902-1909	LATE 1908
PATILLO HIGGINS	VICTOR OIL COMPANY	GEORGE BURT	LONE STAR	LONE STAR	JOSEPH CULLINAN
					
TENTH STEEL STORAGE TANK OUT OF A PLANNED TWELVE	ANNOUNCE PLANS TO BUILD SEVERAL MILLION BARRELS OF EARTHEN RESERVOIRS.	BUILDING OF 10,000,000 PLUS BARRELS OF EARTHEN STORAGE	OIL-DELIVERY WHARF IN NEW ORLEANS AND PIPELINE FROM PORT ARTHUR TO SABINE PASS	DECLINE OF GULF COAST OIL PRODUCTION AND RISE OF PRODUCTION IN OKLAHOMA	PIPELINE FROM OKLAHOMA TO PORT ARTHUR COMPLETED. 20-MILE LINE CONNECTS TO HOUSTON SHIP CHANNEL AND OPEN WATER ACCESS. TEXAS COMPANY HEADQUARTERS MOVED TO HOUSTON