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Louisiana Energy Topic

Department of Natural Resources

Technology Assessment Division

A Supplement to LOUISIANA ENERGY FACTS on Subjects of Special Interest

AMERICA'S WETLANDS: ENERGY CORRIDOR TO THE NATION

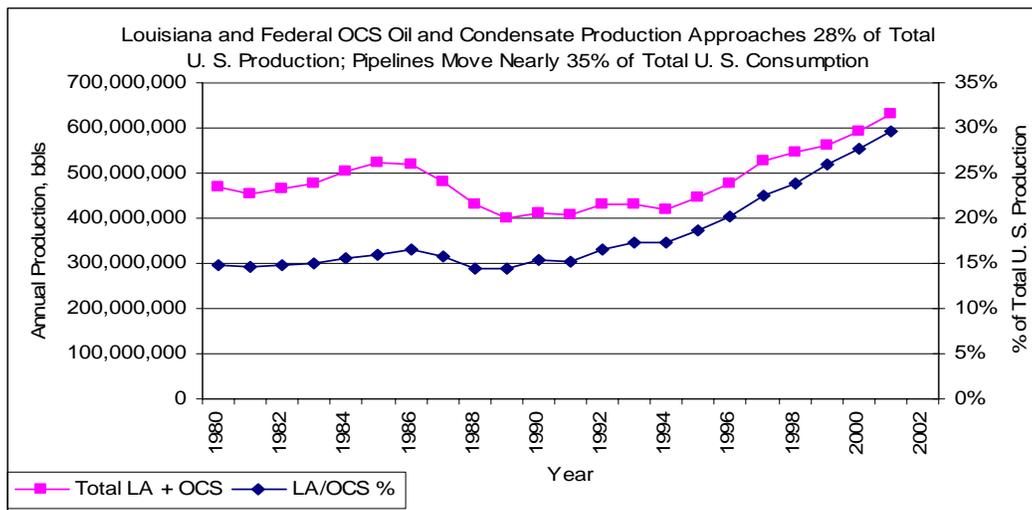
The Louisiana Offshore Oil Port (LOOP) and Connected Interstate Delivery Network

Part 3 of 7

by

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As the nation's reliance on imports has grown, so too has the domestic reliance on increased deepwater production, much of it flowing through the LOOP offshore facility to shore.



History of LOOP

In 1972, just as U. S. production peaked and oil import growth accelerated (see graph in Part 2 of this 7 part series), several major oil companies with growing reliance on imported oil to fuel their own refineries organized a company for the purpose of constructing and operating an oil import terminal. The new maritime construction and shipping technology of ultra large crude oil carriers (ULCC), and very large crude carriers (VLCC), was changing the economics of oil transport. LOOP's license to construct and operate the deepwater port was issued in 1977.

As with the Strategic Petroleum Reserve (SPR), the most likely location for such a terminal was along the Gulf Coast within the arc of the bulk of the nation's refining capacity in Louisiana and

its east-west bordering states, Texas and Mississippi, and where access to salt dome storage would safely lower the capital and operating costs of large inventories of crude oil.

Since bringing these ULCC and VLCC into an onshore port was both risky, as well as politically sensitive, and offloading their cargo into smaller tankers in deeper water was inefficient and expensive, it was logical to think in terms of an offshore location away from land. These ULCC and VLCC ocean going vessels can carry as much as 4.2 million barrels of crude oil, draw an 85 foot draft, range in length up to 1,500 feet and 280 feet in width. The location selected was in the Gulf of Mexico about 18 miles south of Leeville and Grand Isle, Louisiana in 110 feet of water, and already the site of considerable drilling and production activity at Bay Marchand.

Construction began in 1978. LOOP became operational in 1981. LOOP operates under both a Federal and State of Louisiana regulatory regime. The Coast Guard coordinates all federal agency activity relative to deepwater ports, and the Louisiana Offshore Terminal Authority (LOTA) performs the same on behalf of the State of Louisiana.

LOOP's environmental record has been exemplary. There has been no major oil spill since operations began in 1981. The LOOP Environmental Monitoring Program is conducted on a routine basis to insure there are no adverse environmental impacts resulting from the operation of the facility.

The current owners of LOOP are Ashland Inc., Marathon Ashland Pipe Line LLC, Murphy Oil Corporation (a major refiner of crude oil), Shell Pipeline Company LP and Shell Oil Company (a major international oil company), and the American unit of Royal Dutch Shell of the Hague, Netherlands.

Louisiana's Wetland Resources Ideal for LOOP Facilities

LOOP's offshore facilities comprise the Marine Terminal (two platforms; one pumping, the other control and living quarters), and three single point mooring buoys (SPM). Tankers from around the world including, but not limited to, the Middle East, West Africa, the North Sea, Columbia, South America, Mexico and Russia deliver crude oil to LOOP. These tankers tie up to the SPM buoys and are able to operate in, virtually, all weather and current conditions.

The Marine Terminal has four 7,000 horsepower (HP) pumps available for offloading tankers. The Marine terminal can accommodate 100,000 barrels per hour flow rates. Approximately, 365,000,000 barrels per year of imported oil flow through this offshore terminal. Oil flows to shore through a 48" pipeline. A booster station is located at Fourchon, the point where the 48" line comes ashore (near Leeville, Louisiana on the Gulf of Mexico). The Fourchon booster station is powered by four 6,000 HP pumps. Fourchon also has the facilities to pump diesel through a 4" line out to the Marine terminal for fuel supply.

Oil flows 25 miles inland from the Fourchon station to the Clovelly terminal through a 48" pipeline. LOOP has over 48,000,000 barrels of subsurface salt dome storage capacity at the Clovelly Dome Storage Terminal.

The subsurface storage capacity is contained in eight subsurface caverns, each with more than 5,000,000 barrels capacity. There is a 25,000,000 barrel surface brine storage reservoir at the Clovelly terminal. Brine is pumped into the caverns to displace the oil from them for transport through the connecting pipeline system to other pipelines and on to refineries. When oil is pumped into storage, brine is displaced into the brine reservoir. The brine storage reservoir covers 220 acres.

All of this flow is controlled by Oil Movement Controllers (OMCs), stationed at LOOP's control center located in Galliano, Louisiana. Like the Marine terminal, the control center is manned 24 hours per day.

LOOP also operates a 53 mile, 48" pipeline system connecting the Clovelly site to the St. James, Louisiana terminal. Through these interconnections, and four other pipeline connections onshore, LOOP handled crude oil can reach nearly 50% of the nation's refining capacity, from within Louisiana, to the Texas City area to the west, and to the Midwest and Upper Midwestern part of the United States through the 40" Capline system. LOOP can, also, access three of four SPR sites. (Note: When the SPR is included, flow reaches nearly 50% of the nation's refining capacity.)

The Deepwater Connection

Shell Oil Company has made several discoveries in the Mississippi Canyon area of the deepwater Gulf. Shell's production from Ursa, Mensa, and Mars platforms commingles with production from the Amberjack pipeline volumes to make up the MARS Blend sour crude oil ("sour" referring to sulfur content).

The MARS pipeline system takes its production from these deepwater offshore platforms to LOOP's Clovelly terminal and, subsequently, flows on to the refineries just as the imported oil is handled.

British Petroleum (BP) operates the Thunderhorse discovery in the deepwater Gulf. Thunderhorse is the largest oil discovery to date in the deepwater. Thunderhorse oil will be pumped to the LOOP Clovelly terminal then, subsequently, on to refineries as MARS and the imported oils are handled.

The NYMEX Connection

Producers of commodity type products use a Commodities Futures Market to better manage their price and volume risk as they sell and buy products with various counterparties—counterparties are the other party to the transaction, be it buying or selling. To become a reference point for crude oil on the Futures Exchanges, such as the New York Mercantile Exchange (NYMEX), the facilities to handle a large volume of oil product of a consistent grade and to transport said product to many points, is essential. This is what the LOOP and St. James terminal locations offer. St. James is a major crude oil gathering, trading, storage, and distribution hub for, approximately, 2,000,000 barrels per day of crude oil. The St. James hub is one of the worlds premier trading hubs.

The contracts are referenced at St. James: (1) the Louisiana Light Sweet Crude Oil (LLS), and (2) MARS Blend Sour Crude Oil (MARS) is referenced at LOOP. The LLS crude is a high quality premium crude oil, low in sulfur content. The MARS Blend is a medium sour blend crude and serves as a price reference with Kuwaiti Medium, Arab Medium, and Latin American sour crude oils, linking it to the world market. Both types of crude oil flow at a rate of about 400,000 barrels per day through the St. James hub.

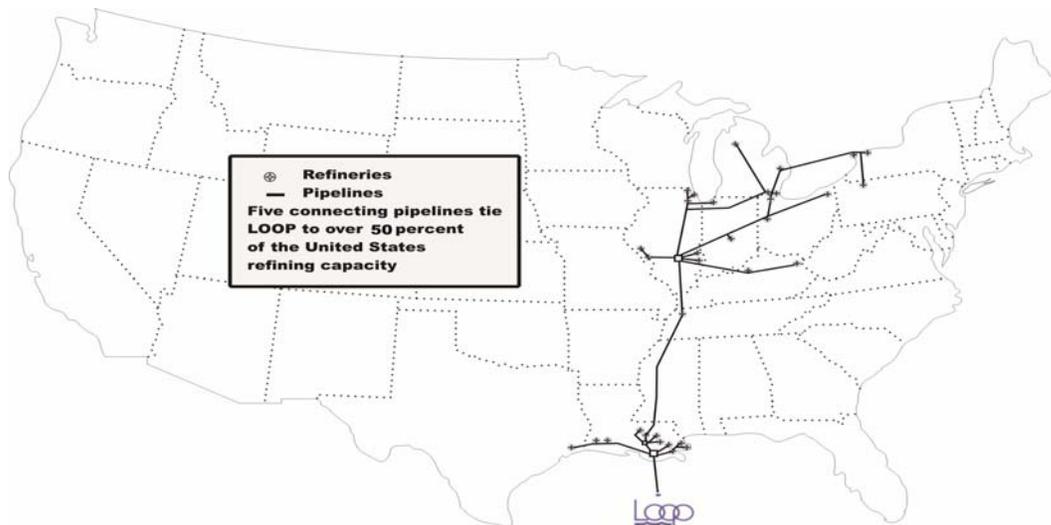
Capline

Several major pipelines transport crude oil out of Louisiana in north, east, west, northwest, and northeast directions. But of these entire pipeline delivery systems, one of the most important is the Capline system, operated by Shell Pipeline Company. Capline delivers crude oil to the important consumption areas of the Midwestern markets, serving refineries near Memphis, St. Louis, Chicago, Detroit, Toledo, Cleveland, Canton and Ashland (Kentucky). Capline has a flow capacity in excess of 1,100,000 barrels per day from the St. James terminal hub.

America's Wetlands: Energy Corridor to the Nation

Taken together, LOOP, LOCAP, SPR, Bayou Choctaw, St. James, Capline and the NYMEX financial market connections, the Louisiana Wetlands Resources play an extraordinarily prominent role in the daily life and financial stability of America's consumers, corporations, and the nation's energy security.

A Schematic of the Geographic Area Served through Louisiana's Wetlands Resources



NOTE: The Department of Natural Resources wishes to thank the staff of the Louisiana Offshore Oil Port (LOOP) for its cooperation in assembling this part of our 7 part series, the Louisiana Offshore Terminal Authority (LOTA), Department of Transportation and Development, Baton Rouge, LA, and the Research Librarians at the Louisiana State Library.