TEXAS GULF TERMINALS

TEXAS GULF TERMINALS PROJECT

TRAFIGURA

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On July 9, 2018, Texas Gulf Terminals, Inc., which is owned by Trafigura US Inc, part of a privately-held physical trading and logistics company with offices in Houston, Midland and Pleasanton, Texas, submitted its permit application for a deepwater port in the Gulf of Mexico.

The following pages provide an overview of the project and the technology proposed.

1. INTRODUCTION

U.S. crude oil exports are projected to increase from 1.1 million barrels per day (MMBPD) to 4.8 MMBPD by 2022. Almost 75 percent of this increase will take place in the Texas Permian and Eagle Ford Basins, which produce light, low sulfur crude oil. New investment is urgently needed to upgrade U.S. export infrastructure in order to accommodate the export this volume.

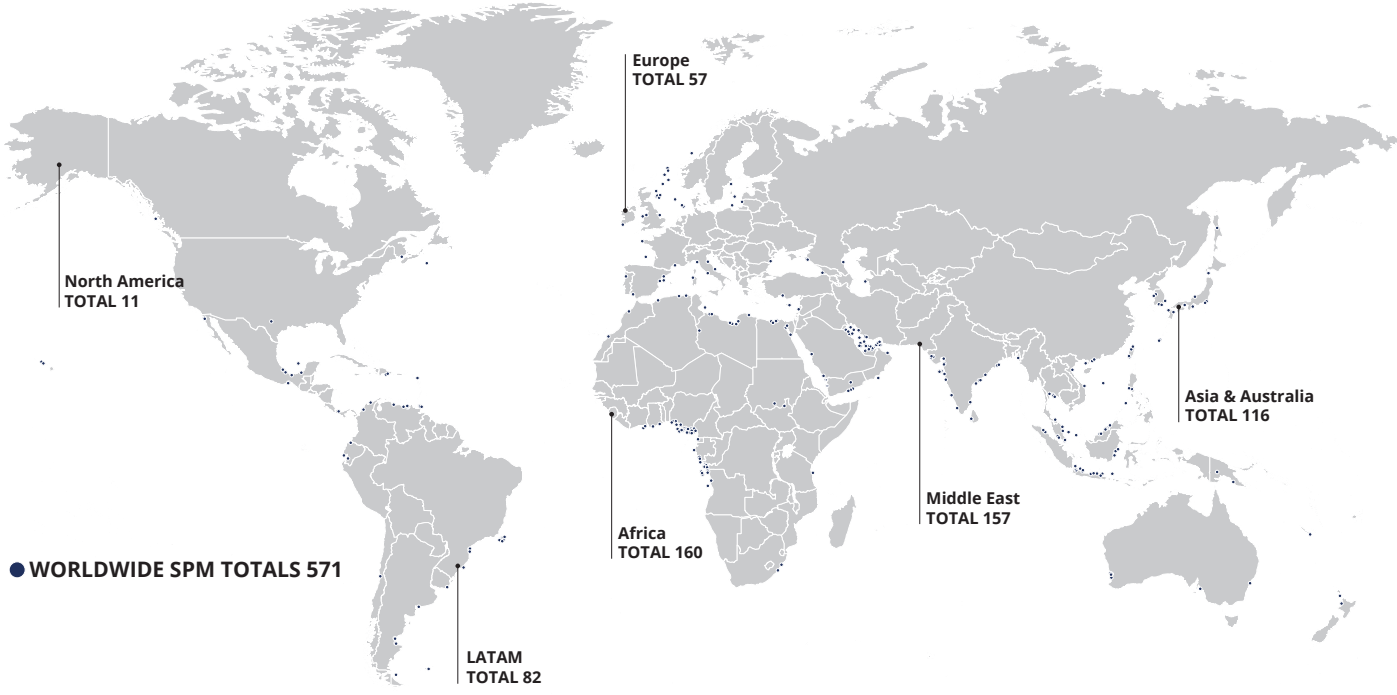
The Texas Gulf Terminals Project (TGTP) is a new facility that will provide a safe, efficient and cost-effective infrastructure solution for the export of U.S. crude oil from an offshore mooring point. TGTP is expected to handle about 10 percent of the expected growth in U.S. oil production, complementing additional infrastructure investments in the area.

The project will allow large vessels to load cargo safely, directly, and fully via a single point mooring buoy system (SPM) in the Gulf of Mexico. SPM's are anchored offshore and connected to an onshore facility through subsea pipelines. They are controlled from an onshore control center and serve as a connection point linking onshore facilities with large offshore vessels like Very Large Crude Carriers (VLCCs).

While SPM's are commonly found in oil-producing countries, they are less familiar to the domestic energy industry in the U.S. The best example of SPM technology in the U.S. is LOOP (Louisiana Offshore Oil Port). As the U.S. now becomes an important oil-exporting nation following the lifting of the crude oil ban, TGTI believes SPM's are required as a critical means to address infrastructure bottlenecks that restrict oil production and impede economic growth. There are more than 500 SPM's worldwide, including off the coast of the Americas and Europe, in the Baltic, North and Norwegian Seas, in the Arabian Gulf, and Asia.

Texas Gulf Terminals believe that SPM's are a globally-proven technology that will increasingly become a fixture of the network of U.S. export infrastructure that includes pipelines, ports, and tankers of all sizes, including VLCCs. The purpose of this briefing paper is to briefly introduce SPM technology, and to provide an overview of the specific components of the SPM proposed for the Gulf Coast by Texas Gulf Terminals.

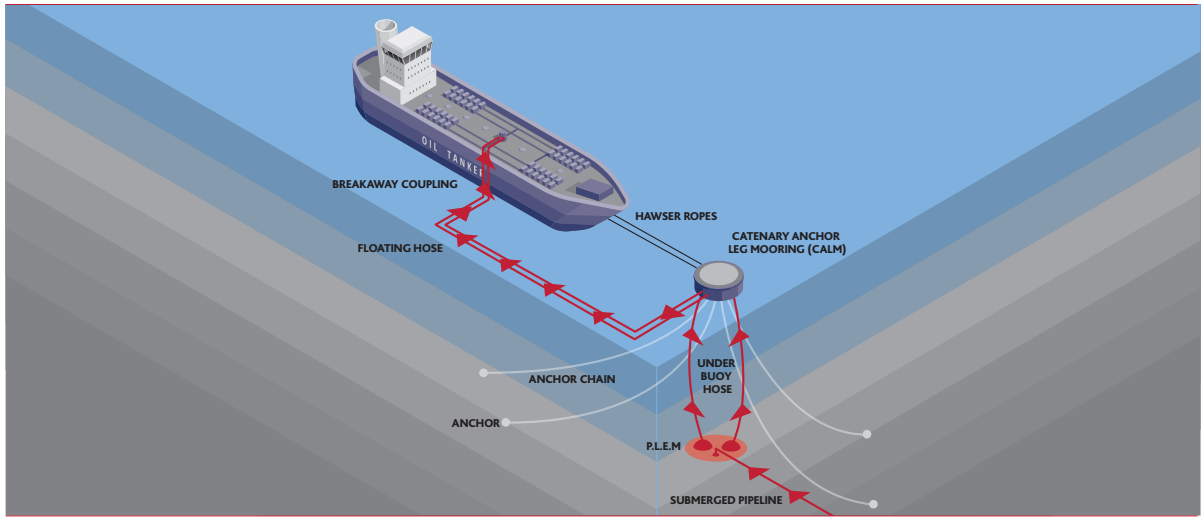
SPM locations



2. COMMON ATTRIBUTES OF A SINGLE POINT MOORING SYSTEM

SPM's share three main components, a mooring line, an anchor and a floating structure(buoy). Moorings lines can be chains, synthetic fibers, or steel wire rope, with different materials applicable to variations in water depth and local environmental factors such as wind and currents. Buoy size and design varies in relation to the type of vessels being loaded, the requisite rotation movement, and the severity of environmental conditions and include bogey wheel buoys, turntable buoys and turret buoys.

SPM's, unlike some other mooring systems, connect all mooring lines to a single point and allow moored tankers to weathervane, meaning that they are able to safely rotate around the SPM while fueling in accordance with prevailing environmental conditions. Allowing a tanker to weathervane limits the vessel's resistance to the waves, current and wind.



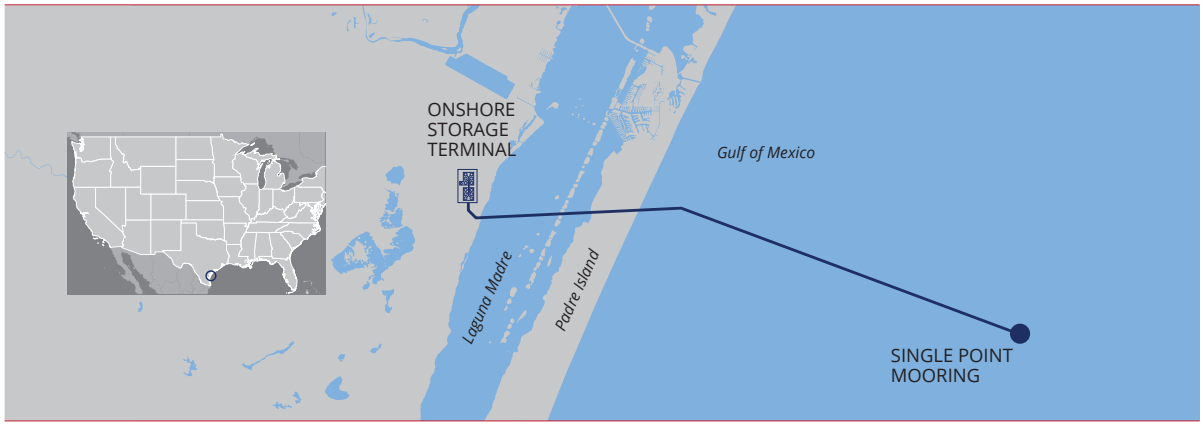
SPM's are used to load tankers with oil, gas and chemical products, which are transported to the floating mooring buoy via flexible pipelines connected between the pipeline end manifold (PLEM) and the buoy. Above the water's surface, another hose system connects to a tanker for loading. Below the water's surface, SPM's use the PLEM system that serves as the connecting point between the buoy and subsea pipelines. PLEM systems are anchored to the sea floor with piles and consist of a series of hydraulically operated valves that can be closed to stop pipeline flow if determined necessary.

3. DESIGN AND OPERATION OF TEXAS GULF TERMINALS' OFFSHORE DEEPWATER PORT

TGTP's proposed facility consists of (1) a new onshore storage terminal facility that stores crude oil ready for loading; (2) approximately 12 miles of onshore and inshore pipelines and 14.7 miles of offshore pipeline to transport the crude oil to the SPM; and (3) an SPM buoy off the coast of North Padre Island.

The SPM will be anchored in approximately 93 feet of water, making the buoy accessible to VLCCs, one of the largest types of operating cargo vessel in the world. These vessels can only be loaded in depths of approximately 71 feet or greater, making entry to many U.S. ports difficult as most U.S. ports can only accommodate 45 feet draft. Carrying approximately 2,000,000 barrels, VLCCs measure approximately 1,100 feet in length and 200 feet in width. Given this significant scale advantage versus the rest of the tanker fleet, a VLCC is the most economical form of waterborne crude oil transportation used globally. It is currently impossible to fully load a VLCC in the Texas Gulf. The proposed SPM will be capable of fully and safely loading VLCC capacities in approximately 48 hours including vessel approach, mooring, cargo transfer, unmooring, and vessel departure.

Location of proposed SPM



As described above, the SPM will be located approximately 14.7 miles off the coast of North Padre Island and anchored to the seabed using a symmetrically arranged six-leg anchor chain system that extends to anchor piles on the seafloor. The SPM will have a rotating table that allows the vessel to safely float around the buoy during loading operations and utilizes a PLEM system to connect the subsea pipelines to the SPM.

Vessels will be moored to the SPM buoy system via mooring hawsers. Two floating hoses will extend from the SPM buoy system to the moored vessel to allow for the transfer of crude oil, which will be supplied from the onshore storage terminal facility through underground pipeline infrastructure. At least one tugboat and one support vessel will be at the SPM during loading operations to assist vessels to position themselves as needed.

The onshore storage terminal facility will house a marine operations office. The onshore personnel will operate terminal pumps and monitor flow rates during all operations. The onshore personnel will be in constant communication with vessel personnel during the vessels approach, mooring, cargo transfer, unmooring, and departure.

Up to two mooring masters will be utilized during the loading operation. The mooring masters are highly trained tanker masters and meet experience requirements as set out in the Oil Companies International Marine Forum Competence Assurance Guidelines for Mooring, Loading, and Lightering Masters. The mooring masters would be intimately familiar with the SPM equipment, operations, personnel and local navigational area and regulations. The mooring masters will be trained to respond to any emergencies with specific knowledge of the regional laws and resources and the U.S. Coast Guard Area Contingency Plan.

4. ENVIRONMENTAL PROTECTION

TGTP has completed a full environmental assessment, which forms the basis of the MARAD Deepwater Port permit application. The U.S. Coast Guard in conjunction with the numerous participating agencies will be conducting a rigorous review of that assessment during the permit process and will be consistent with the National Environmental Policy Act (NEPA). With that review, an Environmental Impact Statement will be developed that is used by MARAD to render a final permit decision.

The following is a list of the Federal and State agencies along with Government Officials that received the TGTP application for review as part of this rigorous permitting process.

Federal Agencies

- Bureau of Ocean Energy Management (BOEM)
- Bureau of Safety and Environmental Enforcement (BSEE)
- U.S. Department of Defense (DoD)
- U.S. Department of Energy (DOE)
- U.S. Department of Interior (DOI)
- U.S. Department of State (DOS)
- U.S. Environmental Protection Agency (EPA)
- Federal Aviation Administration (FAA)
- Maritime Administration (MARAD)
- National Oceanic and Atmospheric Administration (NOAA)
- National Park Service (NPS)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)
- U.S. Army Corps of Engineers (USAE)
- U.S. Department of Agriculture (USDA)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Coast Guard (USCG)
- Advisory Council on Historic Preservation

Tribal Nations

- Apache Tribe of Oklahoma
- Commanche Nation, Oklahoma
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie), Oklahoma
- Tonkawa Tribe of Indians of Oklahoma

State of Texas

- Office of the Governor
- Office of the Lieutenant Governor
- Office of the Texas Attorney General
- Texas General Land Office (TGLO)
- Texas Department of Transportation (TxDOT)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Parks and Wildlife Department
- Texas Historical Commission (THC)
- Texas Railroad Commission (TRRC)
- Kleberg County Judge
- Nueces County Judge
- Nueces County

In addition, the project will be in compliance with all applicable regulations.

5. SAFETY

The permit application includes prevention and response measures such as safety zones for vessel traffic, a Spill Response plan to be approved by the U.S. Coast Guard, and a robust shutdown system that can stop the flow of crude oil in 30 seconds if needed. The hoses used during the loading are “double carcass”, specially designed to ensure an immediate secondary containment if a leak were to occur.

The buoy will have multiple sources of energy (solar/wind) in order to provide power to monitor operations including camera’s, alarms, and monitoring devices.

Vessel loading will not be allowed during heavy weather sea state conditions. In the event of a hurricane the subsea pipelines will be filled with water from a purpose built water tank in the terminal.

The SPM will be designed and constructed in accordance with a high level of engineering practice including all applicable codes and standards developed by organizations such as:

- American Bureau of Shipping
- Oil Companies International Marine Forum
- American Society of Mechanical Engineers
- National Electric Code
- American Welding Society
- National Association of Corrosion Engineers
- National Fire Protection Association

Deepwater port personnel will access the SPM periodically for maintenance and inspection purposes. A maintenance and inspection plan will be reviewed by an International Association of Classification Societies (IACS) member as well as the certifying entity that will prescribe inspection frequency and critical spare parts. Additionally, multiple subsea inspections via divers will be performed in order to maintain the facility.

6. CONCLUSION

Texas Gulf Terminals submitted an application to the Maritime Administration (MARAD) in July 2018.

The Deepwater Port Act of 1974 (DWPA) established a licensing system for ownership, construction and operation of a deepwater port located outside of state boundaries that imports and exports oil or natural gas to and from the United States. The DWPA defined the permit process and conditions for applicants such as Texas Gulf Terminals, including the submission of studies of the marine environment and detailed plans for construction, operation and decommissioning of the facility. In coordination with the MARAD, the U.S. Coast Guard will prepare an Environmental Impact Statement (EIS), as directed by DWPA, and applicable regulations. The DWPA mandates that proposed deepwater ports comply with NEPA, which was created to ensure that federal agencies consider the potential environmental effects of proposed projects. The NEPA process is sequenced with public scoping of the project, preparing a draft EIS, and then preparing a final EIS. Taking into consideration the final EIS, DWPA application, and decision from the Governor of Texas, MARAD will issue a decision on approving the license.

The project construction timeline is estimated to be 18 months following the award of a permit by the MARAD, with construction projected to occur in five stages with onshore and offshore activities pursued concurrently.

It is estimated that the oil and natural gas industry supports 10.3 million U.S. jobs and approximately 8 percent of the U.S. economy. Once constructed, the Texas Gulf Terminals project will contribute towards this figure by easing infrastructure barriers for crude oil exports and by helping to grow the Texas and U.S. economies and support U.S. jobs.

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