The primary purpose of the SPOT project is to provide safe and reliable long-term crude oil export services to the global market.

**PURPOSE**
The primary purpose of the SPOT project is to provide safe and reliable long-term crude oil export services to the global market. Enterprise Products has projected that, by 2025, the U.S. will export up to 8 million barrels of crude oil per day. The SPOT project is designed to provide up to 2 million barrels of crude oil per day for export to this market. To do this, the SPOT project would utilize Enterprise Products’ existing assets, which provide access to crude oil supply via several existing crude oil pipelines from multiple sources that serve numerous nearshore terminals owned and operated by Enterprise Products or its affiliates. The project would utilize a deepwater port (DWP) in order to (1) minimize vessel traffic in inland waterways to support growth of hydrocarbon and petrochemical exports; and (2) eliminate the need for dredging existing ports to over 80 feet required for very large crude carriers (VLCCs) to enter inland waterways.

**HOW IT WORKS**
The SPOT deepwater port (DWP) would consist of one platform and two single point mooring (SPM) buoys for VLCCs and would be located approximately 27 nautical miles offshore Brazoria County, Texas, in approximately 115 feet of water. This DWP would be capable of fully loading a VLCC at a rate of 85,000 barrels of crude oil per hour. The onshore storage would be located at the proposed Oyster Creek Terminal in Brazoria County, Texas, and dual 36-inch-diameter pipelines would supply crude oil to the SPOT DWP from the proposed Oyster Creek Terminal. One 36-inch-diameter pipeline would supply crude oil to the proposed Oyster Creek Terminal from the existing Enterprise Products ECHO Terminal.

**BENEFITS**
There are many benefits to the SPOT project including a reduction in spill risk. (Currently, 4-8 smaller ships are required to fully load a VLCC in a process called reverse lightering.) Dual offshore pipelines would allow Enterprise Products to clear the lines if needed in case of a hurricane or other emergency, creating a lower spill risk than if the design only had a single pipeline. SPOT is the only proposed deepwater port project that has a vapor control system to control air emissions from the VLCCs that load. By comparison to reverse-lightering operations that occur today, this would reduce crude vapor emissions from the loading activity by more than 95% and is beneficial for an area with air quality concerns. The SPOT project would also reduce vessel and loading emissions, reduce collision risk posed by ship-to-ship transfers/lightering and channel congestion, and reduce the need to dredge and deepen ports and channels to more than 80 feet. The project would open up dock space needed to increase the overall export capacity for all hydrocarbons, promote efficient port utilization, reduce demurrage risk for shipping customers, and facilitate the use of efficient VLCCs.
Project Location

Proposed One 36-Inch pipeline

Proposed Dual 36-Inch Pipelines

Existing ECHO Terminal

Proposed Oyster Creek Terminal

Gulf of Mexico

Shore to platform is approximately 27 nautical miles

Mileposts are in statute miles
**VALVE SITE**
The proposed valve site would be located north of Bluewater Highway in order to maintain the property south of Bluewater as a greenspace and avoid any impacts to the beach. The proposed valve site would be hidden by vegetation and a specially designed fence, and the flexibility of the space would allow the site to include native trees, artwork, and/or a structure covering the equipment made to look like a beach house.

**ONSHORE FACILITIES**
The onshore facilities were sited to avoid impacts to sensitive habitats and potential cultural resource sites. The majority of the pipeline route would be co-located with existing energy transmission corridors to avoid or minimize impacts to landowners. The onshore facilities for this project would include:
- Existing ECHO Terminal
- Proposed Oyster Creek Terminal
- 1 36-inch-diameter pipeline from the existing ECHO Terminal to the proposed Oyster Creek Terminal including a connection with the existing Rancho II 36-inch-diameter pipeline with a measurement skid
- Dual colocated 36-inch-diameter crude oil pipelines from the proposed Oyster Creek Terminal to the shore crossing where these would become the subsea pipelines supplying the SPOT DWP
- 10 remote-operated mainline valves (MLVs). In a continued effort to minimize the risk of a spill, the mainline valves would allow Enterprise Products to isolate sections of the pipeline should a leak occur.

**OFFSHORE FACILITIES**
The offshore facilities were sited to avoid impacts to sensitive marine habitats and potential cultural resource sites. The offshore facilities for this project would include:
- 8 pile platform that would support the 3 vapor combustion units, departing pig launchers/receivers, generators, measurement equipment, living quarters, and other ancillary equipment.
- 2 single point mooring (SPM) buoys that would provide the mooring and interconnections for VLCCs calling upon the deepwater port (DWP).
- 4 pipeline end manifolds (PLEMs) that would provide an interconnection between the pipelines from the platform and the hoses to the SPM buoys.
- Crude oil and vapor recovery pipelines, underbuoy hoses, and floating hoses.

**STATIONARY PLATFORM**
Pictured right is the most current rendering of the proposed 8 pile platform. Stationary platforms like SPOT serve as a reef for attracting various species of fish and other aquatic life.
Horizontal Directional Drilling: Process & Benefits

WHAT IT IS
Horizontal Directional Drilling (HDD) is a trenchless method of installing underground pipelines. The process is particularly useful when installing pipelines through areas with significant above ground infrastructure, such as roadways, as well as bodies of water, or environmentally sensitive areas because it does not require an open cut at the surface. In this particular application, SPOT will use the HDD process to connect the onshore pipelines to the offshore pipelines without disturbing the shoreline, beach, or dunes.

HOW IT WORKS
The HDD involves the use of a directional drilling machine, associated attachments and drilling fluids to accurately drill along a chosen path through which the pipe is pulled. There are five basic steps in the HDD process:
1. Pilot Hole
2. Reaming
3. Preparation of the pipe pull sections
4. Pipe pullback
5. Tie in the pipeline system
Step One: Pilot Hole
• The first stage consists of drilling a small diameter pilot hole using a drilling machine positioned on one side of the area to be drilled under. For the SPOT project, a drill location on SPOT-owned property north of Bluewater Highway has been selected. Tracking the location, direction and alignment of the pilot hole will be done using a steering tool located near the drill head which sends a signal with the coordinates of the drill stem back to the drilling rig so the pilot hole can be tracked geometrically.

Step Two: Reaming
• This step will ream the pilot hole in order to enlarge it to the proper size to accommodate the pipe. Equipment called a reamer is pulled back and rotated to cut and remove solids to enlarge the hole.

Step Three: Preparation of the pipe pull sections
• While the drilling process is underway the product pipe pullback sections must be completed. A pipeline contractor utilizing an offshore pipe lay vessel will weld the pipe sections together on the pipe lay vessel one joint of pipe (approximately 40’ each) at a time. The pipe used for the SPOT project pullback section will also be coated with a fusion bonded epoxy (FBE) coating and then a 1.5” thick concrete coating to protect it from corrosion and for stability reasons. Each weld undergoes an X-Ray examination and the product pipe is then hydrostatically tested to ensure its integrity prior to the pipe being pulled into the HDD hole.

Step Four: Pipe pullback
• The next step is the pullback of the pipe within the reamed hole. In the case of the SPOT project, the pipeline will be pulled through an exit point approximately a mile offshore. The pipe pull section prepared in Step 3 will be connected to the drill string. Utilizing the onshore HDD drilling machine, the pull section will then be pulled into the reamed hole until all of the drilling pipe has been removed and the product pipe has exited the hole on the shore side drilling location.

Step Five: Tie in to the pipeline system
• Upon successful completion of the pipe pullback, the drilling rig, as well as the support equipment, will be removed from the onshore drill site.

• On the offshore side, the product pipe exiting the HDD will be connected to the offshore pipeline section by utilizing the pipe lay vessel to pick up the end of the completed HDD pipe section so it can be welded to the offshore pipeline. Once that is completed, it will be lowered to the ocean floor and trenched so the top of the pipe is 3’ below the natural mudline. The entire HDD product pipe and the offshore pipe segment will be hydrostatically tested again.

• On the shore side/land tie-in location (formerly the HDD drill site), the product pipe will be welded to the onshore pipeline at this location after it has been successfully hydrostatically tested along with the offshore pipeline portion. For the SPOT project, this is also the location for a remotely monitored and controlled pipeline valve station.
Safety Procedures & Mitigation Capabilities

The SPOT project will have numerous safety procedures and mitigation capabilities in place. The pipeline and deepwater port would be constructed and operated in accordance with all applicable Federal and State rules and regulations. The project would have redundant, continuous leak-detection monitoring and the ability to evacuate the pipeline of oil in case of an emergency such as a severe hurricane. It would also maintain a contract with a major Oil Spill Response Organization, and the platform would be continuously manned and supplied with resources for timely emergency responses should an incident occur.

Impact to Sea Turtles

The SPOT project has been designed to avoid impacts to sea turtles and other wildlife. The pipeline will be buried more than 50 feet at the beach. No construction will occur near the beach or south of Bluewater Highway. During construction, 3rd party inspectors will be present with the authority to stop construction in the event of potential harassment of a sea turtle or other wildlife.