

PROJECT FAST FACTS

General Project Terminology	
Applicant	SPOT Terminal Services LLC, a subsidiary of Enterprise Products Operating LLC
SPOT Project	The overall project (offshore and onshore components)
SPOT Deepwater Port	The offshore portion of the SPOT Project
Oyster Creek Terminal	The onshore crude oil storage facility and pumping station for the SPOT Project
ECHO Terminal	Existing crude oil terminal providing crude oil supply for the SPOT Project

Location and General Information	
SPOT Deepwater Port Location	<ul style="list-style-type: none"> 27.2 to 30.8 nautical miles (31.3 to 35.4 statute miles, or 50.4 to 57.0 kilometers) off the coast of Brazoria County, Texas
SPOT Deepwater Port Lease Blocks	<ul style="list-style-type: none"> Galveston Area Lease Blocks 463 and A-59, Outer Continental Shelf, Gulf of Mexico
SPOT Deepwater Port Water Depth	<ul style="list-style-type: none"> Approximately 115 feet (35.1 meters)
ECHO Terminal	<ul style="list-style-type: none"> Harris County, Texas
Oyster Creek Terminal	<ul style="list-style-type: none"> Brazoria County, Texas
Onshore pipelines	<ul style="list-style-type: none"> Harris County and Brazoria County, Texas
Loading Capacity	<ul style="list-style-type: none"> 85,000 barrels per hour/2 million barrels per day

SPOT Deepwater Port Components	
subsea crude oil export pipelines	<ul style="list-style-type: none"> Two (2) colocated, 36-inch (91.4-centimeter) outside diameter, each 46.9-statute-mile (75.5-kilometer) long crude oil pipelines Maximum operating pressure (MOP) of 1,480 psig with ASME Class 600 rating for pipeline (at a minimum) and ASME Class 600 rating for associated components (i.e., flanges, etc.) Pipelines will be trenched with top-of-pipe 3 feet (0.9 meter) below natural bottom, and trenched with top-of-pipe 10 feet (3.0 meters) below natural bottom in the Shipping Safety Fairways Pipelines would be bi-directional for pigging purposes as well as inventory management
platform (1 total)	<ul style="list-style-type: none"> Fixed/offshore with eight (8) piles; topsides include: <ul style="list-style-type: none"> Four (4) departing crude oil pipeline pig receivers/launchers Four (4) incoming vapor recovery pipeline pig receivers/launchers Two (2) crude oil lease automatic custody transfer (LACT) skid One (1) oil displacement prover Three (3) vapor combustion units

SPOT Deepwater Port Components	
single point mooring (2 total)	<ul style="list-style-type: none"> • Interconnects the crude oil underbuoy hose to the very large crude carrier (VLCC) • Two (2) pipeline end manifolds (PLEMs) for each single point mooring (SPM) buoy • Two (2) crude oil underbuoy hoses • One (1) vapor recovery underbuoy hose • Two (2) crude oil loading pipelines • Two (2) mooring hawser lines • Two (2) crude oil floating hoses 1 vapor recovery floating hose
crude oil loading pipelines (4 total: 2 per PLEM/SPM buoy)	<ul style="list-style-type: none"> • 30-inch (76.2-centimeter) outside diameter pipeline from the platform to the PLEM/SPM buoy • Each approximately 0.66 nautical mile (0.76 statute mile, or 1.22 kilometers) in length • Maximum operating pressure (MOP) of 300 psig with ASME Class 300 rating for pipeline (at a minimum) and ASME Class 600 rating for associated components (e.g., flanges) • Pipelines will be trenched with top-of-pipe 3-foot (0.9-meter) below natural bottom • Pipelines would be bi-directional for pigging purposes only
vapor recovery pipeline (4 total: 2 per PLEM)	<ul style="list-style-type: none"> • 16-inch (40.6-centimeter) outside diameter pipeline; transfers vapor from the PLEM to the DWP platform’s vapor combustion unit • Each approximately 0.66 nautical mile (0.76 statute mile, or 1.22 kilometers) in length • Maximum allowable operating pressure (MAOP) of 280 psig with ASME Class 150 rating for pipeline (at a minimum) and ASME Class 300 rating for associated components (e.g., flanges) • Pipelines will be trenched with top-of-pipe 3 feet (0.91 meter) below natural bottom • Pipelines would be bi-directional for pigging purposes only
pipeline end manifold (4 total: 2 per SPM buoy)	<ul style="list-style-type: none"> • One per SPM buoy (2 total) interconnecting the crude oil loading pipelines and SPM buoy • One per SPM buoy (2 total) interconnecting the SPM buoy with the vapor recovery pipelines
crude oil underbuoy hose (4 total: 2 per SPM buoy)	<ul style="list-style-type: none"> • 24-inch (61-centimeter) nominal inside diameter hose interconnecting the PLEM to the SPM buoy
vapor recovery underbuoy hose (2 total: 1 per SPM buoy)	<ul style="list-style-type: none"> • 24-inch (61-centimeter) nominal inside diameter hose interconnecting the PLEM to the SPM buoy
crude oil floating hose (4 total: 2 per VLCC or other crude oil carrier)	<ul style="list-style-type: none"> • 24-inch (61-centimeter) nominal inside diameter hose from the SPM buoy to the VLCC • Each approximately 1,000 feet (304.8 meters) in length
vapor recovery floating hose (2 total: 1 per SPM buoy)	<ul style="list-style-type: none"> • 24-inch (61-centimeter) nominal inside diameter hose connected to the moored VLCC or other crude oil carrier • Each approximately 1,000 feet (304.8 meters) in length
VLCC or other crude carrier (up to 2)	<ul style="list-style-type: none"> • Specifically refers to a carrier that would receive the crude oil and transport it to export markets worldwide (<i>Note: VLCCs or other crude oil carriers are not part of the SPOT Project</i>)
hawser line (4 total: 2 per VLCC)	<ul style="list-style-type: none"> • Thick, nylon or similar material mooring line from VLCC or other crude oil carrier to SPM buoy

ECHO Terminal Components	
mainline crude oil pump (4 total)	<ul style="list-style-type: none"> Four (4) 10,000-horsepower electric-driven centrifugal pumps in series to pump crude oil at or up to 1,480 psi (10,204-kpa, or 102.04-bar)
booster crude oil pump (4 total)	<ul style="list-style-type: none"> Four (4) 2,500-horsepower electric-driven vertical booster pumps, with two (2) sets of two (2) pumps each working in parallel to move crude oil from the storage tanks through the measurement skid
meter for measuring departing crude oil (1 total)	<ul style="list-style-type: none"> One (1) measurement skid that provides helical turbine metering equipment capable of metering all crude oil leaving ECHO Terminal for the Oyster Creek Terminal

ECHO Terminal to Oyster Creek Terminal Pipeline	
crude oil pipeline	<ul style="list-style-type: none"> One (1) 36-inch diameter 50.1-statute-mile (80.6-kilometer) long pipeline from the existing ECHO Terminal to the Oyster Creek Terminal
mainline valves (6 total)	<ul style="list-style-type: none"> Six (6) new mainline valves (MLVs) along the right-of-way to perform isolation services
crude oil pipeline pig launcher (1 total)	<ul style="list-style-type: none"> Located within fence line of ECHO Terminal

Oyster Creek Terminal Components	
mainline crude oil pump (6 total)	<ul style="list-style-type: none"> Six (6) 9,000-horsepower electric-driven centrifugal pumps, with three (3) per pipeline working in series Provide a crude oil flow rate of up to 42,500 barrels per hour to each pipeline (total 85,000 barrels per hour) Pumps would be variable speed to accommodate variable flow rates
booster crude oil pump (4 total)	<ul style="list-style-type: none"> Four (4) 900-horsepower electric-driven vertical booster pumps, two (2) per pipeline to the SPOT DWP, working in parallel to move crude oil from the storage tanks through the measurement skids
meters for measuring incoming crude oil (2 total)	<ul style="list-style-type: none"> Two (2) measurement skids, one (1) located at the incoming pipeline from the existing ECHO Terminal, and one (1) installed and reserved for a future pipeline connection, providing helical turbine metering equipment, for metering incoming crude oil
meters for measuring departing crude oil (2 total)	<ul style="list-style-type: none"> Two (2) measurement skids, providing helical turbine metering equipment, for metering departing crude oil to SPOT DWP
vapor combustion unit (3 total)	<ul style="list-style-type: none"> Three (3) vapor combustor units (2 permanent and 1 portable) to destroy volatile organic compound (VOC) vapors during crude oil tank loading, maintenance, or inspection activities when the tank roof has landed Vapors are only collected until the roof of the storage tanks begins to float; once the roof floats, vapors are not created during the loading operation
firewater system	<ul style="list-style-type: none"> Firewater pond with 600,000 barrel capacity Firewater pump system used to contain any fires Foam system for tank seal fire suppression System designed per National Fire Prevention Association (NFPA) requirements

Oyster Creek Terminal Components	
aboveground storage tanks (7 total)	<ul style="list-style-type: none"> • Seven (7) aboveground steel storage tanks, with an interior steel floating roof and an exterior geodesic aluminum roof • Each tank has 685,000 barrels (600,000 barrels working storage capacity) of crude oil storage capacity, for a total onshore storage capacity of approximately 4.8 million barrels (4.2 million barrels working storage) of crude oil
Oyster Creek Terminal to Shore Crossing Pipeline	
crude oil pipelines (2 total)	<ul style="list-style-type: none"> • Two (2) parallel 36-inch diameter 12.2-statute-mile (19.6-kilometer) long pipelines from the Oyster Creek Terminal to Shore Crossing
mainline valve (4 total, 2 per pipeline)	<ul style="list-style-type: none"> • Four (4) new MLVs along the right-of-way to perform isolation services • Two (2) valves side by side at each location for each 36-inch (91.4-centimeter) pipeline
crude oil pipeline pig launcher/receiver (2 total)	<ul style="list-style-type: none"> • Two (2) pig launcher/receivers located within the fence line of the Oyster Creek Terminal • One (1) per 36-inch (91.4-centimeter) diameter pipeline