DEEPWATER PORT LICENSE APPLICATION FOR THE BLUEWATER SPM PROJECT

VOLUME II – ENVIRONMENTAL EVALUATION

Section 3 – Project Description and Framework for Environmental Evaluation

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ACRONYMS AND ABBREVIATIONS

ABS	American Bureau of Shipping
ANSI	American National Standard Institute
API	American Petroleum Institute
ATBA	area to be avoided
ATWS	additional temporary workspace
bbl	barrel
BOEM	Bureau of Ocean Energy Management
bph	barrels per hour
BWTT	Bluewater Texas Terminal LLC
CALM	catenary anchor leg mooring
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
DWP	deepwater port
DWPA	Deepwater Port Act of 1974, as amended
DWPL	deepwater port license
EFH	essential fish habitat
ESA	Endangered Species Act
etc.	Latin foe Et cetera meaning “and other similar things”
GOM	Gulf of Mexico
i.e.	Latin for id est meaning “in other words”
HDD	horizontal directional drill
MARAD	Maritime Administration
MHT	mean high tide
NAA	no anchorage area
NEPA	National Environmental Protection Act
OCS	Outer Continental Shelf
PLEM	pipeline end manifold
Project	Bluewater SPM Project
SPM	single port mooring
T&E	threatened and endangered
U.S.	United States of America
USCG	United States Coast Guard
VLCC	very large crude carrier
WOUS	waters of the U.S.

3 Project Description and Framework for Environmental Evaluation

Bluewater Texas Terminal LLC (BWTT; also referred to as Applicant) proposes to construct, own, and operate the proposed Bluewater SPM Project (Project) to provide a safe and environmentally sustainable solution for the export of abundant domestic crude oil supply from major shale basins. The proposed Project would help fulfill market demand and support economic growth in the United States of America (U.S.). For a detailed description of the proposed Project's purpose and need, refer to Volume II, Section 1 – Project Purpose and Need.

The proposed Project would allow for the direct, full, and simultaneous loading of Very Large Crude Carriers (VLCCs) at a proposed deepwater port (DWP), via two single point mooring (SPM) buoy systems. The Applicant identified critical Project objectives, as described in Section 1 – Project Purpose and Need. These Project objectives were used as the basis for consideration throughout the alternative analysis detailed in Section 2 – Alternatives Analysis. Based on the results of the alternatives analysis conducted, the Applicant identified a Proposed Project and an Alternative Project both of which meet the purpose and need detailed in Section 1 – Project Purpose and Need.

This section provides descriptions of the Proposed Project and the Alternative Project, including their detailed descriptions of their associated components. Additionally, this section presents the framework and methodology used to identify related environmental consequences and their level of impact to environmental resources as described in the technical sections (Section 4 through 16) of Volume II – Environmental Evaluation.

3.1 Project Description

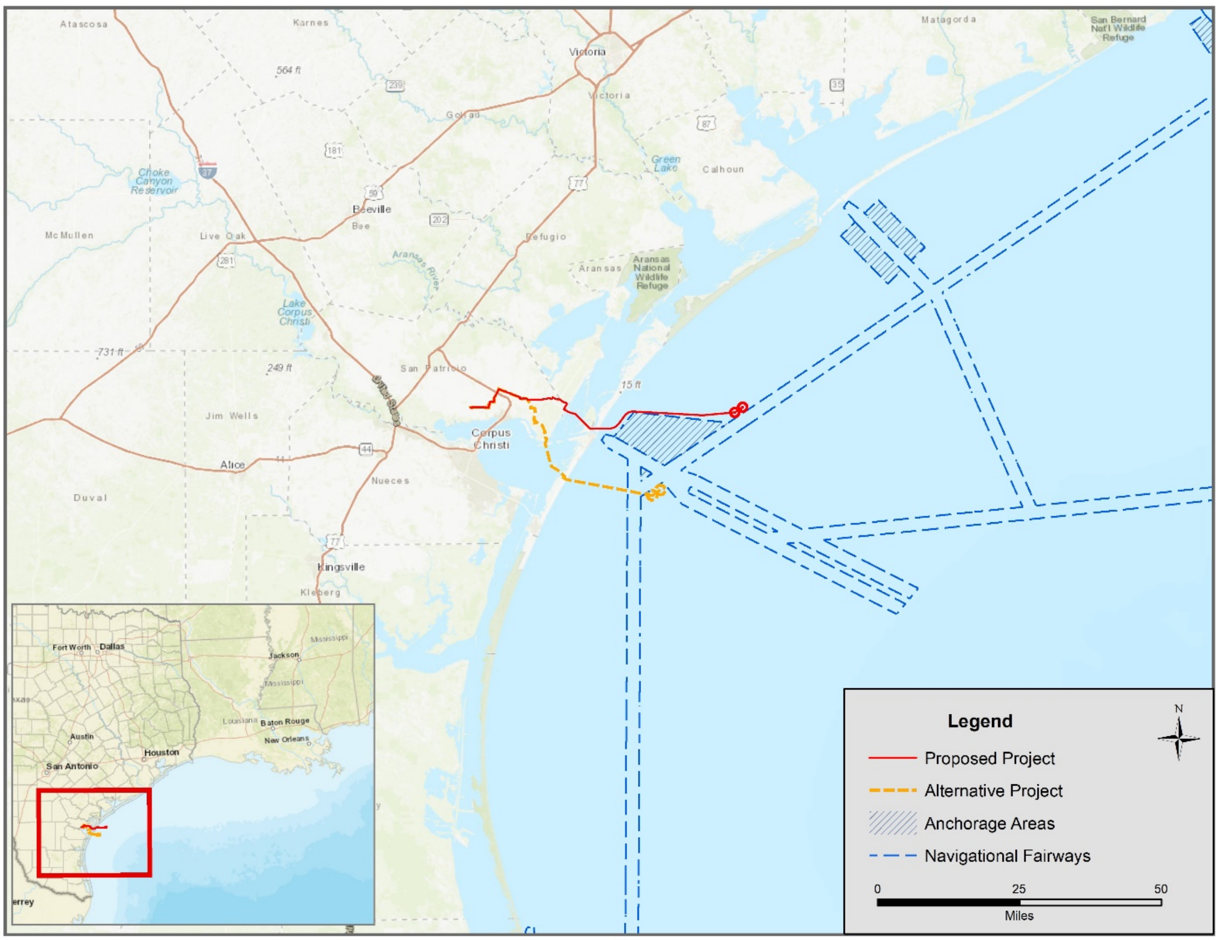
The Applicant is proposing to construct and operate the proposed Project to allow for the loading of VLCCs at a DWP via two SPM buoy systems. The proposed Project design would allow for the simultaneous loading of up to two (2) VLCCs, or other crude oil carriers, at the two (2) SPM buoy systems. The Project is capable of loading VLCCs and other crude oil carriers at rates of up to approximately 80,000 barrels per hour (bph) and throughput capacities of approximately 16 VLCCs per month. The overall project objectives are:

- Provide a safe and environmentally sustainable solution for the export of abundant domestic crude oil supply from major shale basins and support economic growth in the U.S.
- Ability to safely and fully load a VLCC.
- Ability of infrastructure to support the simultaneous full loading of up to two (2) VLCC vessels.
- Ability of infrastructure to support loading rates of approximately 80,000 bph for the full loading of up to 16 VLCC's per month in order to result in an acceptable return on investments.
- Minimize the required modifications to existing environmental conditions.
- Minimize potential interference with existing natural processes.
- Maximize offsite fabrication in a controlled setting thereby minimizing offshore impact as a result of on-site construction activities.
- Locate Project in proximity to existing and planned crude oil infrastructure in order to reduce footprint and environmental impacts.
- Minimize impact to waters of the U.S. (WOUS), including wetlands, coastal bend ecosystems, and special aquatic resources.
- Minimize impact to threatened and endangered (T&E) species and their associated habitats
- Minimize impact to cultural resources.
- Minimize impact to navigation and navigation safety.
- Minimize impact to commercial and recreational fisheries and essential fish habitat (EFH).
- Existing land use compatibility, availability, and suitability for the Project.

As further discussed in Section 1 – Project Purpose and Need, the purpose of the proposed Project is to provide a safe and environmentally sustainable solution for the export of abundant domestic crude oil supply from major shale basins. Based on the need for the Project, and the alternatives analysis conducted (Volume II, Section 2) the Applicant had identified the Proposed Project and the Alternative Project both of which allow for the loading of VLCCs, and other crude oil carriers at a DWP via two (2) SPM buoy systems. The Proposed Project and the Alternative Project analyzed within the Environmental Evaluation differ in DWP site location, pipeline routing, and booster station locations. Refer to Section 2 for the alternatives analysis conducted which resulted in the development of the layout of the Proposed Project and the Alternative Project.

The location, component descriptions, and details of the Proposed Project and Alternative Project are presented in the following sections. Appendix A presents the construction, operation, and decommissioning procedures for both the Proposed Project and the Alternative Project and includes figures depicting the locations of the components associated with each. A vicinity map is provided below as Figure 3-1 which depicts the Proposed Project and Alternative Project.

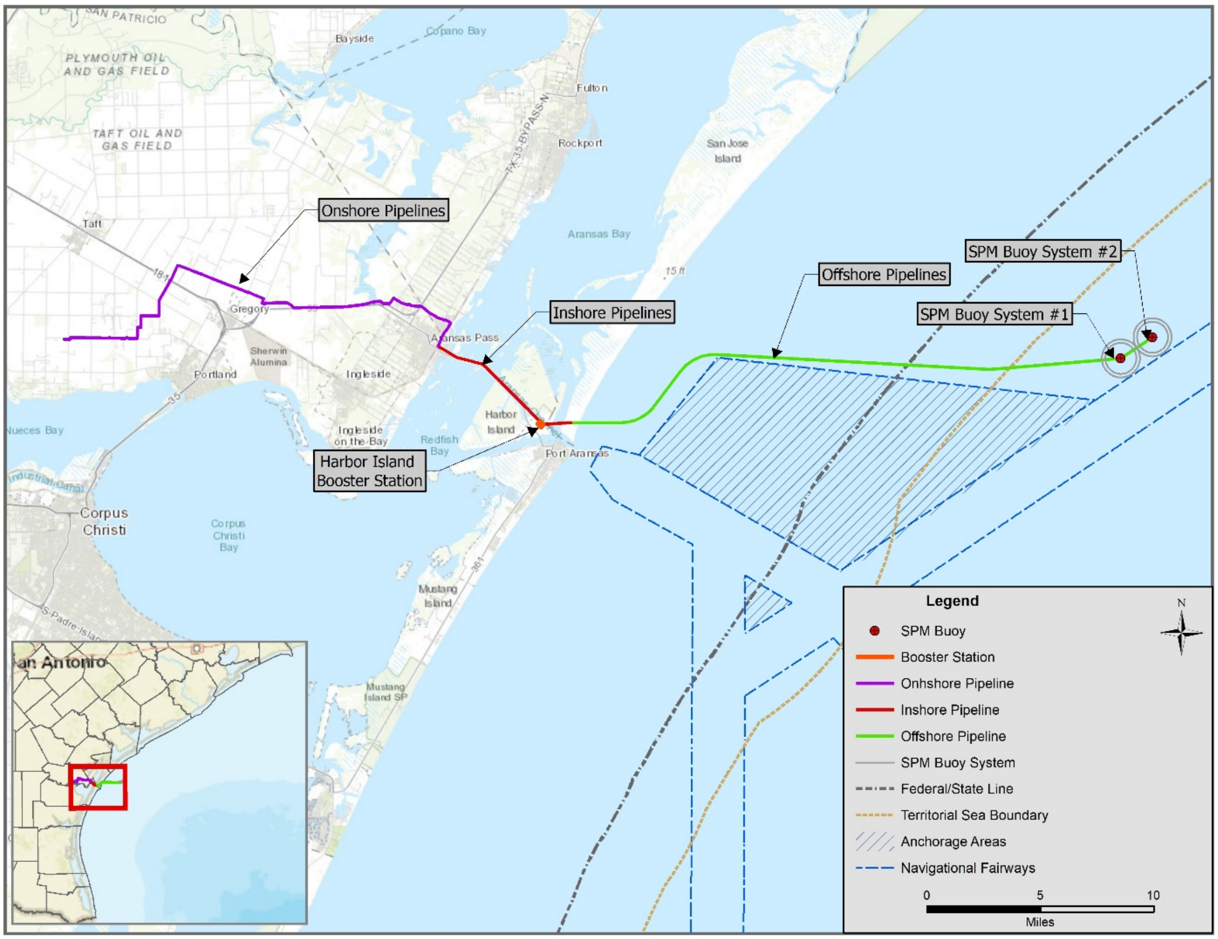
Figure 3-1: Proposed Project & Alternative Project Location Vicinity Map



3.1.2 Proposed Project

The Proposed Project consist of the design, engineering, and construction of a DWP, 56.48 miles of pipeline infrastructure, and a booster station. For the purposes of this Deepwater Port License (DWPL) application, the Proposed Project is described in three distinguishable segments by locality including “onshore”, “inshore”, and “offshore”. Figure 3-2 provides a component map detailing the locations of the onshore, inshore, and offshore components associated with the Proposed Project.

Figure 3-2: Proposed Project Component Map



The operation of the Proposed Project requires the installation and operation of onshore, inshore, and offshore components as described in the following sections to allow for the loading of vessels at the proposed DWP.

Crude oil would be transported from a planned multi-use terminal facility to the proposed DWP via approximately 56.48 miles of two (2) new 30-inch-diameter pipelines. The proposed DWP consists of two (2) SPM buoy systems (SPM Buoy System 1 and 2). The proposed SPM buoy systems serve as the primary device for the loading vessels berthed at the DWP. Two floating hoses extending from the SPM buoy to the vessel will transfer crude oil from the SPM buoy to the vessel’s manifold for the loading of moored vessels. Vessels maneuver and moor to the SPM buoys with assistance from support vessels. The proposed DWP would be capable of mooring and loading up to two (2) VLCCs or other crude oil carrier vessels.

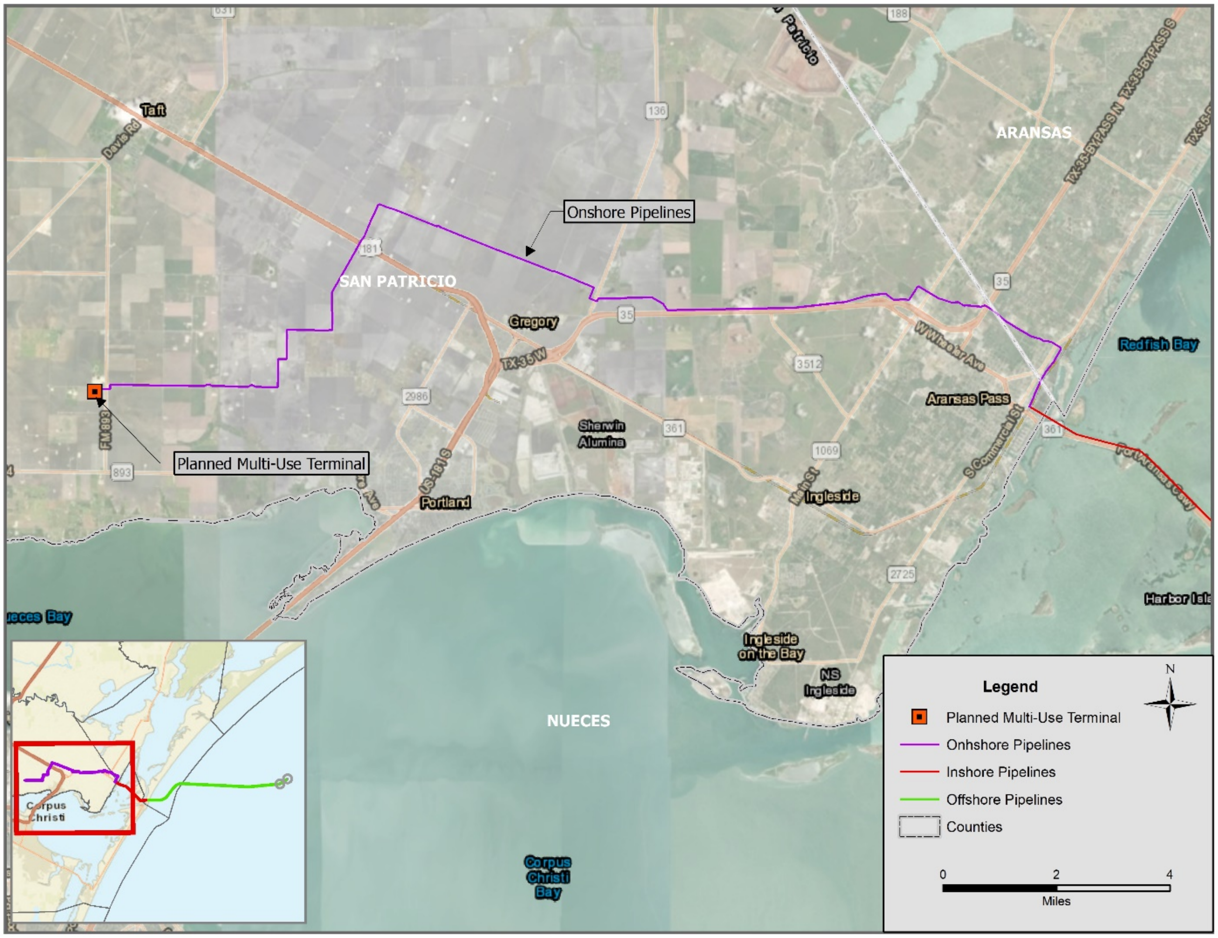
The primary purpose of the proposed DWP is to serve as a crude export facility. As such, the DWP would be capable of loading of various grades of crude oil at flow rates of approximately 80,000 bph during a single vessel loading operations, or 40,000 bph during simultaneous vessel loading operations. As such, the Applicant anticipates the export of crude oil from the DWP at capacities equivalent to approximately sixteen (16) VLCC class vessels (or equivalent volumes) per month, or approximately one VLCC vessel every 3-4 days per SPM buoy. Smaller vessels could be scheduled to arrive at a higher frequency. The maximum frequency of loading operations would be up to 365 days per year.

The following sections provided detailed information regarding the onshore, inshore, and offshore components associated with the Proposed Project.

3.1.2.1 Proposed Project Onshore Components

The Proposed Project Onshore Components are defined as those components landward side of the western Redfish Bay mean high tide (MHT) line, located in San Patricio and Aransas Counties, Texas. The Proposed Project Onshore Components include approximately 22.20 miles of two (2) new 30-inch-diameter crude oil pipelines extending from the landward side of the MHT line of Redfish Bay to a planned multi-use terminal facility located south of Taft in San Patricio County, Texas. The planned multi-use terminal will consist of multiple inbound and outbound crude oil pipelines; two of those outbound pipelines are the Proposed Project onshore pipeline infrastructure. Figure 3-3 provides an overview of the Onshore Components associated with the Proposed Project.

Figure 3-3: Proposed Project Onshore Component Map



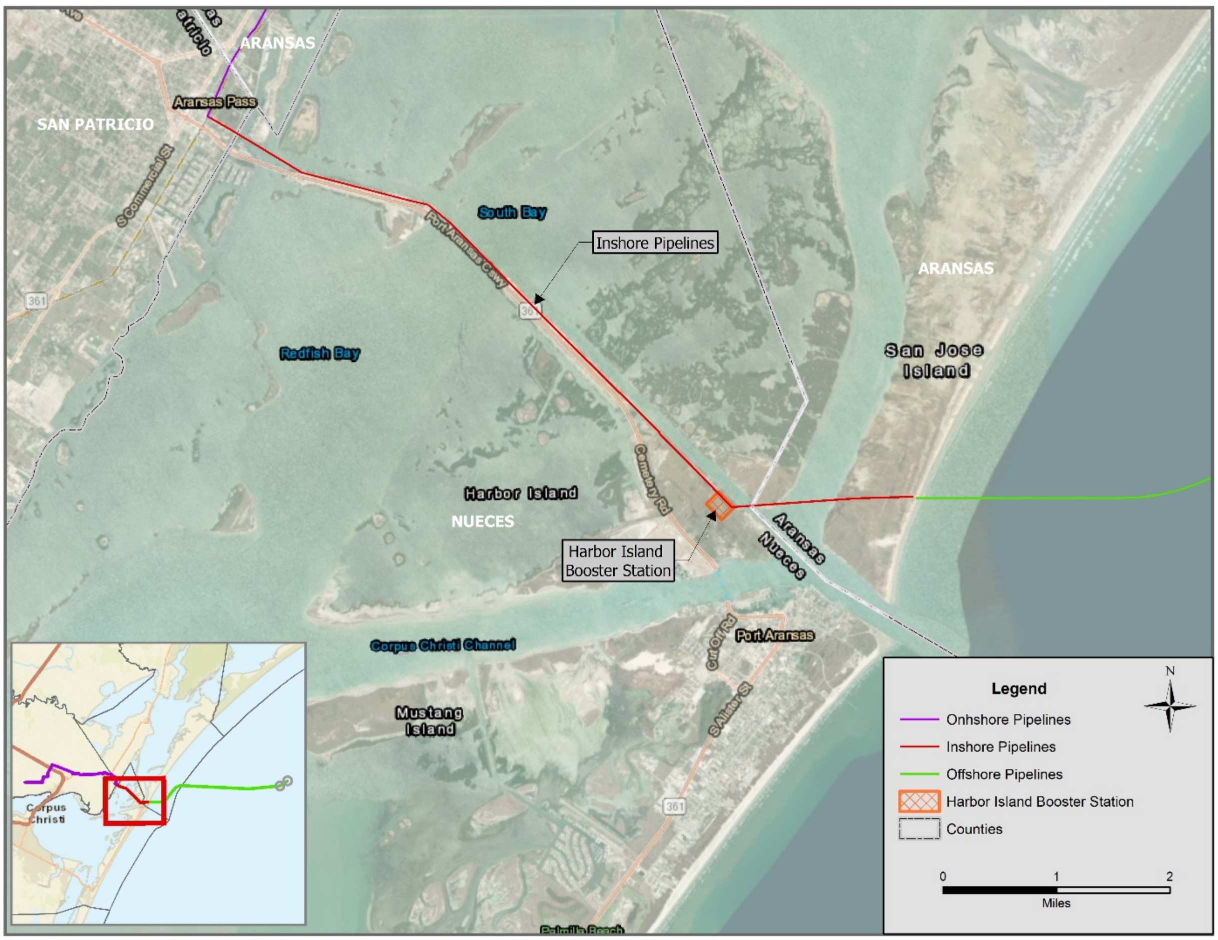
The installation of the Proposed Project onshore pipeline infrastructure involves the utilization of numerous construction techniques including horizontal directional drill (HDD), bores, and open cut conventional excavation. The Proposed Project onshore pipeline infrastructure would be installed within an approximate 125-foot-wide construction corridor. During construction activities, additional temporary workspaces (ATWS) will be required beyond the width of the designated construction corridor at certain designated locations to provide the space necessary for safe and efficient installation of the onshore pipelines. The ATWS would be utilized, where required, for the storage of spoil, pipe, welding, pull strings, HDD entry and exit locations, and equipment access roads. The onshore pipeline infrastructure associated with the Proposed Project would utilize HDD installation techniques for the installation of the pipelines at four (4) distinct locations. Refer to Volume II Appendix A, for detailed construction methods as well as figures depicting the Proposed Project onshore pipeline infrastructure, HDD locations, and the associated construction workspaces.

Each of the two (2) 30-inch-diameter onshore pipelines will be capable of flow rates of approximately 40,000 bph allowing an overall system crude oil delivery capacity of approximately 80,000 bph to the Proposed Project inshore pipeline infrastructure and ultimately the DWP.

3.1.2.2 Proposed Project Inshore Components

The Proposed Project Inshore Components are defined as those components located between the western Redfish Bay MHT line and the MHT line located at the interface of San Jose Island and the Gulf of Mexico (GOM). Inshore Project components includes approximately 7.15 miles of two (2) new 30-inch-diameter crude oil pipelines, and an approximate 19-acre booster station located on Harbor Island. The Proposed Project Inshore Components serves as the connection point between the Proposed Project Onshore Components and Offshore Components to allow for the transport of crude oil to the DWP. The Proposed Project booster station is situated on Harbor Island and consists of the necessary operating and pumping infrastructure to support the transport of crude oil and operations of the DWP. Figure 3-4 provides an overview of the Inshore Components associated with the Proposed Project.

Figure 3-4: Proposed Project Inshore Component Map



The installation of the Proposed Project inshore pipeline infrastructure involves the utilization of numerous construction techniques including HDD, bores, and open cut conventional excavation. The Proposed Project inshore pipeline infrastructure would be installed within an approximate 100-foot-wide construction corridor. During construction activities, ATWS will be required beyond the width of the designated construction corridor at certain designated locations to provide the space necessary for safe and efficient installations of the proposed pipelines. The ATWS would be utilized where required for the storage of spoil, pipe, welding, pull strings, HDD entry and exit locations, and equipment access roads. The inshore pipeline infrastructure associated with the Proposed Project would utilize HDD installation techniques for the installation of the pipelines at six (6) distinct locations. Refer to

Volume II Appendix A, for detailed construction methods as well as figures depicting the Proposed Project inshore pipeline infrastructure, HDD locations, and the associated construction workspaces. The following section provides a detailed description of the booster station associated with the Proposed Project.

3.1.2.2.1 PROPOSED PROJECT BOOSTER STATION (HARBOR ISLAND BOOSTER STATION)

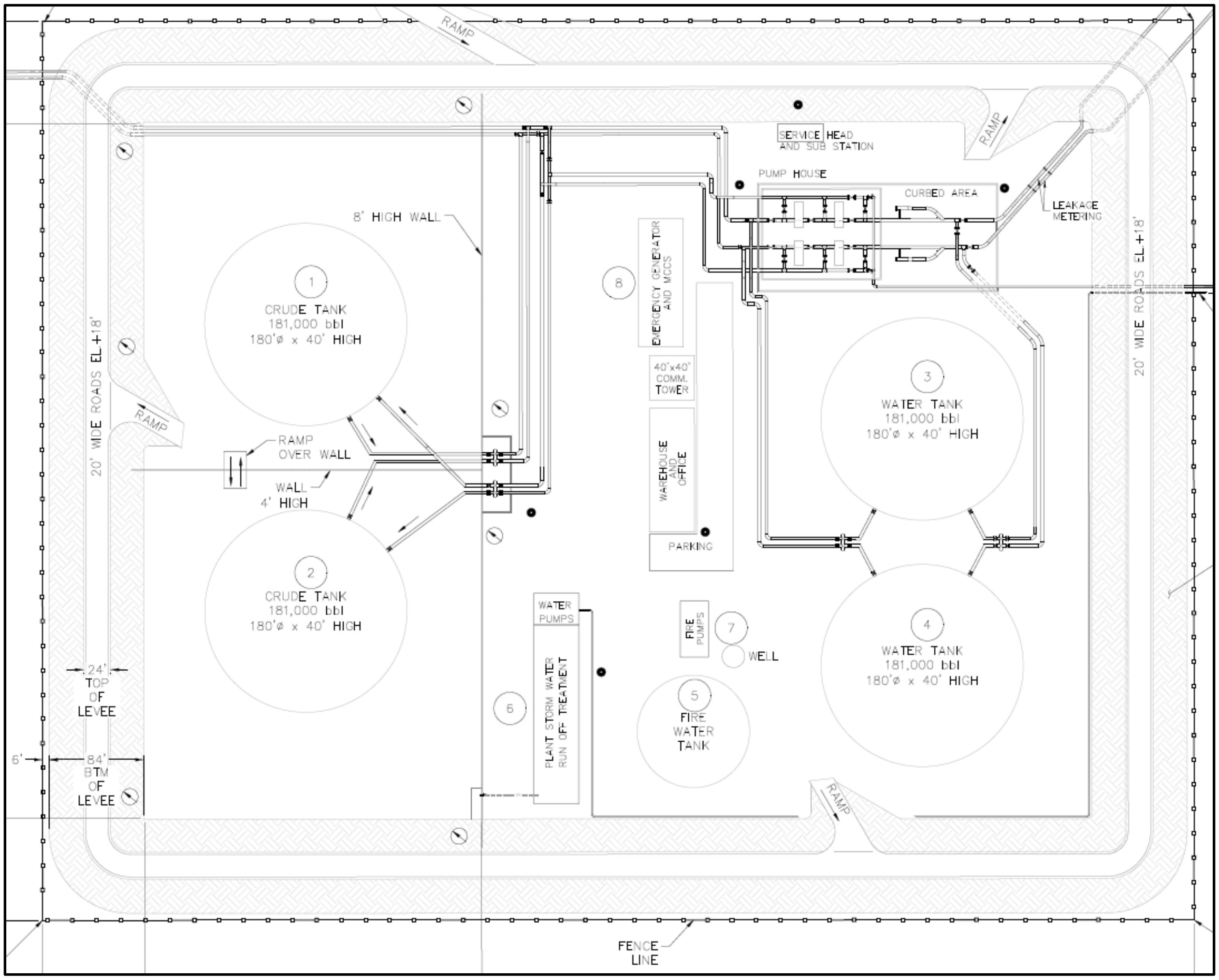
The Proposed Project booster station (also referred to as the Harbor Island Booster Station) occupies an approximate 19-acre area located on Harbor Island in Nueces County, Texas. The Harbor Island Booster Station would house the necessary pumping infrastructure to support the transport of crude oil through the Proposed Project pipeline infrastructure to the DWP for the loading of moored vessels. Additionally, the Harbor Island Booster Station would house the primary administration and operations building to support operations at the DWP.

The Harbor Island Booster Station would consist of two (2) pumping systems servicing the incoming two (2) 30-inch-diameter pipelines. The proposed pumping systems will be comprised of four (4) electrically powered motors (approximately 5,500 horse power each) in a series electronically locked into operation as two booster pumping systems delivering approximately 11,000 horse power to each pipeline. The pumping systems would be located within a noise abatement pump house designed to minimize noise during operations to the maximum extent practicable. Included within the Harbor Island Booster Station design are manifolds equipped with by-pass lines for pigging operations and leakage metering.

The Harbor Island Booster Station would also consist of two (2) 181,000-barrel (bbl) crude oil storage tanks and two (2) 181,000 bbl water storage tanks. The purpose of these tanks is to allow for the clearing of the pipeline infrastructure extending from the Harbor Island Booster Station to the DWP in the situation of an emergency or maintenance operations. During clearing operations, water from the water storage tanks would be used to pump water through one of the 30-inch-diameter pipelines and back to the Harbor Island Booster Station through the other pipeline. The crude oil displaced as a result would be placed in the two (2) 181,000 bbl crude oil storage tanks. During clearing operations, a pipeline pig will be launched to minimize the amount of water/oil mixture at the interface. The refilling of the pipelines will use the same system in reverse, drawing crude oil from the storage tanks to displace water back into the water tanks.

The Harbor Island Booster Station would also consist of multiple additional components to support operations including one (1) fire water tank, firewater pumps, stormwater runoff treatment plant and pumps, communications system, emergency generator, warehouse and DWP operations office, parking lot, foam and water monitors, fire hydrant units, and a facility fence. The Harbor Island Booster Station would be surrounded by a 10-foot-tall storm surge protection levee including a 20-foot-wide vehicle access road. Figure 3-5 provides an overview of the design of the Harbor Island Booster Station.

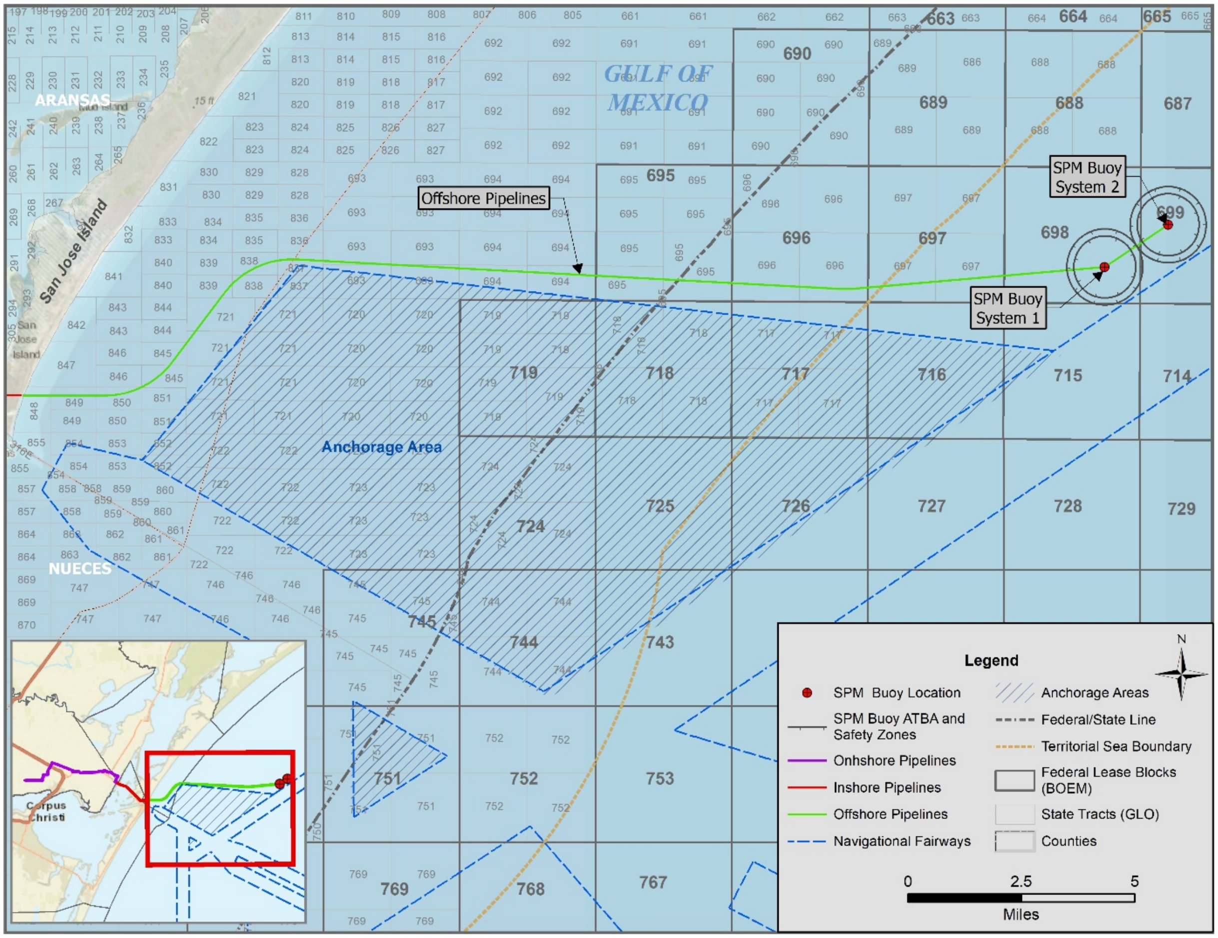
Figure 3-5: Harbor Island Booster Station Design Overview



3.1.2.3 Proposed Project Offshore Components

The Proposed Project Offshore Components are defined as those components located seaward of the MHT line located at the interface of San Jose Island and the GOM. The Proposed Project Offshore Components includes approximately 27.13 miles of two (2) new 30-inch-diameter pipelines and a DWP. The Proposed Project offshore pipeline infrastructure extends from the MHT line at the interface of San Jose Island and the GOM to the DWP. The Proposed Project DWP consist of two (2) SPM buoy systems (SPM Buoy System 1 and 2). The SPM buoy systems serve as the primary device for the loading vessels berthed at the DWP. The SPM buoy systems would be connected via approximately 1.68 miles of two (2) 30-inch-diameter submerged pipelines. Figure 3-6 provides an overview of the Offshore Components associated with the Proposed Project.

Figure 3-6: Proposed Project Offshore Component Map



3.1.2.3.1 PROPOSED PROJECT OFFSHORE PIPELINE INFRASTRUCTURE

The Proposed Project offshore pipeline infrastructure consist of 27.13 miles of two (2) 30-inch-diameter pipelines extending from the MHT line located at the interface of San Jose Island and the GOM to the DWP. The Proposed Project offshore pipelines would intersect portions Texas State submerged lease tracts 848, 849, 850, 851, 845, 721, 839, 838, 837, 693, 694, and 695, and Outer Continental Shelf (OCS) Mustang Island Area TX3 Bureau of Ocean Energy Management (BOEM) blocks 695, 696, 697, 698, and 699.

The Proposed Project offshore pipeline infrastructure is of a dual pipeline system allowing for the flushing of lines of crude back to the Harbor Island Booster Station. Additionally, the dual offshore pipeline configuration allows for the pipelines to be flushed and filled with water in response to emergencies. The proposed offshore pipeline was designed in the effort of minimizing the potential for an oil spill as a result of damages associated with passing storms and allow for rapid emergency response and line clearing capabilities. The Proposed Project offshore pipeline infrastructure will be designed to allow for the use of pigging systems including but not limited to intelligent pigs, foam pigs, articulated squeegee product separation pigs, and steel brush cleaning pigs. During normal pigging operations, a pig will be introduced at the Harbor Island Booster Station within one of the 30-inch-diameter pipelines.

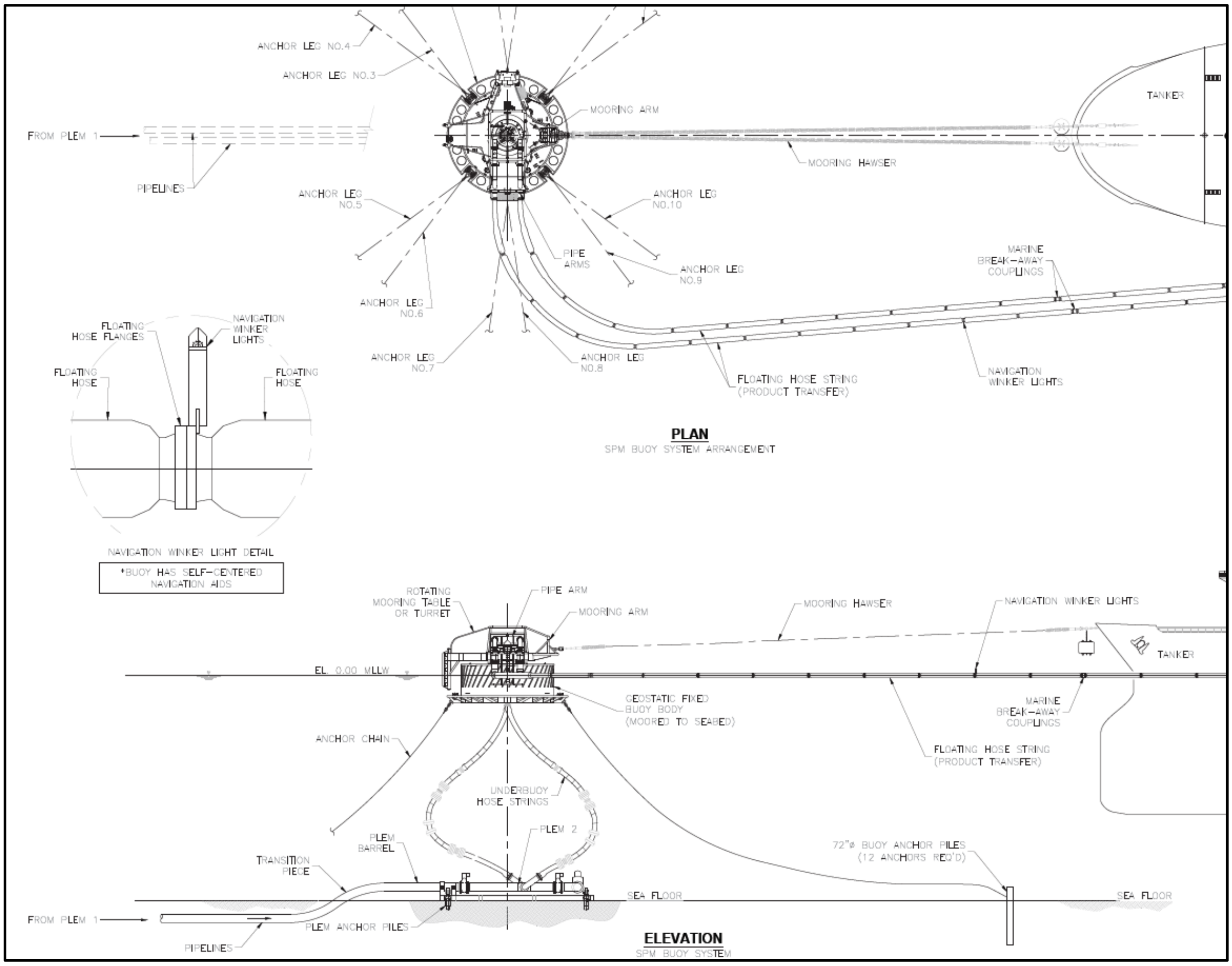
Each of the two (2) 30-inch-diameter offshore pipelines will be capable of flow rates of approximately 40,000 bph, allowing an overall system crude oil delivery capacity of approximately 80,000 bph. The dual offshore pipeline configuration allows for multiple vessel loading scenarios including the loading of a single vessel at either SPM Buoy System 1 or 2, or the simultaneous loading of vessels at both SPM buoy systems. During single vessel loading operations, the Proposed Project is capable of loading rates of up to approximately 80,000 bph. During simultaneous vessel loading operations, the Proposed Project is capable of loading rates of 40,000 bph.

The Proposed Project Offshore pipeline infrastructure will be installed within an approximate 75-foot-wide construction corridor on the seafloor. A pipelay barge consisting of anchors positioned at the bow and stern of the vessel would be used to assemble pipeline segments and lower to the seafloor. During the assembly of each new joint of pipe, the pipelay barge will move forward by tightening the bow anchor cables and slacking the stern anchor cables. This process will repeat until the total length of pipeline has been installed on the seafloor. Upon completion of the assembly of the offshore pipelines, a pipelay vessel will attach a jet sled (or similar pipe burial sled) to an A-Frame located at the stern of the vessel. The vessel will position the sled over one of the pipelines on the seafloor and begin the process of moving along the offshore pipeline. The jet sled will utilize high pressure water jets to remove and discharge the earthen materials underneath the pipeline until the pipeline is buried a minimum depth of 3-feet below the seabed for its entire length. Refer to Volume II, Appendix A for detailed descriptions of the construction methods associated with the installation of the offshore pipeline infrastructure.

3.1.2.3.2 PROPOSED PROJECT DEEPWATER PORT

The principle floating structures associated with the Proposed Project DWP includes two (2) SPM buoy systems each consisting of a catenary anchor leg mooring (CALM) system, pipeline end manifold (PLEM) system, mooring hawsers, floating hoses, and sub-marine hoses to allow for the loading of crude oil to vessels moored at the proposed DWP. The Proposed Project SPM Buoy System 1 would be anchored in approximately 88.5 feet of water at a designated location approximately 15.0 nautical miles (17.26 statute miles) off the coast of San Jose Island at Latitude 27.889361 and Longitude -96.651156. The Proposed Project SPM Buoy System 2 would be anchored in approximately 89.5 feet of water at Latitude 27.902577 and Longitude -96.628119, approximately 1.7 miles northeast of SPM Buoy System 1. The two proposed SPM buoy systems would be connected via 1.68 miles of two (2) 30-inch-diameter pipelines to allow for either the single or simulations loading at vessels. Figure 3-7 provides a conceptual depiction of the Proposed Project SPM buoy system including its associated components.

Figure 3-7: Proposed Project SPM Buoy System(s)



Each of the proposed SPM buoy systems will consist of inner and outer cylindrical shells subdivided into twelve equal-sized watertight radial compartments. A rotating table will be affixed to the SPM buoy and allow for the connection of moored vessels to the SPM buoy system via mooring hawsers. Two floating hoses equipped with marine break-away couplings will be utilized for the transfer of crude oil from the SPM buoy system to the moored vessel. Floating hoses will be equipped with strobe lights (Winkler Lights) at 15-foot intervals for detection at night and low-light conditions.

Both Proposed Project SPM buoy systems will be of the CALM type consisting of a specifically arranged anchor chain system extending to 72-inch-diameter pile anchor piles installed on the seafloor. The proposed 72-inch-diameter pile anchor piles are positioned in a circular pattern with a horizontal radius of approximately 300 feet from the center of the SPM buoys. The CALM mooring system is designed to be capable of holding the position of the SPM buoy with a moored vessel under design operating conditions. The configuration of the CALM mooring system arrangement is designed to provide flexibility for the location of the PLEM and reduce potential interference with sub-marine hoses. The preliminary CALM mooring system is designed to achieve all relevant (American Bureau of Shipping) ABS requirements.

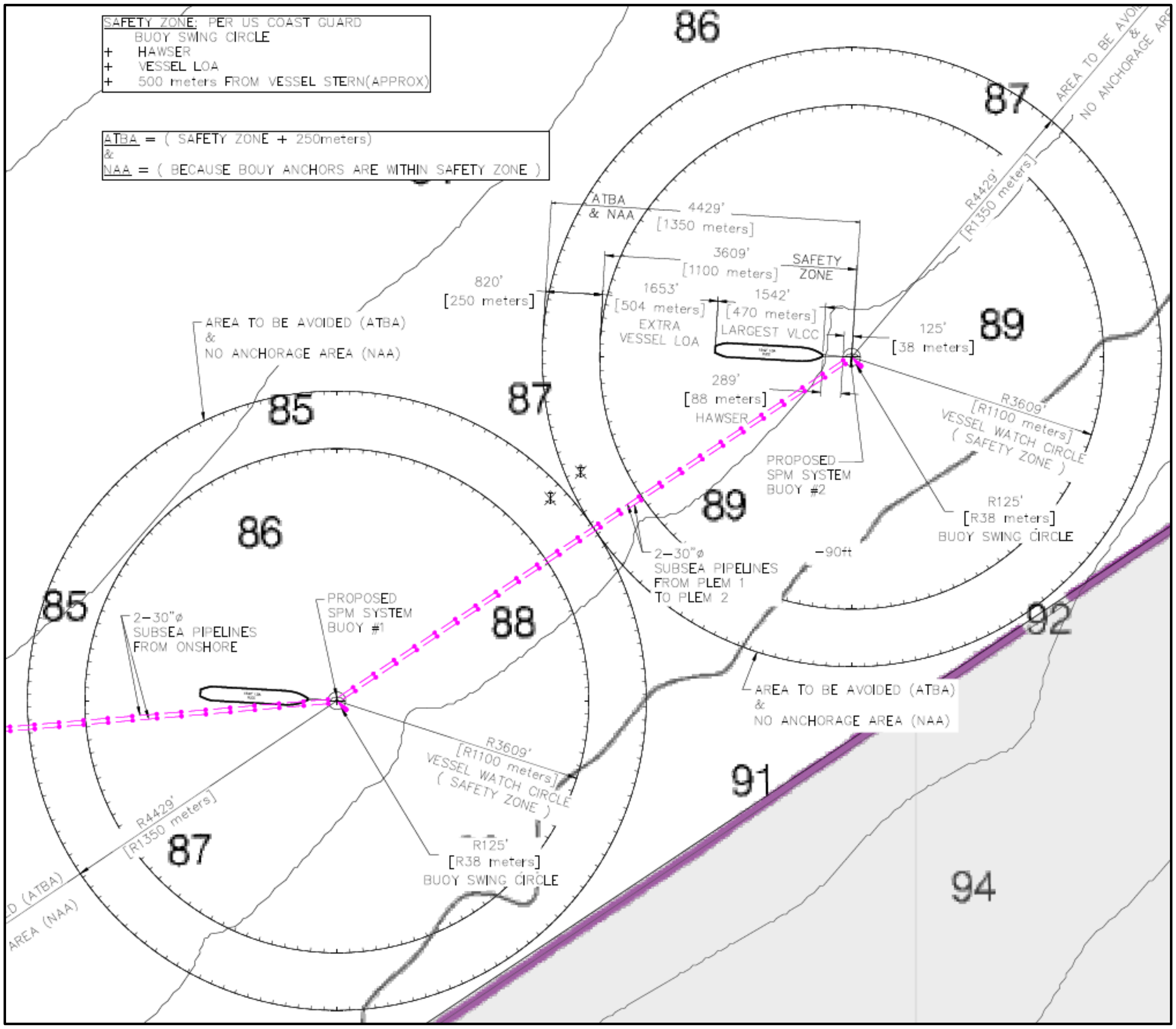
Both SPM buoy systems each utilize a PLEM system which serves as the primary manifold and connection point between offshore pipelines and the SPM buoys. Each of the proposed SPM buoy systems consist of a specialized PLEM to allow for either single or dual vessel loading operations at the DWP. The proposed PLEMs will connect offshore pipelines to the SPM buoy systems through a series of 24-inch-diameter sub-marine hoses. The PLEM systems consist of a steel frame structure positioned directly beneath each of the proposed SPM buoys. Each PLEM would consist of a series of American National Standards Institute (ANSI) 600 series hydraulically operated ball valves and flanges to control the flow of crude oil between the offshore pipelines and the SPM buoy systems. The proposed PLEMs have been designed with specific valve configurations to allow for multiple vessel loading scenarios including the loading of a single vessel at either SPM buoy, or the simulations loading two vessels (one vessel at SPM Buoy 1 and one vessel at SPM Buoy 2).

The PLEM associated with SPM Buoy System 1 (PLEM 1) would be a 65-foot by 33-foot steel frame structure positioned directly below SPM Buoy 1. PLEM 1 would be anchored directly to the seafloor via six (6) 18-inch-diameter pneumatically installed foundation piles. The PLEM associated with SPM Buoy System 2 (PLEM 2) would be a 40-foot by 30-foot steel frame structure positioned directly below SPM Buoy 2. PLEM 2 would be anchored directly to the seafloor via four (4) 18-inch-diameter pneumatically installed foundation piles.

The two (2) incoming 30-inch-diameter offshore pipelines would directly connect to PLEM 1 which consist of specific valve configurations to allow for the direct transfer of crude oil to PLEM 2 through 1.68 miles of two (2) 30-inch-diameter pipelines. The dual offshore pipeline configuration in combination with the PLEM valve arrangements allows for simulations vessel loading operations at both proposed SPM buoys. The proposed PLEMs will connect subsea pipelines to the 24-inch-diameter sub-marine hoses which will extend to the SPM buoy. The sub-marine hoses extending from the PLEM to the SPM buoy would be of the American Petroleum Institute (API) 17K specification. The proposed SPM buoys and their associated PLEMs are designed to allow for moored vessels to clear crude oil from the floating hoses back into a designated tank located on the vessel prior to vessel disconnection and departure from the DWP. Refer to Volume II, Appendix A for detailed descriptions of the construction methods associated with the installation of the Proposed Project SPM buoy systems.

Vessels loading at the Proposed Project SPM buoys would occur in a proposed 3,609-foot (1,100-meter) radius safety zone measured from the center of each SPM buoy system. The safety zone consists of a circle with a radius equal to the SPM buoy swing radius, hawser length, vessel length, plus 500 meters from the stern of the vessel. Additionally, an 820-foot (250-meter) area to be avoided (ATBA) and no anchorage area (NAA) would surround each of the proposed safety zones. Figure 3-8 provides an overview of the navigational arrangement of the Proposed Project DWP, including the associated safety zones.

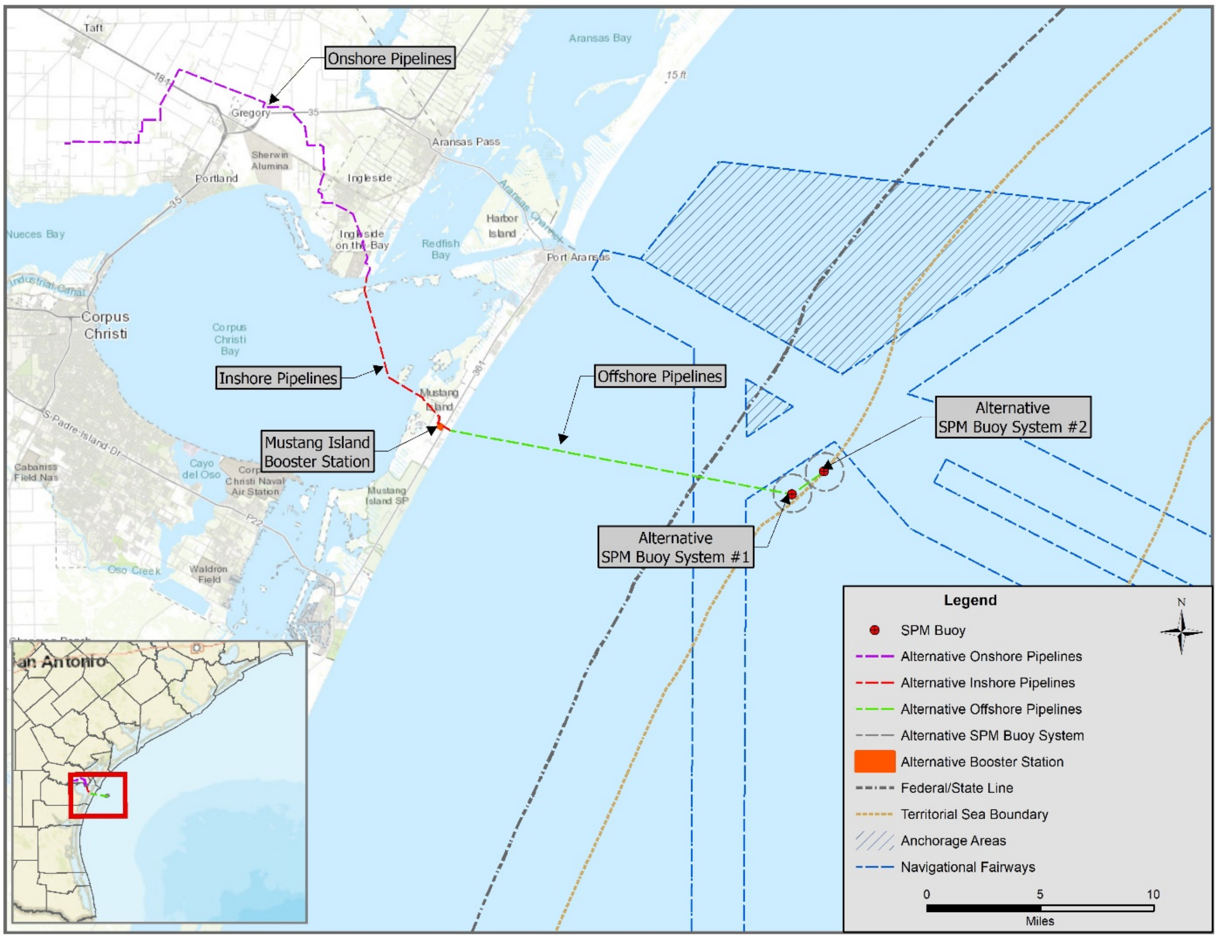
Figure 3-8: Proposed Project DWP Navigational Arrangement



3.1.3 Alternative Project Description

The Alternative Project involves the design, engineering, and construction of a DWP, 48.58 miles of pipeline infrastructure, and a booster station. The Alternative Project is described in three distinguishable segments by locality including "onshore", "inshore", and "offshore". Figure 3-9 provides a component map detailing the locations of the onshore, inshore, and offshore components associated with the Alternative Project.

Figure 3-9: Alternative Project Component Map



The Alternative Project is similar in nature to the Proposed Project in that the operation requires the installation and operation of onshore, inshore, and offshore components as described in the following sections to allow for the loading of vessels at the proposed DWP. The Alternative Project DWP consists of two (2) SPM buoy systems (SPM Buoy System 1 and 2). The SPM buoy systems serve as the primary device for the loading vessels berthed at the DWP and consist of the same components as the Proposed Project as previously described in the above sections. The Alternative Project DWP would be capable of mooring and loading up to two (2) VLCCs or other crude oil carrier vessels.

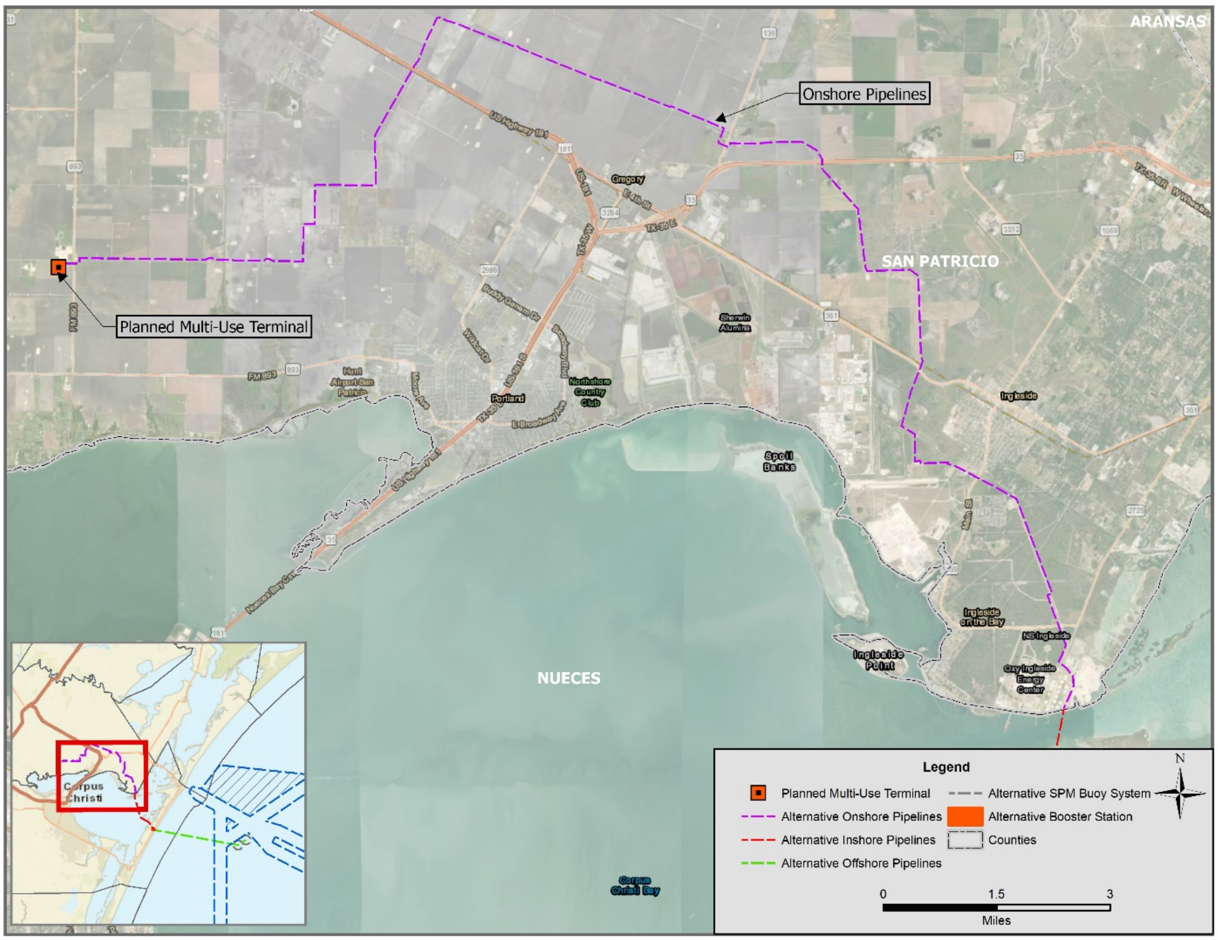
The Alternative Project would be capable of loading of various grades of crude oil at flow rates of approximately 80,000 bph during a single vessel loading operations, or 40,000 bph during simultaneous vessel loading operations. The Proposed Project would be capable of export capacities equivalent to approximately sixteen (16) VLCC class vessels (or equivalent volumes) per month, or approximately one VLCC vessel every 3-4 days per SPM buoy.

The following sections provided detailed information regarding the onshore, inshore, and offshore components associated with the Alternative Project.

3.1.3.1 Alternative Project Onshore Components

The Alternative Project Onshore Components are defined as those components landward side of the western Corpus Christi Bay MHT line, located in San Patricio and Nueces Counties, Texas. The Alternative Project Onshore Components includes approximately 23.08 miles of two (2) new 30-inch-diameter crude oil pipelines extending from the landward side of the MHT line of Corpus Christi Bay to a planned multi-use terminal located south of Taft in San Patricio County, Texas. Figure 3-10 provides an overview of the Onshore Components associated with the Alternative Project.

Figure 3-10: Proposed Project Onshore Component Map



The installation of the Alternative Project onshore pipeline infrastructure involves the utilization of numerous construction techniques including HDD, bores, and open cut conventional excavation. The Proposed Project onshore pipeline infrastructure would be installed within an approximate 125-foot-wide construction corridor. During construction activities, ATWS will be required beyond the width of the designated construction corridor at certain designated locations to provide the space necessary for safe and efficient installation of the onshore pipelines. The ATWS would be utilized, where required, for the storage of spoil, pipe, welding, pull strings, HDD entry and exit locations, and equipment access roads. The onshore pipeline infrastructure associated with the Alternative Project would utilize HDD installation techniques for the installation of the pipelines at six (6) distinct locations. Refer to

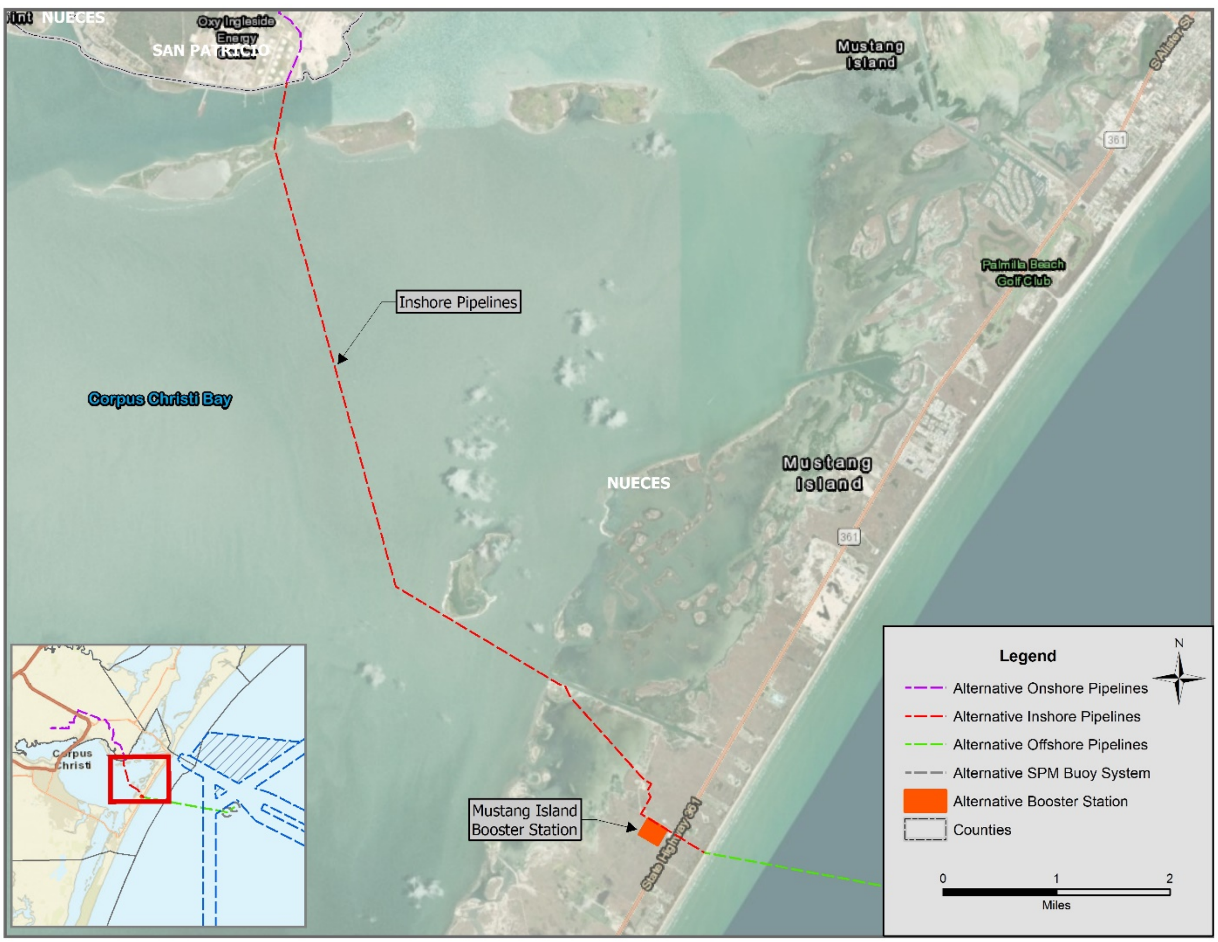
Volume II Appendix A, for detailed construction methods as well as figures depicting the Alternative Project onshore pipeline infrastructure, HDD locations, and the associated construction workspaces.

Each of the two (2) 30-inch-diameter onshore pipelines will be capable of flow rates of approximately 40,000 bph allowing an overall system crude oil delivery capacity of approximately 80,000 bph to the Proposed Project inshore pipeline infrastructure and ultimately the DWP.

3.1.3.2 Alternative Project Inshore Components

The Alternative Project Inshore Components are defined as those components located between the western Corpus Christi Bay MHT line and the MHT line located at the interface of Mustang Island and the GOM. Inshore Project components includes approximately 8.44 miles of two (2) new 30-inch-diameter crude oil pipelines, and an approximate 19-acre booster station located on Mustang Island. The Alternative Project Inshore Components serves as the connection point between the Alternative Project Onshore Components and Offshore Components to allow for the transport of crude oil to the DWP. The Alternative Project booster station is situated on Mustang Island and consists of the necessary operating and pumping infrastructure to support the transport of crude oil and operations of the DWP. Figure 3-11 provides an overview of the Inshore Components associated with the Alternative Project.

Figure 3-11: Alternative Project Inshore Component Map



The installation methods for the Alternative Project inshore pipeline include both terrestrial installation methods and aquatic trenching of pipelines within Corpus Christi Bay. The installation of terrestrial portions of the Alternative

Project inshore pipeline infrastructure involves the utilization of numerous construction techniques including HDD, bores, and open cut conventional excavation. The Alternative Project inshore pipeline infrastructure would be installed within an approximate 100-foot-wide construction corridor. During construction activities, ATWS will be required beyond the width of the designated construction corridor at certain designated locations to provide the space necessary for safe and efficient installations of the proposed pipelines. The ATWS would be utilized where required for the storage of spoil, pipe, welding, pull strings, HDD entry and exit locations, and equipment access roads. The inshore pipeline infrastructure associated with the Alternative Project would utilize HDD installation techniques for the installation of the pipelines at three (3) distinct locations. Refer to Volume II Appendix A, for detailed construction methods as well as figures depicting the Proposed Project inshore pipeline infrastructure, HDD locations, and the associated construction workspaces.

For the Alternative Project, approximately 5.78 miles of the inshore pipeline will be installed in Corpus Christ Bay using pipeline trenching methods within a 75-foot-wide construction corridor. The pipeline trench in Corpus Christi Bay will be excavated to a depth of approximately 8 feet to allow for 60 inches (5 feet) of cover over top of the pipeline. The spoils from trench excavation will be temporarily placed in hopper barges or other type of similar vessel to avoid the side cast of material within open water. The hopper barges will be floated into position within the 75-foot-wide construction workspace. Hopper barges would be anchored in place with spuds or anchor types, or rest on the sea bed in shallow water areas following the loading of sediment.

A pipelay barge will run the length of the pipeline section in series. The pipelay barge would assemble and weld the pipe sections followed by pulling the assembled pipeline sections into an excavated trench via a winch system. A messenger cable will be run from the barge to a land-based winch located onshore. The messenger cable will be utilized to connect the main cable from the winch to the pulling head that will be installed on the first joint of each pipeline section that will be assembled in this phase. The land-based winch will serve to pull the pipe from the pipelay barge as the pipe joints are assembled. Excavated material will then be placed in the pipeline trench, completing the burial of the inshore pipeline in Corpus Christi Bay.

The following section provides a detailed description of the booster station associated with the Alternative Project.

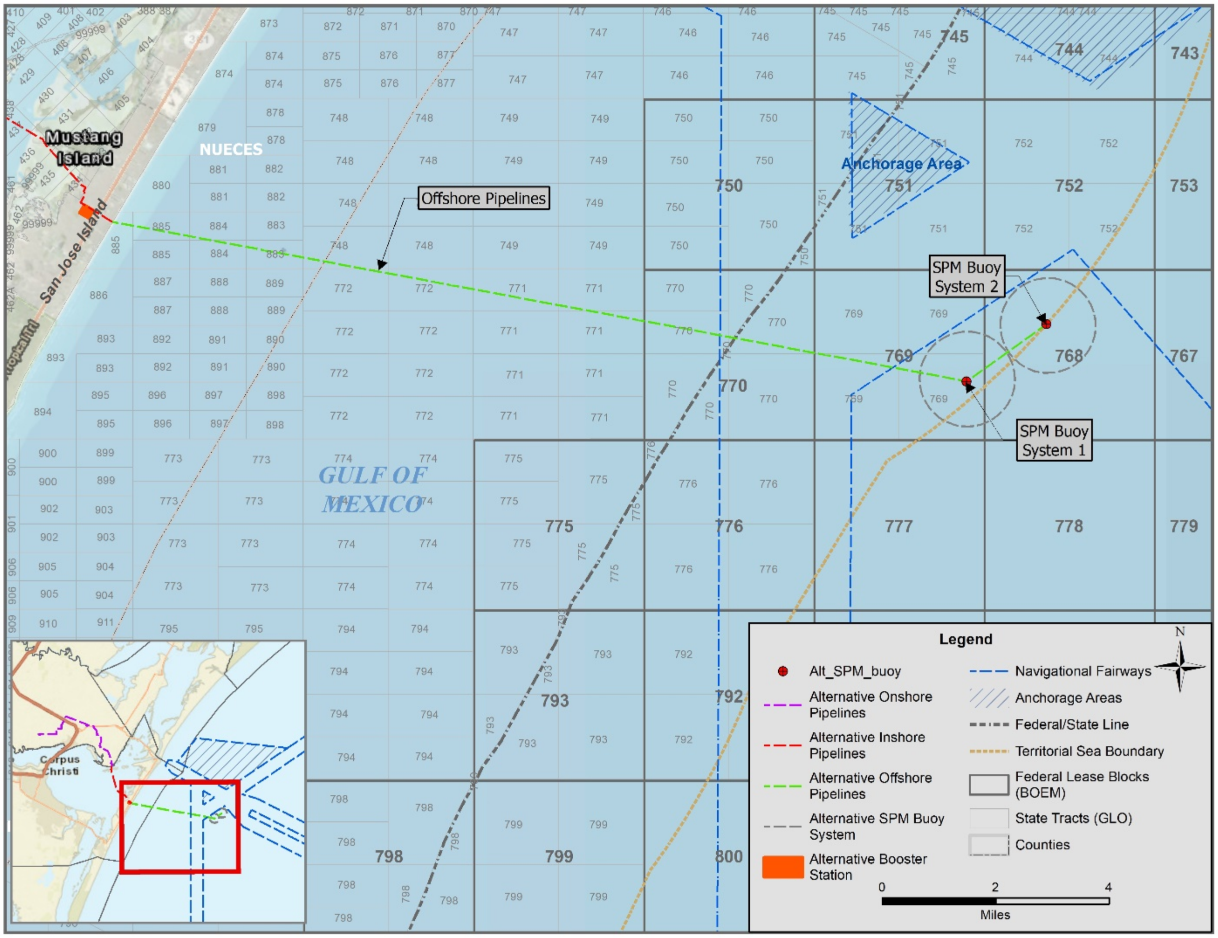
3.1.3.2.1 ALTERNAIVE PROJECT BOOSTER STATION (MUSTANG ISLAND BOOSTER STATION)

The Alternative Project Booster Station (also referred to as the Mustang Island Booster Station) occupies an approximate 19-acre booster station located on Mustang Island located at Latitude -97.1446, Longitude 27.7258, in Nueces County, Texas. The Mustang Island Booster Station would house the necessary pumping infrastructure to support the transport of crude oil through the Proposed Project pipeline infrastructure to the DWP for the loading of moored vessels. The Mustang Island Booster Station components and design would be similar to that of the Proposed Project. As such, for detailed descriptions of the components associated with the Mustang Island Booster Station, refer to Section 3.1.2.2.1 – Proposed Project Booster Station (Harbor Island Booster Station).

3.1.3.3 Alternative Project Offshore Components

The Alternative Project Offshore Components are defined as those components located seaward of the MHT line located at the interface of Mustang Island and the GOM. The Alternative Offshore Components includes approximately 17.07 miles of two (2) new 30-inch-diameter crude oil pipelines and a DWP. The Alternative Project DWP consist of two (2) SPM buoy systems (SPM Buoy System 1 and 2). The SPM buoy systems serve as the primary device for the loading vessels berthed at the DWP. Figure 3-12 provides an overview of the Offshore Components associated with the Alternative Project.

Figure 3-12: Alternative Project Offshore Component Map



3.1.3.3.1 ALTERNATIVE PROJECT OFFSHORE PIPELINE INFRASTRUCURE

The Alternative Project offshore pipeline infrastructure consist of 17.07 miles of two (2) 30-inch-diameter pipelines extending from the MHT line located at the interface of Mustang Island and the GOM to the DWP. Similar to that of the Proposed Project, the Alternative Project offshore pipeline infrastructure is that of a dual pipeline system allowing for the flushing of lines and flow rates of approximately 40,000 bph, allowing an overall system crude oil delivery capacity of approximately 80,000 bph.

The construction and installation methods associated with the Alternative Project offshore pipeline infrastructure are the same as the proposed except for an approximate 6.19-mile segment which crosses an existing safety fairway beginning at Latitude 27.6922472 and Longitude -96.9625611 and ending at Latitude 27.6834944 and Longitude -96.9130417. Where the Alternative Project offshore pipeline infrastructure crosses 6.19 miles of existing vessel safety fairway, the workspace remains at 75-foot-wide, however, the pipeline is required to be covered by a minimum of 10 ft of cover followed by the placement of rip-rap over the installed pipeline infrastructure located within the limits of the fairway. The additional depth of pipeline required in this section would call for more jet sled passes as well as the discharge of rip-rap material within the GOM. The rip-rap will be transported in via barges and lowered to the trench using clamshells and winches.

3.1.3.3.2 ALTERNAIVE PROJECT DEEPWATER PORT

The DWP associated with the Alternative Project is similar in nature as that proposed for the Proposed Project DWP. As such, the Alternative Project DWP would consist of the two (2) SPM buoy systems. The Alternative Project SPM buoys would be installed offshore, within the GOM, outside of U.S. territorial seas, within BOEM block number 769 and 768. The Alternative Project SPM Buoy System 1 is positioned at Latitude 27.6800556 and Longitude -96.8914861 within BOEM block number 769 approximately 13.38 nautical miles (15.4 statute miles) off the coast of Mustang Island in Nueces County, Texas. The Alternative SPM Project Buoy System 2 is positioned at Latitude 27.6941444 and Longitude -96.8685306, within BOEM block number 768 approximately 1.74 miles northeast of SPM Buoy System 1. Figure 3-12 above provides a depiction of the location of the Alternative Project DWP.

The construction and installation of the Alternative Project DWP would be consistent with those methods associated with the Proposed Project DWP. Refer to Volume II, Appendix A for detailed descriptions of the construction methods associated with the installation of SPM buoy systems.

3.2 Framework for the Environmental Evaluation

The potential environmental effects in relation to installation/commissioning ("construction"), routine operations, potential upsets/accidents, and decommissioning of the Project is determined by the Environmental Evaluation. This document has been prepared in anticipation of compliance with National Environmental Policy Act (NEPA) requirements, the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 code of federal regulations [CFR] §§1500-1508), U.S. Department of Transportation Order 5610.1C Procedures for Considering Environmental Impacts), and the United States Coast Guard (USCG) policy (Commandant's Instruction [COMDINST] M16475.1D).

The primary objectives of the Environmental Evaluation document are to:

- Provide an environmental analysis sufficient to support the Secretary of Transportation's licensing decision;
- Demonstrate that the DWP would be located, constructed, and operated in a manner that represents the best available technology necessary to prevent or minimize any adverse effects to the environment;
- Aid in the USCG's and the Maritime Administration's (MARAD) compliance with NEPA; and
- Facilitate public involvement in the NEPA decision-making process.

The Environmental Evaluation considers the potential consequences of the Proposed Project and the Alternative Project that has been identified. Accessible data and literature, predictive modeling, project surveys, and desktop reviews are utilized to determine the present environmental setting as well as the basis for evaluating potential positive and negative consequences. Effort was made to define consequences quantitatively, to the extent practicable. In some instances where data is limited, the evaluation is based on qualitative judgment through the understanding of the local and regional setting; comprehension of the Proposed Project or Alternative Project; and forecasting effects from comparable actions, agency/ stakeholder positions on these, and/or published science. Modeling and surveys were conducted using data collection methods that comply with Texas state, and Federal standards via coordination with the applicable agencies. Where season or time of year impacted the ability to survey a resource (e.g. pipeline plover), presence of the resources was assumed.

In addition to documenting potential impacts, the Environmental Evaluation seeks to recommend procedures to avoid, reduce, or offset, possible negative environmental consequences as a result of construction, operation, and decommissioning of the Proposed Project and Alternative Project. Safety has also been considered where applicable; however, this document does not serve as the final safety screening.

The Environmental Evaluation contains the following sections and appendices:

Volume II - Environmental Evaluation

Introduction, Evaluation Framework, and Summary of Impacts

1.0 Project Purpose, and Need
2.0 Alternatives Analysis
3.0 Project Description and Framework for Environmental Evaluation
4.0 Water Quality
5.0 Wetlands and Waters of the US
6.0 Aquatic Environment
7.0 Commercial and Recreational Fisheries
8.0 Wildlife and Protected Species
9.0 Cultural Resources
10.0 Socioeconomics
11.0 Geological Resources
12.0 Coastal Zone Use, Recreation, And Aesthetics
13.0 Meteorology, Air Quality, And Noise
14.0 Navigation and Navigation Safety
15.0 Environmental Evaluation Summary
16.0 Cumulative Impact Analysis
17.0 List of Preparers

Volume II - Appendices

UPDATE WITH FULL APPENDICE LIST

3.2.1 The Impact Analysis Process

These sections detail the framework and methodology used for identifying the environmental consequences that are related to the project and assess their level of significance to environmental resources as characterized in the Environmental Evaluation technical sections (Sections 4 through 14) and the cumulative impacts section (Section 16) of this DWPL Application. This section identifies the NEPA requirements, analysis process, assessment criteria, and impact producing factors associated with the proposed project.

A detailed description of construction, operations, and decommissioning procedures has been prepared to assist in the assessment of the environmental impacts associated with the Project and can be referenced in Appendix A: Construction, Operation, and Decommissioning Procedures.

The following general steps are used to assess environmental impacts:

1. The resources specific study area analyzed.
2. The specific and applicable consequence-producing factors to be evaluated are identified for each resource.
3. Potential consequences are evaluated for each resource using the assessment criteria described above.
4. Resources with specific threshold criteria (i.e., air, noise, and/or water quality thresholds as set by agency standards) will be assessed utilizing the above criteria and the agency standards/thresholds to determine significance.
5. Mitigation measures that are incorporated into the Project to avoid and minimize impacts are considered as part of the assessment process to determine the level/magnitude of significance.

3.2.2 Impact Producing Factors

Impact producing factors are defined as actions needed for the Proposed Project and Alternative Project that have the possibility of resulting in positive or negative consequences to environmental resources recognized for evaluation by the Deepwater Port Act of 1974, as amended (DWPA), in compliance with NEPA. It is not feasible to systematically establish and evaluate all possible consequence-producing factors due to the extensive nature of the Project. Therefore, those actions that would potentially affect the majority, or all the DWPA-identified resources, have been classified and calculated throughout the evaluation process. Additionally, situations where certain actions required for the Proposed Project or Alternative Project would have a greater severity of impact on individual resources will be identified in relevant Sections. To maintain a dependable framework for examining all resource sections, three distinct phases of this Project have been characterized including Construction, Operation, and Decommissioning. A Construction, Operation and Decommission Procedures document is provided in Volume II as Appendix A. General impact factors for construction, operation, and decommissioning phases are summarized below:

Construction Phase

- Onshore pipeline installation
- Inshore pipeline installation
- Offshore pipeline installation
- DWP pile driving and installation
- Booster Station construction
- Hydrostatic testing (pipelines)
- Construction vessel/equipment (air emissions, wastewater discharges, noise, traffic)
- Personnel/staffing
- Inadvertent HDD returns
- Construction fluid spills

Operation Phase

- VLCC presence (aesthetics)
- VLCC water use (ballast, wastewater, domestic, processed drainage, closed and open separated drainage, bilge separated drainage, non-contact engine cooling water, and fire deluge system test water, etc.)
- Support vessel operations
- Restricted operation zones
- Minor/Major Petroleum liquids release
- Petroleum Liquids pipeline release
- Minor hydrocarbon release

Decommissioning Phase

- Onshore pipeline removal / abandonment
- Inshore pipeline removal / abandonment
- Offshore pipeline abandonment/removal
- DWP removal
- Booster Station decommissioning

3.2.3 Assessment Criteria

Assessment criteria consistent with 40 CFR §1508 has been established to maintain a standardized framework for determining impacts to environmental resources associated with the proposed project. The criteria utilized for characterizing the consequences and determining the level of impact are described as significant, moderate, or negligible/minor and are further detailed below.

- Quality: Beneficial / Adverse
- Effect: Direct / Indirect / Synergistic / Cumulative
- Intensity: Negligible / Minor / Moderate / Significant
- Probability: Unlikely / Possible / Likely
- Temporal: Short-term / Long-term
- Permanence: Reversible / Irreversible
- Context: Local / Regional / National

3.2.4 Level of Significance

The level of significance is the fundamental element of the environmental impact assessment process upon which agencies prepare decision documents under the auspices of the NEPA. In addition to the criteria in section 3.2.3 above, criteria specific to individual resources are discussed where applicable in the various resource sections, to assess consequences and determine level of significance.

The resource baselines and evaluations provided in this document were prepared by qualified and experienced professionals using the best available scientific information, Project-specific modeling/data, professional judgement, and in close consultation with appropriate state and federal resource agencies. Determining the level(s) of significance of consequences is based on CEQ NEPA guidelines. Terminology used in this DWPL application are as follows:

- Direct effects - caused by the action and occur at the same time and place.
- Indirect effects - caused by the action; occur later in time or farther removed in distance but are still reasonably foreseeable (may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems).
- Synergistic effects – caused by the action of more than one force acting at the same time and in the same space that causes a different impact than if the two actions were to occur in different time or space.
- Cumulative effects - Impacts that are additive or synergistic in nature as result from the construction of multiple actions in the same vicinity and time frame. Cumulative impacts can result from individually minor, but collectively significant actions, taking place over a period of time. In general, small- scale projects with minimal impacts of short duration do not significantly contribute to cumulative impacts.

The determination of "significance" includes evaluating the intensity or severity of the various factors that come into consideration for each specific resource. Intensity encompasses such distinct elements as:

- Degree to which the Proposed Project or Alternative Project affects public health or safety.
- Proximity to unique environmental resources.
- Potential for highly controversial effects on the quality of the human environment.
- Degree to which effects on the human environment are highly uncertain or involve unique or unknown risks.
- Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the Proposed Project or the Alternative Project are related to other actions with individually insignificant consequences, but cumulatively have significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- Degree to which the Proposed Project or Alternative Project may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

- Degree to which the Proposed Project or Alternative Project may adversely affect an endangered or threatened species or critical habitat under the Endangered Species Act (ESA).
- Significant: Includes components of context, intensity, and duration. An effect to a substantive area (local, regional, national), unique resource or particularly valued interests; is either highly intense in a short term or continues long-term; and is predominantly irreversible by natural means. May also include exceedance of specific thresholds or standards set by regulatory authorities.
- Moderate: An effect to a limited area, with little or no affect to unique resources or valued interests, is temporary, and reversible by natural means.
- Minor: An effect to a limited area that slightly alters the site condition, with no affect to unique resources or valued interests, is short term, and reversible by natural means.
- Negligible: An effect to a limited area that is barely observable, with no affect to unique resources or valued interests, is short term, and reversible by natural means.

Four levels of impact duration were considered: temporary, short-term, long-term, and permanent. Temporary impacts generally occur during construction, with the resource returning to pre-construction conditions almost immediately afterward. Short-term impacts are those that may continue for up to 6 months following construction. Impacts are considered long-term if the resource will require more than 6 months to recover. A permanent impact could occur as a result of any activity that modified a resource to the extent that it will not return to pre-construction conditions during the life of the Project, such as within the footprint of the Proposed Project. When determining the significance of an impact, we consider the duration of the impact, the geographic and biological context in which the impact will occur, and the magnitude and intensity of the impact. The duration, context, and magnitude of impacts vary by resource and therefore significance varies accordingly.