

EXECUTIVE SUMMARY

INTRODUCTION

The Deepwater Port Act of 1974 (DWPA),¹ as amended, establishes a licensing system for ownership, construction, and operation of manmade structures beyond state seaward boundaries. The DWPA promotes construction and operation of deepwater ports as a safe and effective means of importing oil into the United States and transporting oil from the Outer Continental Shelf (OCS), while minimizing tanker traffic and associated risks. In November 2002, the Maritime Transportation Security Act² (MTSA) amended the definition of “deepwater port” to include natural gas facilities.

All deepwater ports must be licensed. The DWPA requires a license applicant to submit detailed plans for its facility to the Secretary of Transportation (Secretary). The Secretary has delegated the processing of deepwater port applications to the U.S. Coast Guard (USCG) and the Maritime Administration (MARAD). USCG has retained this responsibility after its transfer to the Department of Homeland Security. On June 18, 2003, the Secretary also delegated to the Administrator of MARAD the authority to issue, transfer, amend, or reinstate a license for construction and operation of a deepwater port. Hereafter, “the Administrator” represents MARAD Administrator’s actions and responsibilities as the delegated representative of the Secretary.

The DWPA (as amended) requires compliance with the National Environmental Policy Act (NEPA) and provides that such compliance shall fulfill the requirement of all federal agencies in carrying out their responsibilities under NEPA.³ The USCG and MARAD are the lead agencies for the NEPA compliance review for the proposed Calypso LNG Deepwater Port Project and, consistent with the DWPA, have issued this Draft Environmental Impact Statement (DEIS). This DEIS satisfies the requirements of NEPA and the DWPA to assess the potential environmental impacts associated with construction, operation, and decommissioning of the proposed deepwater port.

As stated in the DWPA, the environmental review criteria must be considered in the preparation of a single, detailed Environmental Impact Statement (EIS) or Environmental Assessment (EA). The U.S. Department of the Interior’s Minerals Management Service (MMS) and U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration Fisheries Service (NOAA Fisheries, also known as the National Marine Fisheries Service [NMFS]), U.S. Army Corp of Engineers (USACE), and U.S. Environmental Protection Agency (USEPA) are considered cooperating agencies for the purposes of this DEIS.

On March 1, 2006, Calypso LNG LLC (also referred to as Calypso and the Applicant) submitted to the USCG and MARAD an Application under the DWPA for all federal authorizations required for a license to own, construct, and operate a liquefied natural gas (LNG) deepwater port (Calypso Port) off the coast of Florida. USCG requested the Applicant to provide additional information. That information was submitted on September 25, 2006, and USCG deemed the application complete.

The proposed Calypso Port would be located in Atlantic waters off the east coast of Florida near Broward County, Florida. The Port would be capable of mooring two types of LNG vessels simultaneously, a storage and regasification ship (SRS) and a transport and regasification vessel (TRV), by means of a submerged unloading buoy system. The westernmost buoy (West Buoy) would be sited

¹ Public Law (PL) 93-627, § 3, January 3, 1975, 88 Stat. 2127, as amended, codified to 33 United States Code (USC) 1501–1524.

² PL 107-295.

³ PL 107-295, § 106 (f).

approximately 7.7 miles from shore in 805 feet of sea water (FSW) and would have eight mooring lines connected to the seafloor, using six suction piles and two gravity anchors. The easternmost buoy (East Buoy) would be sited approximately 10.3 miles from shore in 932 FSW and would have nine mooring lines connected to the seafloor, using six suction piles and three gravity anchors. An SRS would moor semi-permanently to the East Buoy, except during severe weather conditions, maintenance, or inspection. Conventional LNG carriers would call on the Calypso Port and transfer LNG to the SRS approximately every 2 days. TRVs would call on the Calypso Port and moor to the West Buoy every 4 to 7 days, averaging once every 5 days. When not connected to an SRS or TRV, the unloading buoy would be submerged approximately 100 feet (ft) below the sea surface and would be supported by means of buoyancy elements. A marker buoy and retrieval line would be used to locate and recover the unloading buoy when the SRS or a TRV arrives at the deepwater port. The unloading buoy and its attached riser pipeline would be retrieved from its submerged position and hoisted in the forward part of the SRS and TRV, where it would be positioned in a mating cone within the hull. Both the SRS and TRVs would be equipped to vaporize LNG cargo to natural gas through an onboard closed-loop shell-and-tube vaporization system, and to odorize and meter gas for send-out through the unloading buoys.

On November 6, 2006, the USCG and MARAD issued a Notice of Application in the *Federal Register* (FR), summarizing the Application.⁴ The proposed Calypso LNG Deepwater Port Project (also referred to as Calypso Port and the Project) was assigned Docket Number USCG-2006-26009.⁵ Under procedures set forth in the DWPA, the USCG and MARAD have 240 days from the date of the Notice of Application to hold one or more public license hearings in the adjacent coastal state(s).

MARAD may not issue a license without the approval of the Governor of the adjacent coastal state.⁶ Pursuant to the DWPA, Florida was designated as the adjacent coastal state. The Governor of Florida must approve, approve with conditions, or deny the DWPA license within 45 days of the last DWPA public hearing; if the Governor does not act within 45 days, approval will be conclusively presumed. Approval or denial of the license application by MARAD must occur not more than 90 days after the last public hearing.

The Applicant also filed permit applications with USEPA required under the Clean Air Act (CAA) and Clean Water Act (CWA). If a DWPA license is issued, the Applicant will apply to MMS for pipeline rights-of-ways.

PURPOSE AND NEED

The purpose for licensing LNG deepwater ports is to provide a reliable and timely supply of natural gas, and to increase energy diversity in the United States. Evaluation of applications for deepwater port licensing must consider impacts on the environment and safety and security impacts. Accomplishing this Project purpose requires construction of facilities for receiving the LNG; revaporizing the LNG to a gaseous state; and connecting the facility to a transmission pipeline system that can reach markets within the southeastern United States, including Florida.

⁴ 71 FR § 67422-24.

⁵ The Applicant also has filed applications with USACE for Department of the Army permits pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 USC § 403), and Section 404 of the Clean Water Act (CWA) (33 USC § 1344). USACE will issue a public notice in the *Federal Register* for the Project when the Notice of Availability (NOA) for the EIS is issued. The Applicant also has filed permit applications under the Clean Air Act and CWA with USEPA. The Final EIS (FEIS) will be the supporting document for USACE's and USEPA's permit decisions.

⁶ 33 USC § 1503 (c)(8).

The DWPA was passed to promote and regulate the construction and operation of deepwater ports as a safe and effective means of importing oil and natural gas into the United States. The DWPA requires the Secretary to approve or deny a deepwater port license application, and the Secretary subsequently delegated this authority to the Administrator. In reaching this decision, the Secretary must carry out the Congressional intent expressed in the DWPA, which is to:

- “Authorize and regulate the location, ownership, construction, and operation of deepwater ports in waters beyond the territorial limits of the United States”;
- “Provide for protection of the marine and coastal environment, to prevent or minimize any adverse impact that might occur as a consequence of the development of such ports”;
- “Protect the interests of the United States and those of adjacent coastal states, in the location, construction, and operation of deepwater ports”;
- “Protect the rights and responsibilities of the states and communities to regulate growth, determine land use, and otherwise protect the environment in accordance with law”;
- “Promote the construction and operation of deepwater ports as a safe and effective means of importing oil and natural gas into the United States, and transporting oil and natural gas from the OCS while minimizing tanker traffic and the attendant risks”; and
- “Promote oil and natural gas production on the OCS by affording an economic and safe means of transportation of OCS oil and natural gas to the U.S. mainland.”⁷

The Secretary may issue a license if he finds that:

- The Applicant is financially responsible and will meet the requirements of the DWPA.
- The Applicant can and will comply with applicable laws, regulations, and license conditions.
- Construction and operation of the deepwater port will be in the national interest and consistent with national security and other national policy goals and objectives, including energy sufficiency and environmental quality.
- The deepwater port will not unreasonably interfere with international navigation or other reasonable uses of the high seas, as defined by treaty, convention, or customary international law.
- The Applicant has demonstrated that the deepwater port will be constructed and operated using best available technology, so as to prevent or minimize adverse impact on the marine environment.
- The Secretary has not been informed, within 45 days of the last public hearing on a proposed license for a designated application area, by the Administrator of USEPA, that the deepwater port will not conform with all applicable provisions of the CAA, as amended (42 USC § 7401 et seq.); the Federal Water Pollution Control Act, as amended (33 USC § 1251 et seq.); or the Marine Protection, Research, and Sanctuaries Act, as amended (16 USC § 1431 et seq., § 1447 et seq.; 33 USC § 1401 et seq., § 2801 et seq.).
- The Secretary has consulted with the Secretaries of the Army, State, and Defense to determine their views on the adequacy of the application and its effect on programs within their respective jurisdictions.

⁷ 33 USC § 1501(a).

- The governor of the adjacent coastal state approves, or is presumed to approve, issuance of the license.
- The adjacent coastal state to which the deepwater port is to be directly connected by pipeline has developed, or is making reasonable progress at the time the application is submitted, toward developing an approved coastal zone management program (CZMP) pursuant to the Coastal Zone Management Act of 1972 (CZMA) (16 USC § 1451 et seq.).

The DWPA application currently under consideration is one proposed by Calypso. In its Application, Calypso proposes to construct, own, and operate the Calypso Port to receive and vaporize LNG and transport natural gas at a location that allows it to connect to southern Florida's natural gas market via the existing natural gas transmission infrastructure.

SCOPE AND ORGANIZATION OF THIS DEIS

The Secretary (through the USCG and MARAD) is responsible for complying with a variety of federal regulations, including NEPA. The purposes of this DEIS are (1) to provide an environmental analysis sufficient to support the Secretary's licensing decision; (2) to facilitate a determination of whether the Applicant has demonstrated that the Project would be located, constructed, operated, and decommissioned using the best available technology to prevent or minimize adverse impacts on the environment; and (3) to encourage and facilitate involvement by the public and interested agencies in the environmental review process.

This DEIS assesses potential environmental impacts associated with construction, operation, and decommissioning of the Calypso Port. The affected environmental components encompassed by this DEIS include water resources, biological resources, cultural resources, geological resources, recreation and visual resources, socioeconomic resources, transportation, air quality, noise, and safety. The DEIS describes the proposed Project and potential alternatives (Section 2.0); the affected environment as it currently exists (Section 3.0); the environmental consequences that might result from construction, operation, and decommissioning of the Calypso Port (Section 4.0); safety (Section 5.0); and cumulative impacts (Section 6.0). A list of references used in preparing the document and the individuals who prepared the document are provided in Sections 7.0 and 8.0, respectively. Volume II of this DEIS contains the supporting appendices, including information on public scoping; agency consultation; applicable laws and executive orders (EOs); NEPA documentation for the Calypso pipeline previously permitted by the Federal Energy Regulatory Commission (FERC); specific technical information on biological resources, cultural resources, and air quality; historical LNG incidents; and the Project-specific Independent Risk Assessment.

PUBLIC INVOLVEMENT

The USCG and MARAD initiated the public scoping process on November 21, 2006, with the publication of a Notice of Intent (NOI) to prepare an EIS in the *Federal Register*. The NOI included information on public meetings and informational open houses; requested public comments on the scope of the EIS; and provided information on how the public could submit comments by mail, hand delivery, facsimile, or electronic means.⁸ The notice also announced the establishment of a public docket, accessible at <http://dms.dot.gov> under Docket Number USCG-2006-26009.

An Interested Party Letter, the NOI published in the *Federal Register*, and a fact sheet describing the proposed Project were sent to approximately 368 federal, state, and local agency representatives, and

⁸ 70 FR § 61151-52.

to other potentially interested parties. Public comments submitted as part of the scoping process were considered during development of the DEIS.

An informational open house and a public scoping meeting were held on December 6, 2006, in Fort Lauderdale, Florida. The meetings were advertised in the *Sun-Sentinel* on November 29 and December 4, 2006. The open house and public meeting in Fort Lauderdale was attended by 68 people; 19 of these individuals made statements for the record. Written comments also were requested, and comment letters were received from three individuals. Written scoping comments were received from the USEPA, MMS, NMFS, Florida Fish and Wildlife Conservation Commission (FFWCC), and the Florida Department of Environmental Protection (FDEP), Office of Intergovernmental Programs. No other written scoping comments have been received from agencies, elected officials, or organizations.

DESCRIPTION OF THE PROPOSED ACTION

The proposed Calypso Port would be located in federal waters in OCS Block NG 17-06 (Bahamas) lease area, approximately 8 to 10 miles off the east coast of Florida and northeast of Port Everglades, in water depths ranging from approximately 770 to 970 FSW. As proposed, the Calypso Port would include two submersible unloading buoys that would be permanently secured to the seafloor via eight or nine mooring lines consisting of wire rope, chain, and buoyancy elements. Each mooring line would be attached to anchor points on the seafloor consisting of a suction pile or gravity anchor. The West Buoy would be sited approximately 7.7 miles from shore in 805 FSW and would have eight mooring lines connected to the seafloor, using six suction piles and two gravity anchors. The East Buoy would be sited approximately 10.3 miles from shore in 932 FSW and would have nine mooring lines connected to the seafloor, using six suction piles and three gravity anchors.

The unloading buoys would be separated from one another by a distance of approximately 3 miles, and each buoy would connect via a flexible riser and a subsea pipeline to the point of interconnect with the FERC-permitted pipeline (FERC-permitted pipeline). The proposed pipeline for the East Buoy would be approximately 2.5 miles in length, and the pipeline for the West Buoy would be approximately 2.7 miles in length. Construction, operation, and decommissioning of the pipelines between the unloading buoys and the FERC-permitted pipeline are included as part of the proposed action addressed in this DEIS. An EIS was previously completed by FERC for the FERC-permitted pipeline, and the results of that NEPA review are summarized in Appendix D of this DEIS.

Three types of vessels would call on the Calypso Port: an SRS, TRVs, and LNG carriers. The unloading buoys would be designed to moor and unload LNG from the SRS with an approximate capacity of 250,000-cubic meter (m³), and TRVs of up to 140,000-m³ capacity. The SRS would moor at the East Buoy, and TRVs would moor at the West Buoy. The SRS would be designed to berth and unload LNG carriers ranging from 140,000- to 215,000-m³ capacity. While the LNG carriers and TRVs that would visit the proposed Calypso Port would be drawn from the existing and future global fleet, the SRS would be a specialized LNG carrier that would be purpose-built to service the Calypso Port. A specially designed mating cone incorporated into the hulls of the SRS and TRVs would facilitate connection of these vessels to the unloading buoys. The design of the buoys would enable the moored vessels to weathervane, or rotate, around the buoys in response to prevailing wind, wave, and current directions. Both the SRS and the TRVs would be equipped to vaporize LNG cargo to natural gas through an onboard closed-loop shell-and-tube vaporization system, and to odorize and meter the natural gas for send-out through the unloading buoys.

When finished with offloading and send-out operations, a TRV would disconnect from the West Buoy and leave the Calypso Port, and another TRV would arrive and start the unloading process. The

SRS normally would remain attached to the East Buoy to receive new shipments of LNG delivered via LNG carriers.

If threatened by severe weather, any vessel at the proposed Calypso Port (the SRS, TRV, and/or LNG carrier) would depart the port in accordance with the requirements specified by USCG Sector Miami and in accordance with the USCG-approved Operations Manual. Upon the passing of any severe storm danger or returning from maintenance or inspection, the SRS would reconnect to the East Buoy and resume its operations. If a vessel was not present at the Calypso Port, the unloading buoys would remain submerged approximately 100 ft below the sea surface.

Pursuant to the regulations of the DWPA, USCG is authorized to establish temporary and permanent mandatory safety zones around deepwater ports whether or not a vessel is present. As proposed by the Applicant, the temporary Safety Zone around the construction site would encompass 7,040 acres (11 square miles). A permanent Safety Zone would extend approximately 2,800 ft from the center of each buoy and encompass approximately 565 acres for each buoy (total of 1,130 acres). This would create a buffer of approximately 1,640 ft (specifically 500 m) between the moored SRS or TRV and the boundary of the Safety Zone as it weathervanes (rotates) around a buoy, which incorporates a buoy excursion of up to 200 ft (60 meters). All unauthorized vessels would be prohibited from anchoring or transiting the proposed Safety Zone at any time. USCG would have jurisdiction for the Safety Zone.

In addition, an area to be avoided (ATBA) would be established at the request of USCG to the International Maritime Organization (IMO). The anvil-shaped ATBA would encompass approximately 702 acres and would be defined as a single 3,000 ft-wide corridor extending between the Safety Zones for each mooring buoy. This ATBA would help ensure that other vessels do not interfere with the deepwater port operations, including maneuvering of LNG and support vessels.

In general, the ATBA and Safety Zones would be established at all times, and together would form a “barbell” shape where the ends of the barbell would encompass the Safety Zone around each buoy, and the ATBA would form the middle of the barbell extending between the two circular zones. LNG vessel traffic would be coordinated by Calypso personnel. The actual size of the ATBA that would be requested of IMO would be determined through the advice and consent of USCG. The ATBA would appear on subsequent editions of the nautical charts. The ATBA is meant to discourage vessel traffic and is normally recommendatory.

The proposed Calypso Port would be capable of delivering natural gas in a continuous flow because at least one vessel, a TRV or the SRS, could be vaporizing LNG and sending out natural gas at all times. For the SRS to sustain continuous vaporization, an LNG carrier would need to arrive at the Calypso Port every 2 to 4 days to offload its LNG cargo to the SRS. In addition, the proposed Calypso Port would be designed so that a TRV and SRS could be moored simultaneously for concurrent vaporization of LNG and unloading of natural gas. The proposed Calypso Port would have an average natural gas throughput capacity of approximately 1.1 billion standard cubic ft per day (bscfd) and a peak delivery capacity of 1.9 bscfd. The LNG delivered to the Calypso Port would be sourced from the Applicant’s affiliate global portfolio of LNG supply at locations including the Caribbean, Africa, and the Middle East.

Existing shore-based infrastructure would be used to facilitate movement of personnel, equipment, supplies, and disposable materials between the proposed Calypso Port and shore. Offshore installation for the Calypso Port would require up to 5 months. The deepwater port would be designed, constructed, and operated in accordance with applicable codes and standards, and would have an expected operating life of approximately 25 years.

ALTERNATIVES

The DWPA requires the Secretary to approve, approve with conditions, or deny a deepwater port license application. Consistent with NEPA, in determining the provisions of the license, the Secretary must also consider alternative means to construct and operate a deepwater port. Alternatives for a natural gas deepwater port may extend to matters such as its specific location, methods or location of construction, routes for associated pipelines, and technologies for regasifying LNG. Considering alternatives helps to ensure that decisions concerning the license are well-founded (as required by the DWPA), are in the national interest, and are consistent with national security and other national policy goals and objectives.

Alternatives Considered in Detail

After the initial screening of potential alternatives, the USCG and MARAD determined that specific alternatives would be evaluated in detail. The following categories of alternatives are discussed in detail: LNG terminal locations and LNG vaporization technologies. The No Action Alternative is also discussed. The alternatives evaluated in detail in this DEIS are summarized below:

- Three alternative Port locations, including the proposed Calypso Port location were identified, as described below:
 1. *Alternative Port Location 1:* This alternative location would contain buoys located approximately 7 miles from the Florida coast. Buoys associated with this location would be located between 1 and 3 miles north of the FERC-permitted pipeline crossing portions of OCS Blocks NG 17-06 6951, 6952, 6901, and 6902.
 2. *Alternative Port Location 2:* This alternative location would contain buoys located approximately 7 miles from the Florida coast. Portions of the FERC-permitted pipeline crossing OCS Blocks NG 17-06 6951, 6901, and 6902 would be located within 3 miles of this site alternative.
 3. *Alternative Port Location 4 (Proposed Action and Applicant's preferred location):* Project buoys associated with this alternative location would be located approximately 8 to 10 miles from the closest shoreline. Portions of the FERC-permitted pipeline traversing OCS Blocks NG 17-06 6853, 6902, and 6903 would be located 2.5 miles south of the proposed location.
- Various alternative technologies were considered in the DEIS. Two alternative sources of heat to vaporize LNG into natural gas using shell-and-tube technology were considered in detail: heat from the surrounding seawater (open-rack vaporization [ORV]) and heat produced by combustion of vaporized LNG cargo (closed-loop vaporization).
- The No Action Alternative is the continuation of existing conditions of the affected environment without implementation of the proposed action. Inclusion of the No Action Alternative is prescribed by the Council on Environmental Quality and serves as a baseline against which federal actions can be evaluated. Under the No Action Alternative, MARAD would deny the License Application and Calypso would not proceed. The additional infrastructure proposed by the Applicant would not be built and brought online to satisfy U.S. natural gas demand, and the associated environmental impacts would not occur. Other license applications for projects to satisfy U.S. demand for natural gas might be submitted to MARAD or FERC; or other means might be used to satisfy the nation's energy demands, such as expansion or establishment of onshore or offshore LNG ports, or use of other fuel sources. The environmental impacts associated with these projects could be less than, similar

to, or greater than those associated with the proposed Calypso Port Project. The No Action Alternative would not meet the objectives of the proposed Project, nor would it address the national need for increasing energy and diversifying energy sources.

Alternatives Not Considered in Detail

The alternatives screening for the proposed Calypso Port Project included an extensive evaluation of deepwater port designs, deepwater port locations, and alternative vaporization technologies. Because alternative port designs did not pass the screening criteria, they were considered but not evaluated in detail in the DEIS. These design alternatives, which included an onshore LNG terminal, a gravity-based structure (GBS), a fixed platform-based unit, a special-purpose floating platform, and a floating storage and regasification unit (FSRU), are addressed in Section 2.2.1.2. Five specific alternative Port locations did not pass the screening criteria and, therefore, were considered but not evaluated in detail in the DEIS. These location alternatives are addressed in Section 2.2.1.3. Additionally, the alternatives screening considered but did not evaluate in detail the use of ambient air heating as an LNG vaporization alternative (Section 2.2.1.4).

Other alternative deepwater port construction and operation technologies considered but not evaluated in detail in this DEIS include alternative mooring methods and arrangements, propulsion and power generation alternatives, engine-cooling technology alternatives, marine life exclusion system alternatives, and biocide system alternatives (Section 2.2.1.4).

ENVIRONMENTAL CONSEQUENCES AND MITIGATION

Construction, operation, and decommissioning of the proposed Project or the alternatives would result in a combination of adverse and beneficial impacts of varying duration and severity. The following summarizes the environmental consequences and mitigation measures identified in the DEIS.

Water Resources. Construction, operation, and decommissioning of the proposed Project or the alternatives would result in short- and long-term, negligible to minor adverse impacts on water resources. Seawater intake and discharges, bottom sediment disturbance, inadvertent spills, and other activities impacting general water quality were evaluated for this DEIS.

Proposed Action. Short-term, negligible to minor adverse impacts to water quality would be expected during construction of the proposed Project associated with construction-related turbidity, and routine vessel discharge-related changes to water temperature and dissolved oxygen (DO). Water discharges associated with initial pipeline integrity testing (hydrostatic testing/pigging) would result in an adverse negligible, short-term impact to water quality and would not notably affect any specific water quality component. Long-term, minor adverse impacts to water quality would be expected during operation of the proposed Project associated with bottom sediment disturbance from the anchor chains sweeping the seafloor; and seawater intake and discharge potentially resulting in slight increases in salinity and turbidity, and altering the water temperature and DO concentrations. Inadvertent spills and LNG spills during proposed Project construction and operation could result in an adverse minor, short-term impact to water quality. During proposed Project decommissioning, bottom sediment disturbance, routine discharges, and inadvertent spills from the decommissioning vessels could result in adverse short-term minor impacts on water quality.

Alternative Deepwater Port Locations. Construction impacts to water quality associated with all alternative Port locations would be similar to those described for the proposed Calypso Port location. The only exception would be the combined length of the two pipelines that would connect the proposed Calypso Port to the FERC-permitted pipeline. For Alternative Port Location 1, the length of the pipelines would total 4.1 miles; for Alternative Port Location 2, the length would total 3.5 miles. For comparison,

the length of the pipelines for the proposed action would be 5 miles. Therefore, the total area of sediment disturbed during construction at Alternative Port Locations 1 and 2 would be slightly less (less than 1 acre) than the proposed action, which would result in slightly less turbidity during construction. The operational and decommissioning impacts to water quality would be the same as those described for the proposed Calypso Port location.

Vaporization Alternatives. The difference between the ORV and closed-loop vaporization designs is that ORV would use seawater to warm the LNG to the vapor phase. The water used for warming the LNG would then be discharged. Water used in this process would be treated with biocides (sodium hypochlorite) to avoid biofouling of the piping system. Minor impacts to water quality from the thermal and chloride discharges would be long term; these impacts would not occur with the (proposed) closed-loop vaporization alternative.

Biological Resources. Short-term to long-term, minor to potentially moderate adverse impacts would occur from construction, operation, and decommissioning of the proposed Calypso Port or its alternatives. Impacts would be incurred by marine habitats (water column, benthic habitat, and areas of special concern), threatened and endangered species, non-threatened and non-endangered species, plankton, fisheries resources, and essential fish habitat (EFH).

Proposed Action. During construction, biological resources would incur minor, short-term adverse impacts from routine discharges, bottom sediment disturbance, increased vessel traffic (excluding marine mammals and sea turtles), noise, lighting, marine debris, hydrostatic testing/pigging discharges, and inadvertent spills of petroleum. Increased construction vessel traffic would potentially result in moderate, short-term adverse impacts to marine mammals (both threatened and endangered and non-threatened and non-endangered), and sea turtles through the increased possibility of vessel strike.

Operational impacts to biological resources would be caused by seawater intake and discharge, bottom sediment disturbance, increased vessel traffic, noise, lighting, marine debris, LNG spills, and inadvertent spills of petroleum. With the exception of increased vessel traffic and LNG spills, each of these activities would be expected to cause long-term, minor adverse impacts. Increased LNG and support vessel traffic would cause potentially moderate, long-term adverse impacts to marine mammals (both threatened and endangered and non-threatened and non-endangered) and sea turtles through the increased probability of vessel strike. LNG spills, although unlikely, would potentially result in short-term, minor to moderate adverse impacts to marine mammals, sea turtles, and coastal and marine birds in the immediate proximity of a spill.

The intake of seawater for engine-cooling and ballast water would cause long-term, minor, adverse impacts to ichthyoplankton populations in the proposed Project area. Calypso conducted surveys during February and March 2007 to determine the species and densities of early life stages of fish and other zooplankton present in the proposed Project area. The density of fish eggs and larvae encountered during the surveys was 1,069 eggs/million gallons and 1,102 larvae/million gallons. Impacts to these species associated with entrainment were determined through the use of an Empirical Transport Model (ETM), in which the average daily seawater intake of the proposed Calypso Port (43.6 million gallons per day [mgd]) was compared to the volume of water flowing through the source water body (6,519,561 mgd) to determine the percent decrease in each population of each species caught. Federal and state resource agencies agreed the source water body would be defined as a 7.5 mile area of the Florida Current to a depth of 82 FSW. Using this approach, estimated annual entrainment would total less than 0.001 percent of the ichthyoplankton and zooplankton communities in the source water body.

Impacts during decommissioning would be comparable to those during construction.

Alternative Deepwater Port Locations. The selected alternative Port locations are close to the proposed Calypso Port location; therefore, impacts to biological resources from construction, operation, and decommissioning of the proposed Calypso Port would be similar for all locations.

Vaporization Alternatives. Under the open-loop ORV alternative, the proposed Project would require an average seawater intake of 167.0 mgd for vaporization of LNG, in addition to the 43.6 mgd required for the engine-cooling and ballast water of the SRS, TRVs, and LNG carriers during normal operations. The total seawater intake required for the ORV alternative (210.6 mgd) would be expected to cause a minor, long-term adverse impact to the ichthyoplankton and zooplankton populations occurring in the proposed Project area since intake volumes and resulting entrainment losses would be almost 5 times higher using the alternative ORV technology compared to the proposed closed-loop system. While these losses would total less than 0.01 percent of the ichthyoplankton and zooplankton in the Project area, there could be additional impacts to these communities using ORV due to the discharge of the warming water at a temperature 13 °F below ambient temperature. This would cause long-term, minor adverse impacts to the water column and to the pelagic species utilizing the water column in the vicinity of the discharge points. Impacts to all other biological resources would be similar to those discussed for the proposed Project.

Cultural Resources. Construction, operation, and decommissioning of the proposed Project or the alternatives would not be expected to impact any identified cultural resources.

Proposed Action. All potential cultural resources located during the cultural resources survey are within federal waters and subject to the MMS requirements of a 1,000-ft clearance around known or suspected wreck sites. All Calypso Port facilities would be positioned following these guidelines, so that no impacts to cultural resources are anticipated from the proposed Project. Despite avoidance of potential cultural resources located during the survey, it is possible that cultural resources may be discovered during construction. Details and procedures for handling these unanticipated discoveries are outlined in the Unanticipated Discoveries Plan, which will be filed by the Applicant and will include the requirement that MMS be notified in the event of any unanticipated discovery.

Alternative Deepwater Port Locations and Vaporization Alternatives. Impacts to cultural resources during construction, operation, and decommissioning would be similar regardless of the Calypso Port location or vaporization alternative.

Geological Resources. Construction, operation, and decommissioning of the proposed Project or the alternatives would result in short-term and long-term, minor adverse impacts to geological resources. Sediments, geological hazards, and other geological features were evaluated for this DEIS.

Proposed Action. Short-term, minor adverse impacts to geological resources would be expected during construction of the proposed Project. These impacts would include sediment disturbance associated with installation of Project components on the seafloor. Long-term, minor adverse impacts to geological resources would occur during operation of the proposed Project and would likely be limited to chronic disturbance of surficial sediments associated with anchor chains sweeping the seafloor. During proposed Project decommissioning, short-term, minor adverse impacts to geological resources would be expected and would be similar to those occurring during construction of the proposed Project.

Alternative Deepwater Port Locations. The geologic impacts from construction, operation, and decommissioning at each alternative Port location would be essentially the same as those described for the proposed Calypso Port, except for differences in the extent of sediment disturbance due to the pipelines. Specifically, for Alternative Port Location 1, the length of the pipelines would total 4.1 miles; for Alternative Port Location 2, the length would total 3.5 miles. For comparison, the length of the

pipelines for the proposed action would be 5 miles. Therefore, the total area of bottom disturbance during construction at Alternative Port Locations 1 and 2 would be slightly less (less than 1 acre) than the proposed action, which would result in slightly less bottom disturbance during construction.

Vaporization Alternatives. Use of the alternative vaporization technology would not influence impacts to geological resources.

Recreation and Visual Resources. Potential impacts of the proposed Calypso Port Project would be associated with impacts to the viewshed, and restrictions on commercial and recreational vessel access in the Safety Zones.

Proposed Action. The primary impact to visual resources would be the introduction of new objects to the marine viewshed. These objects would generally appear similar to existing ships and vessels. However, they would be stationary for extended periods, while most other ships and vessels 8 to 10 miles offshore are transient components of the viewshed. This would represent a minor, long-term alteration of the viewshed that would persist for the life of the proposed Project.

The proposed Project would result in some recreational vessels being displaced from waters they otherwise may have used or traversed. There are 2,683 square miles of federal waters off of Broward, Miami-Dade, and Palm Beach Counties, and the offshore area from which vessels would be displaced is relatively small: 11 square miles during construction and up to 2.9 square miles during operation. As such, the proposed Project would represent a minor, long-term adverse impact to recreation that would persist for the life of the Project.

Alternative Deepwater Port Locations. Potential impacts of the alternative Port locations would be similar to those of the proposed Calypso Port location. However, the alternative locations would be associated with a slight increase in impacts to recreation and viewing because they are closer to the shoreline. As such, from the perspective of potential impacts to recreational and visual resources, the proposed Calypso Port location is slightly preferred relative to Alternative Port Locations 1 and 2.

Vaporization Alternatives. The use of ORV technology would not influence recreational or visual resources.

Socioeconomics. The DEIS evaluates potential impacts on local and regional socioeconomics associated with construction, operation, and decommissioning of the proposed Project and alternatives. Local and regional socioeconomic impacts might include changes in employment, the provision of goods and services, population, and social conditions.

Proposed Action. Overall, the proposed Project would result in long-term, minor positive impacts on economic activity in Broward County. During construction, minor positive impacts would include increases in employment related to the purchase of goods and services; these impacts would be negligible during operation. It is also expected that the proposed Project would provide tax contributions in excess of any municipal burden. The restriction of commercial and recreational access to a small proportion of the federal waters off Broward, Miami-Dade, and Palm Beach Counties (0.1 percent) could result in some minor conflicts with existing users, which would continue throughout the life of the proposed Project. Thus, overall impacts to commercial and recreational users would be minor and long-term.

Alternative Deepwater Port Locations. Potential socioeconomic impacts of the alternative Port locations would be similar to those of the proposed location. However, because boating and fishing may be slightly elevated at Alternative Port Locations 1 and 2, there could be a minor increase in the number

of vessels diverted. As such, from the perspective of potential economic impacts, the proposed Calypso Port location is slightly preferred relative to Alternative Port Locations 1 and 2.

Vaporization Alternatives. Use of the alternative ORV technology would not influence socioeconomic conditions because it would not alter access, marine use, or the overall fish stocks that support commercial and recreational fisheries.

Transportation. The DEIS discusses potential Project-related impacts to marine and overland transportation. While long-term adverse impacts to existing onshore and offshore transportation infrastructure are expected, these impacts would be minor or negligible.

Proposed Action. The proposed Project would result in increased use of existing transportation infrastructure at both onshore and offshore locations, as well as diversion of existing offshore traffic around restricted waters near the proposed Calypso Port. An existing office or a warehouse in the Fort Lauderdale area would be utilized to facilitate the movement of personnel, equipment, and supplies. Marine notification systems would be used to mitigate potential use conflicts on the waters around the proposed Calypso Port. The net result would be a negligible increase in onshore activity and a minor increase in congestion in the immediate vicinity of the port for the support vessels (Port Everglades or Port of Miami) and in the unrestricted waters around the proposed Calypso Port.

Alternative Deepwater Port Locations and Vaporization Alternatives. Marine transportation impacts during construction, operation, and decommissioning would be similar regardless of Port location or vaporization alternative.

Air Quality. Impacts to air quality would occur during construction, operation, and decommissioning of the proposed Calypso Port Project and alternatives.

Proposed Action. Short-term, minor adverse impacts to air quality would result from the vessel emissions generated during construction of the proposed Calypso Port. The main source of these emissions would be diesel engines used onboard the construction vessels for propulsion and power generation. During Calypso Port operation, the main sources of emissions include the vaporization boilers, power generation engines, and thermal oxidizers on the LNG vessels (SRS, TRVs, and LNG carriers). These emissions would cause a long-term, minor adverse impact to air quality during the life of the proposed Project. Short-term, minor adverse impacts on air quality would result from the emissions generated during decommissioning of the proposed Calypso Port. The main source of these emissions would be the diesel engines used onboard the decommissioning vessels for propulsion and power generation.

Alternative Deepwater Port Locations. Both Alternative Port Locations 1 and 2 would result in nearly the same air quality impacts as the proposed Calypso Port location. The closer distance to the Florida coast for both alternatives would result in slightly lower emissions for the support vessels transiting to and from the proposed Calypso Port. However, these emissions represent a small fraction of the total emissions from the proposed Project and would not result in a notable change in the impact assessment as described for the proposed Calypso Port location.

Vaporization Alternatives. Under the ORV alternative, the SRS would pump seawater to the vaporizer heat exchangers in order to provide the heat necessary to vaporize the LNG. Under this scenario, boilers would not be needed to vaporize the LNG on the SRS or the TRVs, although there would be some minor increase in power generation for increased seawater pumping. The secondary operations and mobile source emissions would be the same as those described for the proposed Project.

The use of the ORV system on the SRS and TRVs would notably reduce the emissions associated with operation of the proposed Calypso Port.

Noise. The DEIS addresses potential noise impacts to human resources associated with the proposed Project and alternatives. Project-related noise would be generated during construction, operation, and decommissioning of the proposed Calypso Port. The magnitude and frequency of noise generated by the proposed Project would vary considerably over time. This variation would be caused by changing weather conditions, the occurrence of construction activities, and the specific equipment in use at the proposed Calypso Port.

Proposed Action. Short-term, minor adverse impacts to the airborne noise environment would occur during construction of the proposed Calypso Port. Activities that would produce the greatest amount of noise include operation of the construction vessels at the Calypso Port and vessel traffic for transporting equipment, materials, and workers to the proposed Calypso Port location. Construction noise would not cause a discernible increase in ambient noise levels at the closest onshore distance of approximately 8 miles, although offshore recreational boaters and fishermen who travel near the construction site could be exposed to short-term, minor adverse noise impacts levels during construction. Short-term, minor to moderate adverse impacts on the underwater noise environment would occur during construction of the Calypso Port. Activities that would produce the greatest amount of noise include installation of the mooring buoy anchors and construction vessel operation and transit traffic.

Long-term, minor adverse impacts on the above-water noise environment would occur near the proposed Calypso Port during operations. Noise would be created by operating equipment and powering systems on the SRS, TRVs, LNG carriers, and support vessels; noise would be greatest in the immediate vicinity of the proposed Calypso Port. The main sources of noise would be associated with the transfer and vaporization of LNG. Any impact on existing airborne noise levels is not expected to be readily discernible to the public, given the typical background noise level for oceans of 50 to 55 dBA. Because onshore noise-sensitive areas would be more than approximately 8 miles from the proposed Calypso Port, noise effects on onshore receptors would not be discernible. Although Calypso Port operational noise could result in annoyance to recreational boaters and fishers near the Port, the Safety Zone to be established around the Port would minimize the potential for recreational boaters and fishing vessels to operate in the immediate vicinity of the Calypso Port. Long-term, minor to moderate adverse impacts on the underwater noise environment would occur during Calypso Port operations. Noise would be created by transit of the TRVs, LNG carriers, and support vessels; use of the TRV and LNG carrier thrusters when mooring to the terminal buoy; and stern thrusters on the SRS that would be used to assist in the mooring process of the LNG carrier. Noise would be generated from the vaporization equipment onboard the SRS and TRVs; and from the flow noise through the terminal riser and pipelines. Underwater noise would be greatest in the immediate vicinity of the proposed Calypso Port.

Short-term, minor adverse impacts to noise receptors in the vicinity of the Calypso Port would occur during decommissioning. Noise generated by decommissioning vessels, machinery, and activities would create temporary, localized increases in both airborne and underwater noise levels. Impacts would be similar to those described for construction activities. No impacts to sensitive noise receptors on land would be expected because decommissioning activities would occur far enough offshore that noise would attenuate to an imperceptible level before reaching onshore receptors.

Alternative Deepwater Port Locations. Noise impacts from construction of each alternative Port location would be similar to those described for the proposed Calypso Port.

Vaporization Alternatives. The ORV technology and its associated equipment would cause similar airborne and underwater noise impacts as the proposed closed-loop shell-and-tube vaporizer system.

Safety. Any adverse impact to safety outside the Safety Zones and ATBA would be long term and negligible. Mitigation measures would be developed to effectively reduce any identified hazards to the general public, commercial and recreational vessels, and Project-related vessels at either the proposed Calypso Port location or the alternative locations. One such mitigation would be the establishment of Safety Zones around each mooring buoy and an ATBA. If approved, the Safety Zones would serve to exclude non-Project vessels and the public from the highest hazard zones surrounding the Calypso Port. There would be no discernible difference in safety associated with the alternative Port locations or the alternative ORV technology relative to the proposed Calypso Port location and proposed closed loop vaporization.

This DEIS does not serve as the USCG's final safety screening for the proposed Calypso Port Project. Calypso would be required to submit an Operations Manual for review and approval by USCG before LNG operations could commence. This manual would contain detailed plans and procedures to address routine operations and emergency response actions at the proposed Calypso Port. The USCG's review would ensure that appropriate safety and security plans are included in the Operations Manual to minimize potential risks to the public and the Project vessels and personnel.

Mitigation and Monitoring

The DWPA requires an applicant to demonstrate that a proposed deepwater port would be constructed and operated using the best available technology, thereby, preventing or minimizing adverse impacts to the marine environment. Several mitigation measures were identified as a result of the DEIS and are discussed in the following sections. These mitigation measures would also apply for alternatives discussed in detail.

For most resources, impacts would be adequately mitigated by the Applicant through design modifications and implementation of mitigation measures recommended by federal and state agencies; therefore, USCG does not request additional mitigation measures to be implemented. These include cultural resources, geological resources, recreation and visual resources, socioeconomics, and transportation.

Additional mitigation and monitoring measures have been identified for the following resources:

Water Quality. Impacts to water resources have been largely mitigated by using closed-loop shell-and-tube vaporization methods instead of ORV (seawater) open-loop technology to vaporize the LNG to natural gas. In addition to the measures proposed by the Applicant, USCG would request that MARAD include the following measures in the mitigation and monitoring plan, should a License be granted:

- MARAD agrees that water quality monitoring should be required to demonstrate that impacts are consistent (or less than) those presented in this DEIS.
- The amount of biocide injected into the water intakes should be closely monitored to ensure that the least concentrations required are maintained.

Biological Resources. Impacts to biological resources have been largely mitigated by the Applicant as a result of Project siting and design. In addition, USCG would request that MARAD include the following measures in the mitigation and monitoring plan, should a License be granted.

- Mitigation measures recommended by federal agencies as well as measures identified by the Applicant through design of the proposed Project.
- These measures specifically include MMS NTL 2007-004, “Vessel Strike Avoidance and Injured/Dead Protected Species Reporting,” which includes methods for avoiding vessel collisions with marine mammals and reptiles.

Air Quality. Impacts to air quality have been largely mitigated by the Applicant through project siting, design modifications, and implementation of mitigation measures recommended by federal and state agencies. Additionally, USCG would request that MARAD include the following measure in the mitigation and monitoring plans:

- Marine engines would be operated and maintained in accordance with recommended manufacturer operation and maintenance procedures.
- On the SRS, install and operate selective catalytic reduction systems on the four marine boilers to reduce emissions.
- On the SRS, use only ultra low sulfur fuel, 0.0015 percent by weight.

Noise. Impacts to noise have been largely mitigated by the Applicant through Project siting, design modifications, and implementation of mitigation measures recommended by federal and state agencies. Additionally, USCG would request that MARAD include the following measures in the mitigation and monitoring plans:

- Contractors would be requested / encouraged to use equipment and procedures that minimize noise. Possible options include the use of special enclosures and mufflers during construction and tuned propellers and minimal use of thrusters on vessels during operation.
- Construction equipment for installation of the proposed deepwater port would be operated only as needed and maintained to manufacturers’ specifications in order to minimize noise effects, which include proper operation of any sound-muffling devices or engine covers.
- Construction equipment would be turned off when not in operation in order to minimize the duration of noise.
- Delivery of crews and materials would follow normal vessel routes that avoid sensitive receptors, and the number of trips to bring crews to the construction site would be limited by utilizing full-capacity shuttles as much as possible.

Safety. It is expected that the Applicant would comply with all applicable laws and regulations designed to promote safety and security of the Calypso Port Project. These requirements would enhance safety at the proposed Calypso Port and include:

- Pursuant to the regulations of the DWPA, USCG is authorized to establish temporary and permanent mandatory safety zones around deepwater ports. In addition, an ATBA would be established at the request of USCG to the IMO. The deepwater port license application does not, by itself, constitute such applications for these zones and areas.
- The Applicant would include in its Operations Manual specific requirements describing the staffing and procedures for vessel traffic management including procedures for monitoring and communicating with vessels in the vicinity of the deepwater port.
- The Applicant would include in its Operations Manual specific procedures based on regulations for communicating with vessels and controlling vessel movements with the Safety Zones.

- The Applicant would include in its Operations Manual specific instructions requiring Calypso Port personnel to broadcast an emergency call on appropriate frequencies of any release or potential release of LNG cargo from the proposed Calypso Port.

CUMULATIVE IMPACTS

Implementation of the proposed action would result in incremental contributions to cumulative impacts in combination with other past, present, and reasonably foreseeable future marine projects off the coast of southeast Florida and other LNG terminals in the region. Cumulative impacts from Calypso's construction, operation, and decommissioning are summarized by resource area below.

Water Resources. Adverse impacts during construction and decommissioning would be short term and localized (generally within a few hundred feet of construction activities), and the contribution to cumulative impacts would be minor. Localized adverse impacts to water quality would be long term and minor during proposed Project operation and would be associated with water intakes and discharges in combination with water quality impacts from the FERC-permitted Calypso and Ocean Express pipelines, the proposed SeaGen hydropower project, the Port Everglades and Palm Beach Harbor ocean dredged material disposal site (ODMDS) projects, the Broward County shore protection project, the tire removal program, and existing sewage outfalls and vessel traffic. Most of the Project-related impacts to water quality associated with discharges would not be detectable beyond the typical regulatory mixing zone of approximately 330 ft (specifically 100 meters) of the discharge point. Therefore, any localized contribution to water quality impacts would result in a minor incremental contribution to cumulative impacts to water quality in the area encompassed by the proposed Calypso Port and the transit routes for LNG vessels and support vessels (also known as the region of influence or ROI), and any water quality impacts from the Calypso Port would not be expected to overlap with the impacts of these other projects.

Biological Resources. During construction, operation, and decommissioning activities, adverse impacts to biological resources could be associated with water quality, noise, increased vessel activity, increased marine debris, and potential inadvertent spills. These impacts would be short term and localized during construction and decommissioning, resulting in a minor contribution to cumulative impacts to marine mammals, birds, fish, and threatened and endangered species. During operation, adverse impacts associated with these activities would be long term and minor. With the exceptions of potential impacts related to Project vessel traffic, these impacts would not be expected to overlap with comparable impacts from the other projects considered because the impacts would be highly localized and occur primarily 8 to 10 miles offshore. Direct impacts to sensitive resources have largely been avoided by the proposed Project, including hardbottom areas and known habitat for federally listed threatened and endangered species. Based on the avoidance and minimization measures, the proposed Project would result in only a negligible increase in cumulative impacts to these sensitive resources.

Impacts to ichthyoplankton, fisheries, and EFH would be short term and localized during construction and decommissioning of the proposed Project, and therefore would result in a minor contribution to cumulative impacts in combination with the other projects considered (e.g., the FERC-permitted Calypso and Ocean Express pipelines, the proposed SeaGen hydropower project, the Broward County shore protection project, and the ODMDS projects). During operation, entrainment of ichthyoplankton would result in a minor, long-term adverse impact to fisheries but would not be expected to measurably impact fish stocks. Any contribution of the proposed Calypso Port to cumulative impacts to the plankton communities would be minor when considering the amount of seawater that would be used by vessels associated with all other projects and the routine vessel traffic in the ROI.

Cultural Resources. There were no potential archaeological resources identified within the construction footprint of the proposed Calypso Port or alternative locations. Nevertheless, construction of

the proposed Calypso Port could impact cultural resources that were not detected during the surveys. Impacts during construction, if unanticipated discoveries occurred, could result in a major incremental contribution to cumulative impacts to cultural resources. Adherence to the Unanticipated Discoveries Plan would serve to reduce potential impacts.

Geological Resources. The proposed and alternative Calypso Port locations are not located in areas with known geologic hazards. Construction of the proposed Calypso Port would convert approximately 2 acres of native surface substrate to man-made materials, such as metal or concrete. In addition, construction, operation, and decommissioning of the proposed Calypso Port would result in disturbance of the seafloor sediments. During operation, the seafloor disturbance would occur due to the movement of mooring lines, resulting in a long-term, minor adverse impact throughout the life of the proposed Project. These activities would result in a minor incremental increase in cumulative impacts to geological resources in association with the FERC-permitted Calypso and Ocean Express pipelines, the proposed SeaGen hydropower project, the Broward County shore protection project, and the ODMDS projects. Decommissioning would result in minor, short-term adverse impacts similar to those described for proposed Project construction; no ongoing impacts to geological resources would be expected once decommissioning activities were complete.

Recreation and Visual Resources. Any adverse impacts from construction and decommissioning activities to recreation and visual resources would be short term, and any contribution to cumulative impacts would be minor. The primary impact to these resources during operation would be establishment of Safety Zones and an ATBA around the offshore Calypso Port location that would restrict or limit marine use of this area. In addition, implementation of the proposed Calypso Port Project at the proposed or the alternative locations would result in a slight increase in the amount of vessel traffic offshore southeast Florida. Due to the offshore location of the proposed Calypso Port and the heavy commercial and recreational use of the nearshore and offshore waters off Broward County, any minimal decrease in the amount of accessible marine waters or slight incremental increase in vessel traffic relative to existing conditions would result in a minor contribution to cumulative impacts.

Socioeconomics. During construction and decommissioning, the proposed Calypso Port Project would result in a negligible, short-term impact (beneficial and adverse) on demographics, housing, employment, and economic trends. Any impacts during operations would be comparable in magnitude and scope to those during construction but would be long term. In general, there would be a negligible beneficial impact on employment, personal income, occupancy rates, and tax income during construction, operation, and decommissioning. The contribution of the proposed Calypso Port Project to cumulative socioeconomic impacts in Broward County would be minor.

Transportation. Any adverse impacts of construction and decommissioning of the proposed Calypso Port Project at the proposed or alternative locations would be short term, and any contribution to cumulative impacts would be minor. During operation, the restriction of marine use in the Safety Zones and the long-term increase in vessel traffic associated with the proposed Project (TRVs, LNG carriers, and support vessels) would result in a minor contribution to the cumulative impacts of marine transportation in the offshore waters of southeast Florida.

Air Quality. During construction and decommissioning, the use of various construction-related vessels and ancillary equipment would result in short-term emissions, primarily in the offshore marine environment. During operations, continuous and periodic operation of various Project vessels (SRS, TRVs, LNG carriers, and support vessels), in addition to combustion engines used for standard ship operations and vaporization, would result in long-term emissions—primarily in the offshore environment of southeast Florida. Based on the offshore location of the proposed Project and the distance to other

projects considered, the emissions during construction, operation, and decommissioning would represent a minor contribution to cumulative air quality impacts.

Noise. During construction, operation, and decommissioning, the proposed Calypso Port Project would result in airborne and underwater noise. The Calypso Port at either the proposed location or the alternative locations would not impact onshore receptors, and few if any marine users would typically notice the noise from the proposed Calypso Port Project. No overlap would be expected with other artificial noises unless it was associated with the vessel that the marine user was operating. Therefore, any noise associated with the proposed Calypso Port Project would represent a minor contribution to cumulative noise impacts.

Safety. Small but potentially significant risks are associated with the transport, transfer, and regasification of LNG. The proposed and alternative offshore locations and protective measures incorporated into the design, operations, and emergency response procedures for the proposed Calypso Port Project would represent an incremental minor contribution to the risk of an accident.