5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF THE STAFF'S ENVIRONMENTAL ANALYSIS

We have determined that construction and operation of the Golden Pass LNG Terminal and Pipeline Project would result in limited adverse environmental impacts. If the proposed project is found to be in the public interest and is constructed and operated in accordance with recommended mitigation measures, it would be an environmentally acceptable action. Our conclusion is based on information provided by Golden Pass and data developed from data requests; field investigations by Commission staff; literature research; alternatives analysis; comments from Federal, state, and local agencies; and input from public groups and individual citizens.

As part of our review, we developed measures that we believe would appropriately and reasonably avoid, minimize, or mitigate for environmental impacts resulting from construction and operation of the proposed Project. We are, therefore, recommending that our mitigation measures be attached as conditions to any authorization issued by the Commission. Golden Pass has also agreed to employ third-party monitors during construction of the pipeline system to work under the direction of the FERC staff for the purpose of monitoring compliance with its proposed mitigation measures and the applicable environmental conditions identified in section 5.2 of this EIS.

5.1.1 Infrastructure Facilities

Associated infrastructure facilities for the Project would potentially include two 230 kV powerlines extending from Entergy substations in Port Arthur, Texas to the LNG terminal site to provide electric power to the facility, and a waterline from SH 87 to the LNG terminal site. We have included the waterline in our analysis in this EIS because it would be constructed within the right-of-way for the Project's primary access road to the LNG terminal site. Entergy would be responsible for obtaining permits and approvals for the two powerlines, including those required under the CWA, CZMA, ESA, and NHPA. One of the powerlines would be about 10 miles long and the second about 24 miles long. In addition, Golden Pass identified 10 pipeline laterals ranging from 50 to 4,440 feet in length that may be constructed in association with the proposed interconnects. We have prepared a preliminary environmental analysis of the powerlines and laterals in appendix B of this EIS. We have also recommended that Golden Pass file documentation on the final location of these facilities, and copies of agency consultations and clearances before services begin or are received from these facilities.

5.1.2 Geology

Construction and operation of the proposed Golden Pass LNG Terminal and Pipeline Project would have minimal impact on geologic resources. There is an active oil well adjacent to the LNG terminal site that would remain in production during construction and operation of the LNG terminal. There would be no impact to other existing wells in the Project area, and with implementation of the proposed mitigation measures discussed in section 4.1.2, there would be no impact to known or unknown abandoned wells. Golden Pass' protocol for foreign pipeline crossings requires that installation of the proposed pipeline system not adversely affect adjacent pipelines or other utilities encountered along the pipeline routes.

The terminal would lie in an area of low seismic risk. Site-specific analysis conducted for the LNG terminal site revealed that due to the very low ground motions predicted at the site and the lack of any observed surface faulting, earthquake hazards were not considered a controlling factor in facility design. Similarly, for the pipeline facilities, the combination of the low risk of seismic activity in the region, absence of significant faulting, and pipeline construction materials that have tolerances for moderate ground movement would result in a minimal overall hazard associated with seismicity and faulting.

Due to the presence of saturated sediments beneath the LNG terminal site, structures constructed at the site could be susceptible to liquefaction under sufficiently strong ground motion. However, because of the relatively low levels of seismic activity and possible ground motion predicted for the site, the presence of necessary liquefaction criteria would be limited and the risk of soil liquefaction at the site is minimal. No significant risk of soil liquefaction is associated with the pipeline facilities.

Due to the relatively low level of oil and gas production occurring in the Project area and the absence of subsidence faults or features in the LNG terminal area and pipeline route, the risk of subsidence is considered to be low. However, due to the high organic content in the sediments in the upper 70 to 80 feet at the LNG site, the potential exists for compaction and differential settling. As a result, Golden Pass has incorporated measures into its facility design to avoid destabilization and other effects of subsidence. These include stripping and redistributing the top 8 inches of soil on the site, and then bringing the finish grade to 8 feet NGVD, and use of deep-driven piles to support the LNG tanks and other facility equipment. Section 4.13 addresses these design considerations and provides recommendations for the LNG facilities, as appropriate.

Under significant weather events, the LNG terminal facilities would be subjected to severe flooding, storm surge, high winds, erosion along the shoreline and docking facilities, and potential site access interruptions. Because structural and mechanical elements have been designed into the LNG terminal facilities to withstand coastal flooding and storms, flooding due to storm events would not adversely affect the Project.

Localized erosion along the banks of the SNWW navigation channel and the proposed marine terminal basin could occur due to natural processes and erosion induced by wakes from large ships that regularly use the channel. Measures to minimize shoreline erosion include installation of a concrete pillow-block, cable-linked revetment system along the slopes of the vessel berth and armoring of the shoreline slopes of the marine basin. In addition, a portion of the shoreline along the LNG tank portion of the site would be reclaimed with structural fill to protect it from erosion. Therefore, we conclude that shoreline erosion due to natural processes or ship traffic would not adversely impact the LNG facility or the adjacent shoreline.

5.1.3 Soils and Sediments

Construction of the proposed LNG facility would affect soils, including hydric soils. Since the LNG terminal site is currently well vegetated and nearly level, the potential for erosion of soils and discharge of sediments from the site would be relatively low during construction. Golden Pass would minimize impacts by implementing the mitigative measures specified in our Plan and Procedures. Further, Golden Pass would minimize potential soil contamination by implementing the preventative and mitigative measures specified in its SPCC Plan.

Based on soil texture and drainage characteristics, most of the soils that would be disturbed by construction of the proposed facilities have the potential to experience some level of soil compaction. Golden Pass' implementation of the compaction minimization measures contained in the Plan and Procedures would minimize the potential impacts from soil compaction to the extent possible.

Our analysis indicates that potential hazards associated with soft sediments, ground subsidence, and hydric soils underlying areas that would be developed by Golden Pass for the LNG terminal would be adequately addressed with its engineering design, including our recommendations in section 4.13. Due to the relatively shallow construction depth of the pipeline, we conclude that the pipeline would not have an affect on deep sediment loading or stability.

Soils on the LNG terminal site and along the pipeline route are currently well vegetated, and none are predicted to have a low revegetation potential following construction. Golden Pass would adopt the Plan and Procedures, and coupled with the implementation of best management practices, would minimize effects on soils due to construction of the Project.

Golden Pass requested three variances to our Plan and Procedures: 1) use of a 100-foot-wide construction right-of-way for a single pipeline, a 125-foot-wide construction right-of-way for two pipelines (Mainline and Loop), and extra workspace for truck turnarounds; 2) omission of the requirement to place synthetic material under stone access pads; and 3) inclusion of erosion control fabrics, rip-rap, and fabric-filled grout systems to the list of materials that can be used for erosion controls along waterbody banks.

We concluded that since soil limitations exist through the Project area, expanding the construction right-of-way to 100 feet is acceptable and does not require an exception to our Plan. We also concluded that since Golden Pass would be installing both pipelines adjacent to each other with a nominal 25-foot separation, use of a 125-foot-wide construction right-of-way in upland areas where it is co-locating the Mainline and Loop pipelines in the same construction right-of-way is not unreasonable and is acceptable. We reviewed 15 proposed truck turn-around areas and have no objection to their use. However, we do not recommend the generic use of these types of workspaces. If Golden Pass requires additional truck turnaround areas, it must provide site-specific locations and reasons for their use so that FERC staff can evaluate these extra workspaces for the Project.

We did not approve the modification to omit the requirement to place synthetic material under the stone access pads. If the use of riprap or fabric-filled grout systems are approved by the COE or in the Section 401 permits that may be issued for this Project, then we would not object to their use.

5.1.4 Water Resources

Groundwater

Construction and operation of the proposed Project would not have a significant impact on groundwater resources in the Project area, including the underlying Chicot Aquifer. With the exception of a municipal well at MP 63.2, Golden Pass identified no important groundwater withdrawal areas or springs within 150 feet of the LNG terminal or pipeline system.

Golden Pass states that it would not withdraw water from the Chicot aquifer for construction or operation of the LNG terminal and that water to meet facility water requirements would be obtained from the Port Arthur DWU that obtains its water from the Lower Neches Valley Authority. We believe that there would be no impact to groundwater resources as a result of construction and operation of the LNG facility.

The greatest potential for impact on groundwater would be from spills, leaks, or other releases of hazardous substances during Project construction or operation. Golden Pass has developed a draft SPCC Plan that would be implemented during construction of the LNG terminal and conforms to the guidelines in section IV.A of our Procedures. This plan would be finalized before construction.

Based on information provided by Golden Pass, it does not appear that Golden Pass has contacted affected landowners about private water supply wells or actively contacted public water supply operators to identify the location of nearby public water supply wells. Therefore, we recommended that before construction of the pipeline system, Golden Pass contact each landowner affected by the pipeline and

each operator of public supply wells in the vicinity of the pipeline to identify any drinking water supply wells or springs within 150 feet of the construction right-of-way or within a wellhead protection zone, and file the results of these consultations with the Secretary.

Floodplains

Golden Pass has incorporated certain design elements into its facilities to address potential flooding and storm damage at the LNG terminal site. No hazards associated with flooding or storm damage would be associated with the pipeline facilities.

Surface Water

The LNG terminal and pipeline system would be within the Sabine Lake, Lower Neches, Lower Sabine, and West Fork Calcasieu watersheds.

The primary impact on surface waters from construction of the LNG terminal would be the dredging of approximately 6.3 million yd^3 of material from the area adjacent to marine slip to accommodate the LNG ship berths and turning basin. The dredging would result in the creation of about 63.9 acres of open water and the conversion of 42.8 acres of shallow open water to deep water. Golden Pass proposes to pipe 1.2 million yd^3 of dredge material to a beneficial use site within the J.D. Murphree WMA and the remainder to an existing upland disposal area, PA-8 (adjacent to Sabine Lake), the preferred site, or PA-9 (adjacent to the Port Arthur Channel). In April 2005, Golden Pass submitted the results of additional soil and sediment sampling that supported beneficial use of the dredge materials.

Golden Pass would use hydraulic dredging which would result in lower suspended sediment concentrations as compared to other dredging methods. Dredging would result in temporary, elevated suspended sediment concentrations in the water at the dredging location. In addition, runoff water at the discharge location would likely contain some fine-grained sediment particles that would not settle out, but would remain in suspension until after discharge.

The Mainline and Loop would cross a total of 88 perennial waterbodies and one intermittent drainage. Of these, 53 are classified as ditches and 17 would be major waterbody crossings (greater than 100 feet wide). No waterbodies would be crossed by the Beaumont Lateral. There are three potable water intake pipes located less than 3 miles downstream of the proposed crossings of two waterbodies in Texas; however, both waterbodies would be crossed by HDD, thus minimizing water quality impacts. No potable water intakes have been identified within 3 miles downstream of the proposed waterbody crossings in Louisiana. To minimize construction impacts on surface waters, Golden Pass would develop and implement the measures described in a project-specific SWPPP, the Plan and Procedures, as well as the requirements in the permits issued by the other federal and state agencies.

The pipeline system would cross six ecologically unique or significant river or stream segments in Texas and none in Louisiana. In addition, Golden Pass identified four waterbodies in Texas and one waterbody in Louisiana that do not meet water quality standards associated with their designated uses. All of these waterbodies would be crossed using an HDD or flume, except for one (Big Hill Bayou) that would be crossed using an open cut. Use of an HDD or flume, in accordance with our Procedures, would minimize the potential for impact on the ecologically significant or unique streams and would minimize the potential for further degradation of water quality in streams that have suspected impairment. We evaluated use of an HDD for Big Hill Bayou, but concluded that impacts associated with moving the HDD equipment into this area via barge would have a greater impact on the extensive wetland complex associated with the bayou. We did recommend that Golden Pass include with its site-specific crossing

plan for Big Hill Bayou, a site-specific plan for the crossing of the adjacent wetlands, as well as erosion and sedimentation control measures that would be used to minimize turbidity and sediment into the bayou and adjacent wetlands. It would also include a site-specific plan developed in consultation with the TXPWD for restoring the banks.

Golden Pass proposes to use a total of 31 HDDs under 19 features. Side-by-side HDDs (one for the Mainline and one for the Loop) include four land-to-water HDDs, two water-to-water HDDs, 14 HDDs under waterbodies, and four under other features (roads and wetlands). Single HDDs along the Mainline include two HDDs near residential areas to minimize impact on residences, two under waterbodies (including the Sabine Island WMA), and three under other features (rice fields, wetlands, and road/railroads. To our knowledge, Golden Pass has not yet completed geotechnical investigations to confirm that an HDD can be successfully completed at the proposed locations. To ensure that the site-specific major waterbody and HDD plans address potential issues associated with sedimentation or erosion into nearby wetlands and waterbodies, and that the HDDs are feasible as proposed, we have recommended that Golden Pass: prepare drawings identifying site-specific conditions and appropriate mitigation measures that would be employed to minimize environmental impact during the HDD; provide the results of geotechnical investigations completed for each HDD; provide a site-specific crossing plan for each waterbody if the planned HDD is found to be unsuccessful; and implement the measures contained in Golden Pass' *Frac-Out Prevention, Monitoring and Response Procedure for HDD for the Sabine Island WMA* on all HDDs.

To capture drilling fluids in the water-to-water and water-to-land HDDs in Shell Lake and to minimize the release of drilling fluids to the surface waterbody, Golden Pass proposes to use a casing between the entry pit and the drill barge. In April 2005, Golden Pass submitted a modeling report estimating the amount and composition of drilling fluids that would be discharged into Keith and Shell Lakes, and what mitigation measures would be used to minimize (or remove) drilling fluids. The model assumed that the bentonite would be contained within entry/exit pits that would be excavated in the lakes. Since the COE and TXPWD have not completed their review of the proposal, we have recommended that Golden Pass include with its site-specific crossing plans for the lakes the finalized crossing plan and comments from the COE and TXPWD.

Golden Pass requested a variance to our requirement that all extra work areas be located at least 50 feet away from the water's edge, but did not provide site-specific locations or justification for this request. We do not approve this variance, although we note that Golden Pass has the option of requesting this variance on a site-specific basis.

Golden Pass proposes to use Hillebrandt Bayou as the hydrostatic test water source and discharge for the entire Mainline and Loop, and the HDD of the bayou. Taylor Bayou and Gallier Canal would also be used as a HDD hydrostatic test water source and discharge. Taylor and Hillbrandt Bayous are listed as ecologically significant and Taylor Bayou and Gallier Canal are listed as not meeting water quality standards. We have therefore recommended that Golden Pass file confirmation from appropriate federal, state, and local permitting agencies that these waterbodies may be used for hydrostatic test water sources and discharges.

Operational impacts associated with the LNG terminal would include the requirement for periodic maintenance dredging, incidental propeller wash and wave action from LNG ships and attendant resuspension of bottom sediments, water requirements for the LNG facility, and stormwater runoff. The SNWW is maintained and annually dredged by the COE to maintain the 40-foot deep channel. Golden Pass would perform maintenance dredging on a two-year cycle, removing 820,000 yd^3 per cycle. Golden

Pass would utilize hydraulic dredging. Dredged material from maintenance activities would be delivered to a PA permitted for dredged material disposal, either PA-9 or PA-8.

Incidental propeller wash would cause temporary and localized increases in turbidity. Turbidity from propeller wash would be minor and short term and would decrease as the berthings of LNG ships at the proposed facility become routine. Potential effects associated with shoreline erosion from LNG ship-generated waves would also be expected to be minimal.

The LNG facility would use an estimated 8,960 gpd for potable and sanitary wastewater which would be supplied via a new pipeline, treated on site, and discharged to the SNWW. Additional water would be required to fill the on-site storage tank for fire and service water. Operation of aboveground facilities associated with the proposed pipeline are not expected to affect water resources.

5.1.5 Wetlands

Construction of the Project would affect a total of 399.0 acres of wetlands, of which 108.8 acres would be permanently lost for development of the LNG terminal facility and access roads. These totals are as provided by Golden Pass in its Draft Aquatic Resources Mitigation Plan and reflect COE verification of wetlands at the LNG terminal site. However, we note that Golden Pass has stated that it would avoid temporary wetland impacts at contractor yards Nos. 3 and 5 (23.1 acres) which are included in these totals. Golden Pass estimates that operation of the pipeline system would result in the permanent loss of 64.2 acres of wetlands, mostly as a result of conversion of forested wetlands to herbaceous wetlands. All other wetlands affected by construction would be allowed to revegetate and return to pre-construction conditions. The COE is currently verifying wetland impacts along the pipeline system.

Golden Pass has proposed to utilize several contractor/pipe yards that may contain wetlands. Because storage of equipment, fuels, and other materials at these sites may affect wetlands, we have recommended that Golden Pass file site-specific plans for each contractor/pipeyard that identify the type of equipment, materials, and fuels/lubricants that would be stored in the yard, and the location of erosion controls/fencing and travel ways within the yard. In addition, because the COE has not completed its review of Golden Pass' wetland delineations along the pipeline system and Golden Pass has not requested approval to improve existing or create new access roads, we have recommend that Golden Pass file a request for this approval and provide comments from the COE.

Golden Pass requested approval to use 110 to 125 feet of right-of-way to install two pipelines in wetlands between MPs 0.0 and 42.8, and 85 to 100 feet of right-of-way to install one pipeline in wetlands between MPs 42.8 and 77.8 and on the Beaumont Lateral. In the draft EIS, we concluded that a 110-foot-wide right-of-way would be reasonable for installation of two pipelines through wetlands, but that Golden Pass had not provided enough information to justify approval of a generic increased right-of-way width in wetlands. In its comments on the draft EIS, Golden Pass provided additional site-specific information to support its request for up to 125 feet when installing the Mainline and Loop through four wetland areas between MPs 0.0 and 17.2. While we would consider site-specific requests for additional variances, we have recommended that Golden Pass restrict the construction right-of-way shared for the Mainline and Loop to a maximum width of 110 feet in wetlands (except the four wetland areas where a wider right-of-way was justified) and to a maximum width of 75 feet in wetlands on the Mainline between MPs 42.8 and 77.8 and the Beaumont Lateral.

Since publication of the draft EIS, Golden Pass has modified its Aquatic Resources Mitigation Plan to incorporate agency comments and recommendations on mitigation plans, as well as COE verification of wetlands at the LNG terminal site. However, the plan is still pending approval from the COE and other

federal and state agencies. Therefore, we have recommended that Golden Pass file with the Secretary the final Aquatic Resources Mitigation Plan developed in consultation with the FWS, NOAA Fisheries, TXPWD, and LADWF before construction of any facilities.

5.1.6 Vegetation

Construction of the LNG terminal would result in a permanent loss of approximately 205 acres of vegetation (or 43 percent of the entire 477-acre property) and would include 108.8 acres of wetlands. The primary vegetative community that would be affected by construction would be upland pasture. Golden Pass designed the LNG terminal to reduce vegetation loss to the extent practicable, and concentrate the facility's footprint (*i.e*., direct impact area) in the upland pasture community on the former DMPA north of the levees. Approximately 57 percent of the 477-acre property would remain undisturbed, with vegetation left in its natural state.

Construction of the pipeline system (including construction work areas, pipe yards, access roads, and aboveground facilities) would involve the temporary clearing and disturbance of a total of approximately 1,742.1 acres of land. Following construction, all construction work areas would be restored, seeded, and generally allowed to revegetate to pre-construction conditions. The permanent right-of-way would be maintained in an herbaceous state following construction. There would be no long-term impacts in areas with existing herbaceous cover types following restoration. Approximately 238.7 acres of forested uplands and wetlands would be converted from a forest to an herbaceous cover.

5.1.7 Wildlife and Aquatic Resources

Wildlife

The impact of construction and operation of the proposed Project on wildlife would be the temporary alteration and permanent loss of habitat. Other impacts to wildlife resources resulting from the construction and operation of the Project are expected to be minimal.

Initial clearing and construction activities would result in the disruption of approximately 2,007.7 acres of wildlife habitat comprised of palustrine wetland, estuarine emergent marsh, upland prairies, upland forest/shrub-scrub, cropland and pasture and open water/channel shoreline habitat. Operation of the LNG terminal would result in a permanent loss of 205 acres of habitat at the LNG terminal site. Once construction is completed, wildlife can re-occupy available habitat at the LNG terminal site.

The permanent pipeline right-of-way would be revegetated after construction has been completed. Wildlife populations that utilize areas converted for the permanent pipeline right-of-way would not be affected. Although temporary and permanent impacts on food, cover, and water sources may occur, none of the species identified within the Project area are specialized in such a way that construction of a pipeline would inhibit the overall fitness or reproductive viability of the populations as a whole. Many of the mammal, bird, reptile, and amphibian species are adaptive to changing habitat conditions and have the capability of temporarily expanding or shifting their home ranges to find alternative sources of food, water, and shelter until the right-of-way habitats become re-established.

The Project is at the extreme western edge of the Mississippi flyway and the eastern edge of the Central flyway in Texas for migratory birds. Construction of the LNG terminal could cause potential injury or mortality of migrating birds that may strike the LNG terminal facilities. A new electric transmission line for the Project would require installation of towers and power lines that are known to be the source of bird strikes. Structures at the LNG terminal site, such as LNG offloading infrastructure and LNG storage

tanks, might cause some avian mortality due to bird strikes. Golden Pass would use a non-reflective paint on the LNG tanks and down-shield security and on-ground facility lighting to keep light within the boundaries of the site. This would be consistent with FWS-recommended measures for minimizing the potential for bird strikes. We have also recommended that Golden Pass monitor bird strikes during the spring and fall migrations during construction and for 1 year following commencement of service to determine if additional mitigation measures are warranted.

The majority of the Project area consists of emergent marsh and coastal prairie/grasslands that provide habitat for wintering waterfowl and rookeries. Given the abundant adjacent areas that can provide alternative habitat, we conclude that there would be minimal impact on migratory waterfowl.

Aquatic Resources

The LNG facility would be located on the southern shore of SNWW, near the southern end (outlet) of Sabine Lake and immediately upstream of Sabine Pass. Despite on-going maintenance dredging and ship traffic, the SNWW supports a wide variety of shellfish and finfish species. The primary perennial surface waterbody associated with the LNG site is the SNWW which forms the northern boundary of the LNG terminal property. Potential impacts to aquatic resources from Project construction and operation include those associated with filling of tidal wetlands for the LNG terminal facilities, dredging of the berth area, and pipeline construction across waterbodies and through wetlands.

Given the existing water quality conditions with relatively high suspended sediment concentrations, dredging would not be expected to noticeably increase turbidity in the already turbid waters of the SNWW. Overall impacts to the fishery resources in the Project area generally would be minimal and short-term. The fish and benthic organisms of the area would be impacted slightly during the construction phase of the marine terminal basin, but recruitment and re-colonization would replenish the species with a minor potential for a subtle shift of species using the slip area. In addition to the loss/alteration of aquatic habitats, the primary impacts to fishes associated with dredging include entrainment of organisms by dredging machinery and increased turbidity due to the re-suspension of bottom sediments. Incidental take of benthic organisms due to entrainment during the dredging of the marine terminal basin would be expected, but would not be extensive enough to have a significant impact on the fishery resources of the area.

Other potential effects of construction include temporary interruption of fish and invertebrate movement in and out of the estuary either during development changes or during foraging. Construction may cause temporary emigration of fish populations from the immediate area in order to avoid areas of elevated suspended sediments. However, it is unlikely that relocation or disrupted migration would significantly affect fish populations because construction activities would be short term and localized within the Sabine estuary.

Direct spills of petroleum or other toxic products into waterbodies during construction and facility operation could be harmful to aquatic organisms, depending on the type, quantity, and concentration of the spill. To reduce the potential for direct surface water contamination, Golden Pass would implement the procedures in its SPCC Plan, including restrictions on refueling equipment and storing fuel and other potentially toxic materials at least 100 feet from waterbodies during construction.

Post-construction and operational impacts would be minimal and primarily associated with periodic maintenance dredging in the berthing area. The increased ship traffic represents a small incremental increase in the total annual vessel traffic in the Project area and would not result in a measurable increase in aquatic impacts.

Impacts on fisheries resources resulting from pipeline construction activities at waterbody crossings can include sedimentation and turbidity, alteration or removal of instream and stream bank fish cover, introduction of water pollutants, or entrainment of small organisms during hydrostatic testing. Studies generally have indicated that pipeline construction through waterbodies results in temporary impacts on streams and rivers, and that there are no long-term effects on water temperature, pH, dissolved oxygen, benthic invertebrate populations, or fish populations.

In addition to waterbody crossings, the pipeline system would cross many wetlands that are regularly inundated and provide aquatic habitat, with fish and invertebrates moving between associated waterbodies and these wetlands. Of particular concern is the loss of vegetative cover in the pipeline construction corridor due to improper grade restoration. Long linear strips of open water channels can alter the aquatic habitat features of wetlands, which can result in a shift in species composition, including access into the interior of wetlands by larger predatory fish species. We have recommended that contour restoration be carried out at a more precise level than normal construction procedures require.

Post-construction or operational impacts of the pipeline would be minimal. Restoration of the vegetation along the pipeline construction work areas would minimize erosion potential relative to waterbodies. Minimal impact on fisheries is expected from maintenance mowing or manual removal of woody vegetation in the vicinity of the pipeline right-of-way as maintenance would be in accordance with our Plan and Procedures.

Essential Fish Habitat

NOAA Fisheries indicated that the Project had the potential to affect EFH for post larval, juvenile, and adult red drum; adult and subadult Spanish mackerel; and juvenile and subadult white and brown shrimp. The primary impact of construction and operation of the Project facilities would be the alteration and direct loss of habitat types that could function as EFH for these species. In addition, EFH impacts are possible if there is significant loss of prey for managed species.

A total of 61.2 acres of coastal emergent marsh would be affected by construction of the Project. However, Golden Pass indicates that none of the coastal marsh at the LNG terminal site and only 6.3 acres of coastal marsh along the pipeline system provides EFH. A total of 106.7 acres of deep open water habitat would be created by dredging for the berths and marine basin.

Dredging also can result in the chemical impairment of the water column due to the suspension of contaminated sediments which may affect EFH. Golden Pass proposes to dispose of dredge material in a beneficial use area in the J.D. Murphree WMA and in PA-8 or PA-9. Based on the results of additional soil and sediment sampling conducted by Golden Pass in March 2005, no impacts to EFH would be expected from use of these material disposal areas.

5.1.8 Threatened and Endangered Species

Based on the presence of habitat and historical records of occurrence, 15 Federal and state listed endangered and threatened species were identified as potentially occurring within the Project area. These include: one marine mammal (sperm whale); seven marine reptile species (hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, green sea turtle, loggerhead sea turtle, alligator snapping turtle, and American alligator); and seven bird species (arctic peregrine falcon, brown pelican, piping plover, RCW, swallow-tailed kite, reddish egret, and white-faced ibis).

Golden Pass has completed overview aerial surveys and a ground survey of the construction work areas for the RCW. The FWS also requested ground surveys of all suitable RCW nesting habitat within 0.5-mile of the construction work area be conducted to verify the results of that aerial survey. Based on the complete field work, two areas contain trees of the right size, age and condition for RCW nesting habitat. No activity indicative of RCW presence has been found to date. Golden Pass states that it has been unable to obtain landowner access to complete RCW surveys in eight potential areas within 0.5 mile of the construction work area. ESA consultation with FWS is ongoing. We have recommended that Golden Pass not initiate construction of Project facilities until we have completed consultation with the FWS and NOAA Fisheries. In addition, because construction of the LNG facility or pipeline system may not begin within 1 year of issuance of FERC authorization, we have recommended Golden Pass consult with the appropriate offices of the FWS and NOAA Fisheries to update the species list and to determine if additional surveys are required.

5.1.9 Land Use, Recreation, and Visual Resources

The LNG terminal facilities and marine basin would be located on property formerly used by the COE for dredge spoil placement. Existing land uses on the site include a mixture of open land and industrial land. Construction of the LNG terminal would require 245 acres and permanently convert 207 acres (including the 2 acres of shoreline that would be reclaimed) of land to industrial use. There are 33 residences located within 1 mile of the proposed LNG terminal, with the nearest existing residence located across the SNWW on Pleasure Island, about 0.34 mile north of the vaporization process area. The land on the western side of the SNWW that surrounds the proposed LNG terminal site is low-lying coastal wetland and DMPA and unsuitable for extensive residential development. There are no current proposals for residential or commercial development for any area within 0.25 mile of the proposed LNG terminal.

Land use impacts associated with the pipeline would include disturbance of existing land uses within construction work areas along the pipeline during construction (1,594.1 acres) and creation of a new permanent right-of-way for operation and maintenance of the facilities (703.9 acres). Golden Pass would obtain an easement from landowners to construct and operate the pipeline and associated facilities. Golden Pass identified seven residences that would be located within 50 feet of the proposed pipeline construction work areas. Golden Pass proposes to utilize HDD in one area that would minimize construction-related impacts to five of these residences. Golden Pass has indicated that it would produce site-specific construction drawings noting special construction techniques to be employed to minimize impacts at the two remaining residences.

No designated recreational facilities would be directly affected by development of the LNG terminal. Construction of the Golden Pass pipeline system would cross about 16.1 miles of recreational and public interest areas in Texas and Louisiana. Golden Pass has coordinated activities with area managers to minimize impacts to these resource areas.

The primary Project components that could have a visual impact on the surrounding areas are the marine terminal basin, where large LNG ships would dock, and the five, 170-foot-tall, LNG storage tanks. The most significant visual impacts would be to areas located closest to the LNG terminal property, where the LNG tanks would be a major new feature of the landscape. The nearest development to the property consists of the residential uses on Pleasure Island, Keith Lake, and Back Ridge Road. The residential area on Pleasure Island, immediately across the SNWW about 0.4 mile north of the site, would have clear, unobstructed views of the LNG storage tanks and marine berth area. Based on the proposed location of the LNG facility, the generally low topographic relief, and lack of any comparably-sized facilities in the area, we believe that the proposed LNG facilities would dominate the local area viewshed and result in

both temporary and permanent changes to the surrounding visual landscape. Because of the size of the facility, no measures can be taken to visually screen the major aboveground facilities.

Portions of the Project in Texas would be located within a designated coastal zone management area. Golden Pass filed an application with the COE for its section 10/404 permit in December 2004 and included a coastal zone consistency statement. The application was revised and refiled in April 2005. We have recommended that Golden Pass file a copy of the CZMP consistency determination issued by the Railroad Commission of Texas before construction begins. The LADNR has confirmed that the pipeline system would not be within the coastal zone in Louisiana.

5.1.10 Socioeconomics

Construction and operation of the Project would result in short- and long-term socioeconomic impacts. The construction workforce for the LNG terminal is expected to average 440 workers per month with a peak of 941 workers over the 60-month (5-year) construction period. The construction workforce for the pipeline is expected to average 250 workers over a 12-month period. Approximately 30 percent of the workforce would be comprised of non-local workers migrating into the Project area. The temporary influx of the construction workforce would cause a short-term increase in population, which should not have any adverse impact on housing or public services.

In April 2005, Golden Pass filed a Traffic Impact Study that modeled the impacts of peak construction traffic on roadways surrounding the LNG terminal. Golden Pass agreed to implement the mitigation measures identified in the Traffic Impact Study, with the exception of staggering the start/end of the work shifts to mitigate impacts associated with traffic delays that might be expected with movement of the peak LNG facility work force when added to the existing work shift traffic for the surrounding plants. This mitigation measure would be addressed after Golden Pass selects its construction contractor. Because SH 87, the only public road providing access to the LNG facility, may be rerouted as part of construction of the Port Arthur LNG facility and is also the primary access for workers for that project, we recommended that Golden Pass provide a Traffic Management Plan with its initial implementation plan to identify specific mitigation measures that would be implemented over the first 6 months of construction and that the plan be updated a minimum of every six months, or as needed, to address changing traffic conditions over the course of construction.

Temporary and permanent fiscal benefits would result from construction and operation of the Project in the form of additional tax revenues paid to local jurisdictions. Golden Pass would employ approximately 60 full-time workers to maintain and operate the LNG terminal facilities. About 5 full-time positions would be created for operation of the pipeline.

5.1.11 Cultural Resources

Golden Pass consulted with the Texas and Louisiana SHPOs and performed cultural resource investigations for areas that would be potentially affected by construction of the LNG terminal and pipeline system (the area of potential effect).

Consultation for the LNG terminal is complete, and the Texas SHPO has concurred that no historic properties would be impacted by proposed activities on the property. The consultation process for the pipeline system is not yet complete, but the results of cultural resource investigations and consultations indicate that the pipeline system could affect buried cultural resources and the viewshed and cultural landscape of historic structures. To ensure appropriate review and protection of these resources, we have

recommended that construction not be authorized until the required studies have been completed and we have received the SHPO's comments on them.

5.1.12 Air Quality and Noise

Air emissions resulting from construction of the LNG terminal and pipeline system would not significantly affect air quality in the region. Golden Pass would minimize fugitive dust emissions during construction by the use of dust suppression techniques such as watering.

During operation, air emissions would result from LNG vaporization heaters, diesel fuel storage tanks, diesel firewater pumps, the emergency generator, and site-wide fugitive emissions. In addition, emissions would result from maneuvering and hoteling of LNG ships at the marine berth. Our determination in the Draft General Conformity Determination is that the direct and indirect emissions from the LNG terminal would exceed the *de minimis* level for general conformity. However, with implementation of Golden Pass' proposed mitigation measures, we conclude that the LNG terminal would be in general conformity with the Texas State Implementation Plan. No impacts to air quality would result from the operation of the pipeline facilities.

Calculated construction noise levels (other than pile driving) are shown to be below the existing ambient levels at two nearby NSA locations (residence near site gate and Walter Umphrey State Park), and in the general range of existing ambient levels at the Backridge Road and Pleasure Island NSAs. While daytime noise levels would not be adversely affected, we have recommended that Golden Pass limit nighttime construction activities. We have also recommended that Golden Pass develop a noise mitigation plan associated with pile driving activities.

Calculated noise levels anticipated from operation of the LNG terminal would be below 55 dBA. No adverse, long-term impacts would therefore be anticipated. However, we have recommended that Golden Pass complete a noise survey no later than 60 days after the Project goes into operation to confirm that noise attributable to operation of the LNG terminal would not exceed an L_{dn} of 55 dBA at the nearest NSA.

5.1.13 Alternatives

We evaluated the alternatives of no action or postponed action; system alternatives; alternative LNG plant sites; pipeline system alternatives; route alternatives; and route variations. Our evaluation determined that the use of existing LNG import and storage systems is not a reasonable alternative to the proposed Golden Pass LNG and Pipeline Project.

There are two existing and six approved onshore and offshore LNG projects in the same regional area (Louisiana and Texas) as the proposed project. Our analysis found that expansion of any one of these approved or proposed projects to accommodate the proposed volumes of the Golden Pass LNG and Pipeline Project, if possible, would likely result in a similar level of environmental impact. Applications for another four onshore and one offshore LNG projects on the Gulf Coast were recently filed with the FERC and the Coast Guard, including two LNG projects in Mississippi.

We assessed regional and port alternatives, as well as individual site alternatives at multiple port locations. Our analysis narrowed an initial 20 ports down to five port areas. The 15 potential port locations were eliminated from further consideration if they did not possess all of the minimum requirements needed to satisfy the stated purpose and need of the Project, including proximity to the desired market, adequate nearby takeaway capacity, and deep water access. The remaining six port

locations (Galveston, Texas City, Houston, Port Arthur, Sabine Pass, and Cameron) were evaluated further. The Sabine Pass area, and SNWW, was determined to best meet the requirements of proposed Project. We evaluated other sites in Sabine Pass and determined that they were either under the control of another LNG developer or were unsuitable for development of this type.

We also assessed four alternative vaporization technologies to warm the LNG from its stored temperature of approximately -260^{o} F to a temperature at which it can be sent out as natural gas in the send-out pipelines. We conclude that use of STVs (with SCR) would minimize air emissions in this nonattainment area and would be the preferred alternative for this application.

Golden Pass identified two alternatives to provide 35 megawatts of electric power required for operation of the LNG terminal that included purchasing power from the public utility, which would construct either an overhead or underground powerline from the public utility to the LNG terminal site; or install an onsite electric generation facility at the LNG terminal site. Because the proposed LNG terminal would be located within a nonattainment area, we conclude that purchasing power from Entergy would have less impact on air emissions without a substantial increase in other environmental impacts.

Our analysis included evaluation of Golden Pass' proposed 42.8-mile-long Loop to determine if the Loop could be eliminated by increasing the pipe diameter of the Mainline from 36 inches to 42 inches and constructing a new 11,000 hp compressor station. Golden Pass states that it eliminated the single pipeline/compressor station alternative because of air emissions impacts over the life of the Project. We concur that operation of a compressor station would contribute additional air emissions within a nonattainment area.

During the Pre-Filing portion of the environmental review process, Golden Pass continued to consult with resource agencies to optimize a pipeline route within the preferred route corridor that would minimize environmental impacts. Prior to filing its August 2004 application with the FERC, Golden Pass identified a number of route realignments (or route variations) along the pipeline corridor that were incorporated into the preferred route as analyzed in this EIS. In addition to the route variations incorporated into the proposed route, several potential route variations were evaluated, but eliminated due to increased environmental impact.

5.1.14 Cumulative Impacts

There are three LNG projects proposed on the SNWW: the Golden Pass Project (which is addressed in this EIS), the Port Arthur LNG Project in Jefferson County, Texas (which is under review), and the Sabine Pass Project in Cameron Parish, Louisiana (which was approved by the Commission in December 2004). The COE and Jefferson County WND are also considering widening and deepening the SNWW as part of the SNWW Channel Improvement Project. If all three LNG projects are constructed, they would result in the permanent loss of an estimated 236.1 acres of wetlands and the conversion of 691.6 acres of open land to industrial use. Dredging for the LNG terminal marine basins would total an estimated 17.5 million yd^3 of material for disposal in nearby DMPAs. According to a study conducted by the COE in 2003, the annual average dredging for SNWW would increase from approximately 8 million yd^3 to 16.7 million yd^3 if the SNWW Improvement Project is approved. Yearly maintenance dredging for the three LNG projects would vary, but could easily total 866,250 yd^3 or more. Existing DMPAs can accommodate the initial dredging for all three LNG projects and the SNWW Improvement Project, but additional DMPAs would be required over the life of these projects.

During operation, the LNG projects would add about 860 ships per year (two to three LNG ships per day) to ship traffic on the SNWW. While the addition of LNG ships from all three proposed LNG projects would not significantly add to the overall ship traffic in the SNWW, it would significantly increase the larger ship traffic. Projected forecasts, based on historical growth of vessel traffic on the SNWW,

indicate that, under ideal circumstances, the maximum number of vessels that the SNWW can handle would be approximately 3,550 vessels per year, or a maximum practical capacity of about 2,662 vessels per year (75 percent of the best case). The proposed widening of the SNWW would help in alleviating congestion and vessel delays, but the Coast Guard may impose a safety zone around LNG ships transiting the Sabine Pass and Port Arthur Channels. This could disrupt other users of the SNWW that pass through these two channels on their way to and from the Gulf of Mexico to ports in Sabine Pass, Port Arthur, Beaumont, and Orange, Texas. This impact could be alleviated by coordinating the arrival of LNG ships and other large ships through the waterway (convoying traffic) and by increasing the number of pilots that move the large ships to port.

In addition to the Golden Pass project, there are four other proposed LNG projects and one storage project with pipelines in Calcasieu Parish, Louisiana. These pipelines would be constructed on varying schedules over a four-year period and would include a total of 53 miles of segments of adjacent or parallel rights-of-way. These projects would involve the installation of at least 161.3 miles of pipeline affecting an estimated 2,055.1 acres of land and 295.8 acres of wetlands.

5.1.15 Reliability and Safety

We evaluated the safety of both the proposed LNG import terminal facility and the related LNG vessel transit through the SNWW, and Sabine Pass and Port Arthur Channels. With respect to the LNG terminal, we completed a cryogenic design and technical review of the proposed design and safety systems, and have identified specific areas of concern and included recommendations to address these concerns. We also calculated thermal radiation and flammable vapor hazard distances for an accident or an attack on an LNG vessel. Based on the extensive operational experience of LNG shipping, the structural design of an LNG vessel, and the operational controls imposed by the Coast Guard and local pilots, the likelihood of a cargo containment failure and subsequent LNG spill from a vessel casualty – collision, grounding, or allision – is highly unlikely. For similar reasons, an accident involving the onshore LNG import terminal is unlikely to affect the public. As a result, the risk to the public from accidental causes should be considered negligible.

On October 29, 2004, Golden Pass submitted its Letter of Intent to construct the LNG facility to the Coast Guard's Marine Safety Office in Port Arthur, Texas. The Coast Guard will make a determination about whether to issue a Letter of Recommendation. The Letter of Recommendation would address the suitability of the SNWW, and Sabine Pass and Port Arthur Channels for LNG marine traffic, but it would not in itself represent final authority to commence LNG marine transport operations. Issues related to the public impact of safety and security or exclusion zones would be addressed in the *LNG Vessel Management and Emergency Plan* to be developed by Golden Pass and approved by the Coast Guard.

5.2 FERC STAFF'S RECOMMENDED MITIGATION

If the Commission issues its authorization for the proposed Project, we recommend that the Commission's Order include the following measures. We believe that these measures would further mitigate the environmental impacts associated with the construction and operation of the proposed Project:

1. Golden Pass LNG Terminal LP and Golden Pass Pipeline LP[1] shall follow the construction procedures and mitigation measures described in its application, supplemental filings (including

[1] Hereafter, Golden Pass is used in measures applicable to both Golden Pass LNG Terminal LP and Golden Pass Pipeline LP.

responses to staff data requests) and as identified in the EIS, unless modified by this Order. Golden Pass must:

a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;
b. justify each modification relative to site-specific conditions;
c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and
d. receive approval in writing from the Director of OEP **before using that modification**.

2. For pipeline facilities, the Director of OEP has delegated authority to take whatever steps are necessary to ensure the protection of all environmental resources during construction and operation of the Golden Pass LNG Terminal and Pipeline Project (Project). This authority shall include:

a. the modification of conditions to the Commission's Order; and
b. the design and implementation of any additional measures deemed necessary (including stop work authority) to assure continued compliance with the intent of the environmental conditions as well as the avoidance or mitigation of adverse environmental impact resulting from project construction and operation.

3. For liquefied natural gas facilities, the Director of OEP has delegated authority to take all steps necessary to ensure the protection of life, health, property, and the environment during construction and operation of the Project. This authority shall include:

a. stop work authority and authority to cease operation; and
b. the design and implementation of any additional measures deemed necessary to assure continued compliance with the intent of the conditions of this Order.

4. **Prior to any construction**, Golden Pass shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, environmental inspectors, and contractor personnel will be informed of the environmental inspector's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction and restoration activities.

5. The authorized facility locations shall be as shown in the EIS, as supplemented by filed alignment sheets, and shall include all of the staff's recommended facility locations. **As soon as they are available, and before the start of construction**, Golden Pass shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by this Order. All requests for modifications of environmental conditions of this Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

6. Golden Pass shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, and documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be

affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP **before construction in or near that area**.

This requirement does not apply to extra workspace allowed by the Plan, minor field realignments per landowner needs, and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

a. implementation of cultural resources mitigation measures;
b. implementation of endangered, threatened, or special concern species mitigation measures;
c. recommendations by state regulatory authorities; and
d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

7. Golden Pass shall file **At least 60 days before that start of construction**, Golden Pass shall file an initial Implementation Plan with the Secretary for review and written approval by the Director of OEP describing how Golden Pass will implement the mitigation measures required by this Order. Golden Pass must file revisions to the plan as schedules change. The plan shall identify:

   a. how Golden Pass will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
   b. the number of environmental inspectors assigned per spread, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
   c. company personnel, including environmental inspectors and contractors, who will receive copies of the appropriate material;
   d. the training and instructions Golden Pass will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);
   e. the company personnel (if known) and specific portion of Golden Pass' organization having responsibility for compliance;
   f. the procedures (including use of contract penalties) Golden Pass will follow if noncompliance occurs; and
   g. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

      (1) the completion of all required surveys and reports;
      (2) the mitigation training of onsite personnel;
      (3) the start of construction; and
      (4) the start and completion of restoration.

8. Golden Pass shall develop and implement an environmental complaint resolution procedure. The procedure shall provide landowners with clear and simple directions for identifying and resolving their environmental mitigation problems/concerns during construction of the Project and restoration of the right-of-way. **Prior to construction**, Golden Pass shall mail the complaint procedures to each landowner whose property would be crossed by the Project.

a. In its letter to affected landowners, Golden Pass shall:

(1) provide a local contact that the landowners should call first with their concerns; the letter should indicate how soon a landowner should expect a response;
(2) instruct the landowners that, if they are not satisfied with the response, they should call Golden Pass' Hotline; the letter should indicate how soon to expect a response; and
(3) instruct the landowners that, if they are still not satisfied with the response from Golden Pass' Hotline, they should contact the Commission's Enforcement Hotline at (888) 889-8030.

b. In addition, Golden Pass shall include in its weekly status report a copy of a table that contains the following information for each problem/concern:

(1) the date of the call;
(2) the identification number from the certificated alignment sheets of the affected property;
(3) the description of the problem/concern; and
(4) an explanation of how and when the problem was resolved, will be resolved, or why it has not been resolved.

9. Golden Pass shall employ a team of environmental inspectors. The environmental inspectors shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by this Order and other grants, permits, certificates, or other authorizing documents;
b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;
c. empowered to order correction of acts that violate the environmental conditions of this Order, and any other authorizing document;
d. a full-time position, separate from all other activity inspectors;
e. responsible for documenting compliance with the environmental conditions of this Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
f. responsible for maintaining status reports.

10. Golden Pass shall file updated status reports prepared by the environmental inspector with the Secretary on a weekly basis **until all construction and restoration activities are complete**. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. the current construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;
b. a listing of all problems encountered and each instance of noncompliance observed by the environmental inspector(s) during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);
c. corrective actions implemented in response to all instances of noncompliance, and their cost;
d. the effectiveness of all corrective actions implemented;

e. a description of any landowner/resident complaints which may relate to compliance with the requirements of this Order, and the measures taken to satisfy their concerns; and
f. copies of any correspondence received by Golden Pass from other federal, state or local permitting agencies concerning instances of noncompliance, and Golden Pass' response.

11. Golden Pass must receive written authorization from the Director of OEP **before commencing service of the Project**. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

12. **Within 30 days of placing the certificated facilities in service**, Golden Pass shall file an affirmative statement with the Secretary, certified by a senior company official:

a. that the facilities have been constructed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions; or
b. identifying which of the certificate conditions Golden Pass has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

13. Golden Pass shall file the following information on nonjurisdictional facilities:

a. a map showing the final location of all nonjurisdictional facilities, including the Entergy powerlines, and associated pipeline laterals identified on table 1.5-2 of this EIS;
b. documentation of consultations with the appropriate agencies and the status of federal, state, or local permits or approvals required for their construction; and
c. status, and copies of agency clearances (or copies of any surveys and reports prepared) for wetlands, threatened and endangered species, and cultural resources.

Golden Pass shall defer obtaining service from or providing service to any nonjurisdictional facility until this information has been filed with the Secretary. (page 1-13)[1]

14. Golden Pass shall develop a draft monitoring program for the third party compliance monitor that includes: (page 2-21)

a. the employment by a third-party contractor of at least one full-time monitor per construction spread;
b. the employment by a third-party contractor of a part-time compliance manager to direct and coordinate with the monitors; manage the daily and weekly reporting system, and variance requests; and provide technical support to the FERC staff;
c. a systematic approach for the review and approval by the compliance manager and monitors of variances for certain construction activities as may be required by Golden Pass based on site-specific conditions.
d. maintenance of files for the daily and/or weekly inspection reports submitted by the both third-party monitors and Golden Pass' EIs; and
e. a discussion of how this monitoring program can incorporate and/or be coordinated with monitoring or reporting that may be required by other federal and state agencies.

[1] The numbers at the end of a recommended measure are the pages on which the measure appears in the EIS.

This draft monitoring program and proposals from potential contractors to provide monitoring services shall be filed with the Secretary for review and approval by the Director of OEP **prior to construction of the pipeline system**.

15. Golden Pass shall reduce the construction right-of-way by 20 feet in areas where topsoil is segregated from only the ditch and spoil side of the right-of-way. The revised construction plans and alignment sheets should be filed with the Secretary **before construction of the pipeline system**. (page 4-10)

16. **Before construction of the pipeline system,** Golden Pass shall contact each landowner affected by the pipeline and each operator of public supply wells in the vicinity of the pipeline to identify any drinking water supply wells or springs within 150 feet of the construction right-of-way or within a wellhead protection zone. The results of these consultations shall be filed with the Secretary in a report that summarizes these consultations and that provides a table listing each drinking water supply well, the distance (in feet) and direction from the nearest pipeline MP, and any specific requested mitigation measures. (page 4-17)

17. **Before construction of the LNG terminal**, Golden Pass shall file with the Secretary its finalized dredge material placement plan. (page 4-21)

18. **Before construction of the pipeline system**, Golden Pass shall file with the Secretary the site-specific waterbody crossing plans submitted and approved by the COE. (page 4-21)

19. In addition to implementing the measures of our Procedures, Golden Pass shall develop a site-specific crossing plan for Big Hill Bayou (MP 11.9) which includes the crossing technique it will use in the adjacent wetlands and all areas that will be disturbed by construction, as well as the location and types of erosion and sedimentation control measures that will be used to minimize turbidity and sedimentation into Big Hill Bayou and adjacent wetlands. The Big Hill Bayou site-specific crossing plan shall be filed with the Secretary for review and approval of the Director of OEP **prior to construction of the pipeline system**. (page 4-24)

20. Golden Pass shall provide with its site-specific major waterbody crossing plans the following information: (page 4-26)

    a. the location and types of erosion and sedimentation control measures that would be used to minimize turbidity and sedimentation into nearby waterbodies and adjacent wetlands; and
    b. the results of geotechnical investigations conducted for each HDD.

    The site-specific plans shall be filed with the Secretary for review and written approval of the Director of OEP **prior to construction of the pipeline system**.

21. Golden Pass shall file with the Secretary a site-specific crossing plan for each waterbody if the planned directional drill cannot be completed. Each site-specific plan shall address how Golden Pass would seal the abandoned drill hole and shall include scaled drawings identifying all areas that would be disturbed by construction. Golden Pass shall file each plan concurrent with its application to the COE for a permit to construct using this plan and the COE permit when it is obtained. The Director of OEP must review and approve this plan in writing **before construction of the crossing.** (page 4-26)

22. Golden Pass shall implement the measures contained in its *Frac-Out Prevention, Monitoring and Response Procedure for Horizontal Directional Drilling for the Sabine Island WMA* on all HDDs. (page 4-27)

23. **Before construction of the pipeline system,** and as part of the site-specific major waterbody crossing plan for Keith and Shell Lakes, Golden Pass shall file the following information: (page 4-28)

    a. comments from (or permits issued by) the COE and TXPWD for the HDDs (MPs 1.18 to 1.98, 7.35 to 8.3, and 8.3 to 9.44);
    b. a description of how excess spoil at the exit/entry pits in the lakes would be disposed of; and
    c. revised alignment sheets showing the final dimensions of each (Mainline and Loop) of the HDD exit and entry pits.

24. **Before construction of the pipeline system**, Golden Pass shall file with the Secretary comments from (or permits issued by) the COE and TXPWD for the flotation canal near MP 8.6, as well as the final construction plan. (page 4-29)

25. Golden Pass shall file with the Secretary written confirmation from appropriate federal, state, and/or local permitting agencies that Taylor and Hillebrandt Bayous, and the Gallier Canal may be used for hydrostatic test water withdrawal and/or discharge, **before construction of the pipeline system.** (page 4-32)

26. Golden Pass shall file a site-specific plan for contractor/pipe yards Nos. 3, 5 and 8 that identifies the type of equipment, materials, and fuels/lubricants that would bestored in the yard, and the location of erosion controls/fencing and travel ways within the yard. If the contractor/pipe yard will be used to store fuels/lubricants or for parking of vehicles or construction equipment, the site-specific plan shall include procedures that would be implemented to avoid or minimize impacts on wetlands or waterbodies from spills or leaks. If wetlands or waterbodies are found during field delineations of contractor/pipe yards Nos. 1 and 2, a similar site-specific plan shall be prepared for each yard where wetland/water areas are found. These site-specific plans shall be filed with the Secretary for review and approval by the Director of OEP **before use of the contractor/pipe yard.** (page 4-40)

27. Golden Pass shall file a request for approval to modify existing roads or install new access roads that would cross wetlands either temporarily or permanently. This request shall include installation of culverts as necessary to maintain wetland hydrology and COE verification of the wetlands affected and be filed for review and approval by the Director of OEP **before use of the access road.** (page 4-41)

28. Golden Pass shall reduce the construction right-of-way in wetlands so that: (page 4-46)

    a. A maximum construction right-of-way width of 110 feet would be used for the Mainline and Loop (MPs 0.0 and 42.8), unless otherwise approved in the final EIS (MPs 0.0 to 1.1, MPs 9.6 to 11.7, MPs 11.7 to 14.1, and MPs 14.7 to 17.2); and
    b. A maximum construction right-of-way width of 75 feet would be used for the Mainline (MPs 42.8 to 77.8) and the Beaumont Lateral (MPs 0.0 to 1.8).

These changes shall be reflected in revised alignment sheets that Golden Pass files with the Secretary for review and written approval by the Director of OEP **prior to construction of the pipeline system**.

29. **Prior to construction of any facilities**, Golden Pass shall file with the Secretary a copy of the Section 404/10 permit issued by the COE, and the finalized Aquatic Resources Mitigation Plan developed in consultation with the COE, NOAA Fisheries, FWS, TXPWD, and LADWF. (page 4-47)

30. Golden Pass shall monitor bird strikes at the LNG facility, and powerlines from SH 87, during the spring and fall migrations from the start of construction activities through the end of the year following commencement of service. Protocol for the monitoring shall be developed in consultation with the FWS and TXPWD. Within 30 days of completion of the monitoring, Golden Pass shall file a report with the Secretary documenting the results of the monitoring and recommending any additional mitigation measures. (page 4-55)

31. Golden Pass shall develop in consultation with appropriate federal and state resource agencies an aquatic restoration plan that describes the methods to be employed to ensure that final grade in wetlands is restored to preconstruction conditions. The submerged aquatic restoration plan shall be filed with the Secretary **prior to construction of the pipeline system.** (page 4-69)

32. Golden Pass **may not** begin construction activities **until**: (page 4-91)

    a. the FERC completes any necessary consultations with the FWS and NOAA Fisheries; and
    b. Golden Pass receives written notification from the Director of OEP that construction and/or implementation of conservation measures may begin.

33. If construction of the LNG terminal or pipeline system has not begun within 1 year from the date of FERC approval of the Project, Golden Pass shall consult with the appropriate offices of the FWS and NOAA Fisheries to update the species list and to verify that previous consultations and determinations of effect are still current. Documentation of these consultations, and additional surveys and survey reports (if required), and FWS or NOAA Fisheries comments on the survey and its conclusions, shall be filed with the Secretary **prior to construction.** (page 4-91)

34. Golden Pass shall continue negotiations with Entergy regarding use of at least 10 feet of the existing powerline easement between MPs 0.79 and 1.65 for temporary construction workspace for the Beaumont Lateral. The results of this consultation and a revised alignment sheet showing the construction right-of-way overlap of the existing powerline easement shall be filed with the Secretary **before construction of the pipeline system**. (page 4-97)

35. **Before construction of the pipeline system**, Golden Pass shall file with the Secretary site-specific crossing plans for each of the specialty agricultural areas listed in table 4.1.8-6 of the EIS. Golden Pass shall provide copies of the plans to the affected landowners or operators and file with the Secretary any comments on the plans from these parties. (page 4-101)

36. Golden Pass shall develop a HDD noise mitigation plan to minimize noise impacts to the residential area located between about MPs 50.4 and 51.8 in Orange County, Texas. This plan should detail the measures proposed to reduce noise levels to about 55 dBA at the nearest noise sensitive area, or provide other means to minimize impacts to residents. The plan shall also include documented consultation with the affected landowners. This plan shall be filed with the

Secretary, for review and written approval by the Director of OEP, **prior to the start of construction of the pipeline system.** (page 4-105).

37. Golden Pass shall develop site-specific residential construction plans for the residences located at MP 63.1 and 63.2 that identify and include all proposed construction mitigation measures that would be utilized to minimize temporary construction impacts. These plans shall also include documented consultation with individual landowners and shall be filed with the Secretary, for review and written approval by the Director of OEP, **prior to the start of construction of the pipeline system.** (page 4-106)

38. Golden Pass shall consult with TXPWD to determine construction timing across the J.D. Murphree WMA to minimize impacts on recreational hunting seasons between September and February. The results of this consultation shall be filed with the Secretary **prior to construction of the pipeline system.** (page 4-109)

39. Golden Pass shall **not initiate** any ground disturbing activities associated with conventional construction techniques for installation of the Mainline (clearing, grading, or trenching) between MPs 61.2 (Old SH 87) and 66.3 and MPs 67.5 and 72.0 (No. Seven Road) **until** successful completion of the HDD crossing of the Sabine Island WMA between MPs 66.3 and 67.5. Golden Pass must file written documentation demonstrating the successful completion of the **HDD prior to requesting authorization** to commence additional construction activities between MPs 61.2 and 72.0. (page 4-110)

40. Golden Pass shall file documentation of concurrence from the Railroad Commission of Texas that the Project is consistent with the Texas CMP with the Secretary **prior to construction.** (page 4-116)

41. In its initial Implementation Plan for the Project, Golden Pass shall provide a Traffic Management Plan that identifies specific mitigation measures that would be implemented over the first 6 months of construction to minimize impacts associated with the movement of construction workers and materials to and from the LNG terminal site. This Traffic Management Plan should be updated every 6 months or less as needed to address changing construction traffic volumes at the LNG terminal site or unrelated construction work on SH 87. Golden Pass should include documentation of consultation with the TXDOT as appropriate to support its proposed Traffic Management Plan. (page 4-125).

42. Golden Pass shall **defer** implementation of any treatment plans/measures (including archaeological data recovery); construction; and use of all staging, storage, and temporary work areas and new or to-be-improved access roads for the pipeline system **until**: (page 4-132)

    a. Golden Pass files with the Secretary cultural resource survey reports and any required treatment plans and the SHPO's comments; and
    b. The Director of OEP reviews all cultural resource survey reports and plans and notifies Golden Pass in writing that treatment plans/measures may be implemented or that construction may proceed.

    All material filed with the Commission containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CONTAINS PRIVILEGED INFORMATION—DO NOT RELEASE."

43. Golden Pass shall **not begin** construction of the LNG terminal **until** the Commission has issued its final General Conformity Determination and Golden Pass has received written approval by the Director of OEP of its filing stating that it would comply with all requirements of the General Conformity Determination. (page 4-145)

44. Golden Pass shall **limit** construction activities to daytime hours to the extent possible and practical. (page 4-149)

45. Golden Pass shall develop a noise mitigation plan associated with pile driving activities. This plan shall include an evaluation of potential mitigation measures including the use of vibratory hammers, augered piles, and the use of a noise sleeve installed over the pile column to reduce pile driving noise levels. The plan shall identify which mitigation measures would be used, the proposed hours and days of the week that pile driving activities would occur, and what standards would be used to determine when the use of noise mitigation is required. The final plan shall be filed with the Secretary, for review and written approval by the Director of OEP, **prior to the initiation of any construction activities at the LNG terminal.** (page 4-149)

46. Golden Pass shall file a noise survey with the Secretary **no later than 60 days after placing the LNG terminal into service.** If the noise attributable to the operation of the LNG terminal exceeds an Ldn of 55 dBA at any nearby NSA, Golden Pass should file a report on what changes are needed and should install additional noise controls to meet that level within 1 year of the in-service date. Golden Pass should confirm compliance with this requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls. (page 4-150)

The following measures shall apply to the LNG terminal design and construction details. Information pertaining to these specific recommendations (recommendations 46 through 93) shall be filed with the Secretary for review and approval by the Director of OEP either: prior to initial site preparation; prior to construction of final design; prior to commissioning; or prior to commencement of service as indicated by each specific recommendation. This information shall be submitted a minimum of 30 days before approval to proceed is required.

47. An evaluation of the relief and flare systems shall be made and filed **prior to initial site preparation.** (page 4-170)

48. A complete plan and list of the proposed hazard detection equipment shall be filed **prior to initial site preparation**. The information shall include a list with the instrument tag number, type and location, alarm locations, and shutdown functions of the proposed hazard detection equipment. Plan drawings shall clearly show the location of all detection equipment. The final design shall identify manufacturer and model. (page 4-170)

49. Golden Pass shall provide a technical review of its facility design that: (page 4-170)

    a. Identifies all combustion/ventilation air intake equipment and the distance(s) to any possible hydrocarbon release (LNG, flammable refrigerants, flammable liquids, and flammable gases); and
    b. Demonstrates that these areas are adequately covered by hazard detection devices and indicate how these devices will isolate or shutdown any combustion equipment whose continued operation could add to or sustain an emergency. Fired heaters shall be shut down in the event of an LNG spill, or presence of a flammable vapor cloud.

Golden Pass shall file this review **prior to initial site preparation**.

50. A complete plan and list of the proposed fixed and wheeled dry-chemical, fire extinguishing, high expansion foam, hazard control equipment shall be filed **prior to initial site construction**. The information shall include a list with the equipment tag number, type, size, equipment covered, and automatic and manual remote signals initiating discharge of the units. Plan drawings shall clearly show the planned location of all fixed and wheeled extinguishers. (page 4-170)

51. Facility plans showing the proposed location of, and area covered by, each monitor, hydrant, deluge system, hose, and sprinkler, as well as piping and instrumentation diagrams; and piping and instrumentation diagrams, of the proposed fire water system shall be filed **prior to initial site preparation**. (page 4-170)

52. The process area sump shall be relocated from within the process area and the design filed **prior to initial site preparation**. (page 4-171)

53. The design of the containment systems and the application of insulated concrete shall be evaluated and filed **prior to initial site preparation**. (page 4-171)

54. The **final design** of the hazard detection equipment shall identify manufacturer and model. (page 4-171)

55. The **final design** of the hazard detection equipment shall include redundancy and fault detection and fault alarm monitoring in all potentially hazardous areas and enclosures. (page 4-171)

56. The **final design** should include provisions for all flammable gas and UV/IR hazard detectors to be equipped with local instrument status indication as an additional safety feature. (page 4-171)

57. In the event that open path detectors are used in the **final design**, they shall be calibrated to detect the presence of flammable gas and alarm at the lowest reliable set point, in addition to the required 25 percent lower flammability limit set point. (page 4-171)

58. The **final design** of the fixed and wheeled dry-chemical, fire extinguishing, high expansion foam hazard control equipment shall identify manufacturer and model. (page 4-171)

59. The **final design** shall include equipment and instrumentation for the measurement of translational and rotational movement of the inner vessel for use during and after cool down. (page 4-171)

60. The **final design** shall include details of the BOG flow measurement system provided for each tank. (page 4-171)

61. The **final design** shall include a reliable measurement system to monitor deflections during the hydraulic test. At a minimum, this system shall include two slope indicator ducts which bisect the tank in mutually perpendicular directions, monitoring points at the terminals of these ducts, and other monitoring points along the perimeter of the concrete shell, so that sag, warping, tilt, and settlements can be monitored. Tolerances for sag, tilt, and shell warping shall meet or exceed the limits specified by the tank manufacturer. (page 4-171)

62. The **final design** shall include details of the LNG tank tilt settlement and differential settlement limits between each LNG tank and piping and procedures to be implemented in the event that limits are exceeded. (page 4-171)

63. The **final design** shall include drawings and specifications of the spill protection system to be applied to the LNG tank roofs. (page 4-171)

64. The **final design** shall include a discretionary vent for each tank, to be operated through the DCS. (page 4-171)

65. The **final design** shall include provisions to ensure that all pumps can be operated within the recommended flow range when pumping from two or more LNG tanks with different levels. (page 4-171)

66. The **final design** shall include provisions to ensure that hot glycol/water circulation is in operation at all times when LNG is present in the LNG booster pump discharge piping or when the temperature in the LNG inlet channel to any vaporizer is below 0 °F. (page 4-171)

67. The **final design** shall include detection instrumentation and shut down procedures for vaporizer tube leak, shell side overpressure, or busting disc failure. (page 4-171)

68. The **final design** shall include temperature measurement of the vaporizer common discharge header which should alarm the low temperature condition. (page 4-172)

69. The **final design** shall include redundant low temperature alarm and shutdown in each vaporizer discharge. (page 4-172)

70. The **final design** shall include provisions to recover boil-off gas, under all conditions, in the event that the send out vaporization system is not in operation. (page 4-172)

71. The **final design** shall include automatic shutdown valves at the suction and discharge of the each boil-off blower and each boil-off compressor. (page 4-172)

72. The **final design** shall provide revised calculations for vapor dispersion from the vent stack for cold temperature and static wind conditions. (page 4-172)

73. The **final design** shall re-evaluate the need for heating the vent gas and the location of the vent stack. (page 4-172)

74. The **final design** shall ensure that air gaps are installed downstream of all seals or isolations installed at the interface between a flammable fluid system and an electrical conduit or wiring system. Each air gap should vent to a safe location and be equipped with a leak detection device that: would continuously monitor for the presence of a flammable fluid; would alarm the hazardous condition; and would shutdown the appropriate systems. (page 4-172)

75. The **final design** shall include a fire protection evaluation carried out in accordance with the requirements of NFPA 59A, chapter 9.1.2. (page 4-172)

76. The **final design** shall include details of the shut down logic. (page 4-172)

77. The **final design** shall include emergency shutdown of equipment and systems activated by hazard detection devices for flammable gas, fire, and cryogenic spills, when applicable. (page 4-172)

78. Security personnel requirements for prior to and during LNG vessel unloading shall be filed with the Secretary **prior to commissioning**. (page 4-172)

79. Operation and Maintenance procedures and manuals, as well as emergency plans, emergency evacuation plan and safety procedure manuals, shall be filed with the Secretary **prior to commissioning**. (page 4-172)

80. Copies of the Coast Guard security plan, vessel operation plan, and emergency response plan shall be provided to the FERC staff **prior to commissioning**. (page 4-172)

81. The contingency plan for failure of the outer LNG tank containment shall be filed **prior to commissioning**. (page 4-172)

82. A copy of the criteria for horizontal and rotational movement of the inner vessel for use during and after cool down shall be filed **prior to commissioning**. (page 4-172)

83. The FERC staff shall be notified of any proposed revisions to the security plan and physical security of the facility **prior to commencement of service**. (page 4-172)

84. Progress on the proposed construction project shall be reported in **monthly reports** filed with the Secretary. Details shall include a summary of activities, problems encountered, and remedial actions taken. Problems of significant magnitude shall be reported to the FERC **within 24 hours**. (page 4-172)

85. The facility shall be subject to regular FERC staff technical reviews and site inspections on at least a **biennial** basis or more frequently as circumstances indicate. Prior to each FERC staff technical review and site inspection, Golden Pass shall respond to a specific data request including information relating to possible design and operating conditions that may have been imposed by other agencies or organizations. Up-to-date detailed piping and instrumentation diagrams reflecting facility modifications and provision of other pertinent information not included in the semi-annual reports described below, including facility events that have taken place since the previously submitted annual report, shall be submitted. (page 4-173)

86. Semi-annual operational reports shall be filed with the Secretary to identify changes in facility design and operating conditions, abnormal operating experiences, activities (including ship arrivals, quantity and composition of imported LNG, vaporization quantities, boil-off/flash gas, etc.), plant modifications including future plans and progress thereof. Abnormalities shall include, but not be limited to: unloading/shipping problems, potential hazardous conditions from offsite vessels, storage tank stratification or rollover, geysering, storage tank pressure excursions, cold spots on the storage tanks, storage tank vibrations and/or vibrations in associated cryogenic piping, storage tank settlement, significant equipment or instrumentation malfunctions or failures, non-scheduled maintenance or repair (and reasons therefore), relative movement of storage tank inner vessels, vapor or liquid releases, fires involving natural gas and/or from other sources, negative pressure (vacuum) within a storage tank and higher than predicted boiloff rates. Adverse weather conditions and the effect on the facility also should be reported. Reports shall be submitted within **45 days** after each period ending **June 30 and December 31**. In addition to the

above items, a section entitled "Significant plant modifications proposed for the next 12 months (dates)" also shall be included in the semi-annual operational reports. Such information will provide the FERC staff with early notice of anticipated future construction/maintenance projects at the LNG facility. (page 4-173)

87. In the event the temperature of any region of any secondary containment, including imbedded pipe supports, becomes less than the minimum specified operating temperature for the material the Commission shall be notified **within 24 hours** and procedures for corrective action should be specified. (page 4-173)

88. Significant non-scheduled events, including safety-related incidents (i.e., LNG or natural gas releases, fires, explosions, mechanical failures, unusual over pressurization, and major injuries) and security-related incidents (i.e., attempts to enter site, suspicious activities) shall be reported to FERC staff **within 24 hours**. In the event an abnormality is of significant magnitude to threaten public or employee safety, cause significant property damage, or interrupt service, notification shall be made immediately, without unduly interfering with any necessary or appropriate emergency repair, alarm, or other emergency procedure. This notification practice shall be incorporated into the LNG facility's emergency plan. Examples of reportable LNG-related incidents include: (page 4-173)

    a. fire;
    b. explosion;
    c. estimated property damage of $50,000 or more;
    d. death or personal injury necessitating in-patient hospitalization;
    e. free flow of LNG for five minutes or more that results in pooling;
    f. unintended movement or abnormal loading by environmental causes, such as an earthquake, landslide, or flood, that impairs the serviceability, structural integrity, or reliability of an LNG facility that contains, controls, or processes gas or LNG;
    g. any crack or other material defect that impairs the structural integrity or reliability of an LNG facility that contains, controls, or processes gas or LNG;
    h. any malfunction or operating error that causes the pressure of a pipeline or LNG facility that contains or processes gas or LNG to rise above its MAOP (or working pressure for LNG facilities) plus the build-up allowed for operation of pressure limiting or control devices;
    i. a leak in an LNG facility that contains or processes gas or LNG that constitutes an emergency;
    j. inner tank leakage, ineffective insulation, or frost heave that impairs the structural integrity of an LNG storage tank;
    k. any safety-related condition that could lead to an imminent hazard and cause (either directly or indirectly by remedial action of the operator), for purposes other than abandonment, a 20 percent reduction in operating pressure or shutdown of operation of a pipeline or an LNG facility that contains or processes gas or LNG;
    l. safety-related incidents to LNG vessels occurring at or en route to and from the LNG facility; or
    m. an event that is significant in the judgment of the operator and/or management even though it did not meet the above criteria or the guidelines set forth in an LNG facility's incident management plan.

    In the event of an incident, the Director of OEP has delegated authority to take whatever steps are necessary to ensure operational reliability and to protect human life, health, property or the environment, including authority to direct the LNG facility to cease operations. Following the

initial company notification, FERC staff will determine the need for a separate follow-up report or follow-up in the upcoming semi-annual operational report. All company follow-up reports shall include investigation results and recommendations to minimize a reoccurrence of the incident.

89. Golden Pass shall coordinate, as needed, with the Coast Guard to define the responsibilities of Golden Pass' security staff in supplementing other security personnel and in protecting the LNG tankers and terminal. (page 4-189)

90. Golden Pass shall develop emergency evacuation routes/methods in conjunction with the local emergency planning groups and town officials for Sabine, Sabine Pass, Pleasure Island and other public use areas that are within any transient hazard areas. These evacuation routes/methods shall be filed with the Commission for review and written approval by the Director of OEP **prior to construction.** (page 4-190)

91. Golden Pass shall develop an Emergency Response Plan (including evacuation) and coordinate procedures with local emergency planning groups, fire departments, state and local law enforcement, and appropriate federal agencies. This plan shall include at a minimum: (page 4-190)

    a. designated contacts with state and local emergency response agencies;
    b. scalable procedures for the prompt notification of appropriate local officials and emergency response agencies based on the level and severity of potential incidents;
    c. procedures for notifying residents and recreational users within areas of potential hazard;
    d. evacuation routes for residents of Sabine Pass, Pleasure Island and other public use areas that are within any transient hazard areas;
    e. locations of permanent sirens and other warning devices; and
    f. an "emergency coordinator" on each LNG vessel to activate sirens and other warning devices.

    The Emergency Response Plan shall be filed with the Secretary for review and written approval by the Director of OEP **prior to commencement of service**. Golden Pass shall notify FERC staff of all meetings in advance and shall report progress on its Emergency Response Plan at 6-month intervals starting at the commencement of construction.

92. Golden Pass shall submit a waterway suitability assessment to the cognizant Captain of the Port/Federal Maritime Security Coordinator for review and validation and provide a copy to the FERC staff. (page 4-196)

93. Golden Pass shall annually review its water suitability assessment for the project; update the assessment to reflect changing conditions; provide the updated assessment to the cognizant Captain of the Port/Federal Maritime Security Coordinator for review and validation; and provide a copy to the FERC staff. (page 4-197)