Record of Decision
Department of the Army Permit Application No. 21520
The Port of Houston Authority's
Proposed Bayport Channel Container/Cruise Terminal

1. Name and Address of Applicant

Port of Houston Authority
Attn: H. T. Kornegay, Executive Director
P.O. Box 2562
Houston, Texas 77252-2562

2. Introduction and Background On 8 October 1998, the Port of Houston Authority (PHA) submitted a Department of the Army (DA) Permit Application for the construction of co-located marine container cargo and cruise terminal complexes (proposed project) at an undeveloped site on the south side of, and adjacent to, the Bayport Ship Channel (BSC). It was determined that the proposed project would potentially have a significant impact to the environment and that an Environmental Impact Statement (EIS) was required. The consulting firm of URS Corporation was selected as a third party contractor to assist the U.S. Army Corps of Engineers (USACE) in preparing the EIS.

This Federal action is being conducted primarily pursuant to three statutes: The National Environmental Policy Act (NEPA), Section 404 of the Clean Water Act (CWA), and Section 10 of the Rivers and Harbors Act. NEPA requires Federal agencies to consider the environment during their decision-making processes and treat environmental impact as a primary criterion in evaluating a proposed project. It also requires Federal agencies to analyze and consider alternatives to, and the environmental impacts of, their proposed actions, to disclose and consider mitigation for those impacts, and to provide interested parties with an opportunity to participate in the environmental evaluation process. In addition, Federal agencies must consider the "No-Action" Alternative. When selecting a preferred alternative, NEPA requires Federal agencies to consider a proposed action's environmental consequences and to balance them with the agency's statutory mission and responsibilities and technical and economic factors.

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearing, for the discharge of dredged or fill material into waters of the United States, which include jurisdictional wetlands. The selection and use of disposal sites must be in accordance with guidelines developed by the United States Environmental Protection Agency (EPA) published at 40 CFR Part 230. Section 10 of the RHA prohibits the unauthorized obstruction or alteration of any navigable water of the United States and requires issuance of a permit from the DA for any structures placed in Navigable Waters of the U.S.

The PHA (Applicant) is an autonomous political subdivision of the State of Texas. The Applicant's jurisdiction extends throughout Harris County. The Applicant is not subject to local government taxation, including property taxes. The mission of the Applicant is to provide, operate, and maintain cargo/passenger facilities, promote trade, generate favorable economic effects, and contribute to the economic development of the Port of Houston, the City of Houston, the communities of Harris County, and the Texas Coastal Region.

There is a worldwide shift of cargo transportation to containerization in response to the greater efficiencies afforded by that process. The Applicant began master planning for the proposed project in 1997 in recognition that its existing container facilities at Barbours Cut Terminal (BCT) were rapidly approaching maximum practical capacity, and failure to develop additional facilities could result in lost business opportunities. The original master plan for the proposed project was completed in 1998 and has been revised in response to land acquisition considerations and the need to avoid, minimize, and compensate for environmental impacts. In 1999 the Applicant proposed a Harris County bond issue to fund the development of new container facilities within Harris County, and the voters of Harris County approved this bond issue.

Development of the BSC and associated industrial facilities began in 1964 with a series of agreements between predecessors of the Applicant and Humble Oil and Refining Company. The proposed project site is part of a 7,250-acre industrial park. The Applicant received 720 acres along the BSC as part of the 1964 agreement. This property has been held for future development of port facilities, and comprises a substantial portion of the proposed project site. The Applicant currently owns, or would have possession of, approximately 1,220 acres of land at and adjacent to the proposed project site.

The scoping meeting and initial public information workshop were held in Pasadena, Harris County, Texas, on 17 August 1999. The Draft EIS (DEIS) was published on 12 November 2001, and public information workshops were convened in Pasadena on 28 November and 4 December 2001. The public hearing on the DEIS was held in Houston, Harris County, on 12 December 2001. Written comments on the proposed project and the DEIS were accepted by the USACE until 22 August 2002. The Final EIS (FEIS) was published on 16 May 2003, and written comments on the FEIS were accepted by the USACE until 16 August 2003. Written comments on the proposed project were accepted by the USACE until 12 September 2003.

The proposed project is located on the western shore of Galveston Bay. The proposed site is part of the City of Pasadena and the City of Seabrook. Land use to the west and northwest are dominated by petrochemical facilities of the Bayport Industrial Park. Land uses north, south, and southwest are primarily suburban residential, and include the municipalities and communities of La Porte, Seabrook, Shoreacres, Taylor Lake Village, and El Lago. Residential land uses are located directly north of the BSC, and directly across a road from the southeastern boundary.

There has been public opposition to the proposed project since the inception of the EIS process. The USACE has received numerous comments in opposition to the issuance of the requested permit. There were a large number of opponents, as well as supporters, at the scoping meeting for the EIS, two public workshops, and at the Public Hearing held in December of 2001. Several local communities and municipalities have adopted resolutions, or submitted comments, in opposition to the proposed project. This opposition is based in large measure on impacts of the proposed project on property values, roadway traffic, noise, light, and air quality.

The USACE has overseen and directed the development of the EIS, and assisted in identifying topics on which the EIS was focused, as well as the alternatives that were studied. Colonel Nicholas Buechler, Galveston District Commander from August 1998 to August 2001, was directly involved in these decisions. The USACE identified the following topics as those important to a permit decision which became the focus of the EIS: roadway traffic, air quality, noise, public safety, social effects such as population increases and division of existing communities, navigation and boating recreation, dredged material management, water quality, wetlands, and terrestrial and aquatic biotic communities.

The USACE decided that the identification of potential reasonable terminal alternatives, to be compared to the No-Action Alternative and the proposed project in the EIS, should be based on the Applicant's need for additional container facilities. A total of 78 preliminary sites were identified. Through a three-tiered process using eight evaluation criteria, these sites were narrowed to six potential alternative locations. Potential facility layouts were developed for these alternative locations. Since the permit application under consideration included proposed development of cruise facilities, similar cruise facilities were added to each layout so that a comparable analysis of potential environmental impacts could be conducted.

Approximately one month prior to the release of the FEIS for the proposed Bayport project, the USACE issued a separate Record of Decision (ROD) regarding a permit to construct a container facility at Shoal Point, an alternative considered in the Bayport EIS. Due to the fact that the Bayport FEIS was in publication at that time, and the permitting process for the Shoal Point facility was not completed, the assessment under NEPA of the Shoal Point location in the Bayport FEIS was not changed. Since the Shoal Point facility is still in the planning and design stage, this ROD has continued to consider that location as a reasonable alternative under the provisions of NEPA, which differ from the provisions of the CWA in regard to practicable alternatives analysis.

During this permit and NEPA process the USACE has coordinated its activities with those of several other resource agencies with important roles in the process. Among these agencies are the EPA, the U.S. Fish and Wildlife Service (FWS), the National Marine Fisheries Service (NMFS), the Texas Commission on Environmental Quality (TCEQ), and the Texas Parks and Wildlife Department (TPWD). These agencies have been involved extensively with the Applicant and the USACE in the

review and approval of the proposed compensatory mitigation program for affected aquatic resources. At this time, these agencies have indicated that the Applicant's proposed project now compensates appropriately for unavoidable impacts to aquatic resources.

At various points in the NEPA process, the USACE received requests for preparation of a supplemental EIS. This NEPA process has extended over a period of more than five years, and there have been multiple opportunities for agency and public input to the process. A number of analyses in the EIS were modified and expanded in response to public comments, particularly in regard to air quality and noise. The compensatory mitigation program proposed by the Applicant has been expanded in response to agency and public input. In each instance the USACE has issued an additional public notice and has requested public comment. Further, the review periods for both the DEIS and the FEIS were extended past the required time periods. Therefore, the USACE has determined that preparation of a supplemental EIS is not necessary to support its decision in this matter.

3. Statutory Authorities Applicable to the Proposed Project

a. USACE Authorities

Rivers and Harbors Act of 1899: Under Section 10 of the Rivers and Harbors Act, a permit is required for any structure and/or work in navigable waters of the United States

Clean Water Act: Under Section 404 of the CWA, a permit is required for the discharge of dredged or fill material into waters of the United States, including wetlands. The 404(b)(1) guidelines evaluation is attached.

Under Section 401 of the CWA, any action that may result in a discharge into waters of the United States requires a 401 certification from the State in which the discharge originates. The TCEQ, formerly the Texas Natural Resource Conservation Commission (TNRCC), is responsible for the 401 certification decision for the proposed container/cruise terminal project.

b. Other Authorities

Clean Air Act (42 U.S.C 7401-7671q): The EPA, under the Clean Air Act, was required to promulgate rules to ensure that Federal actions conform to the appropriate State Implementation Plan (SIP) that would eliminate or reduce the severity and number of violations of the National Ambient Air Quality Standards (NAAQS) and achieve expeditious attainment of such standards. The Federal agency responsible for the action must determine whether the actions conform to the applicable SIP.

Because the Houston-Galveston Area Air Quality Control Region (HGA) is considered a severe ozone non-attainment area, if the total emissions of either Nitrogen Oxides (NO_x) or Volatile Organic Compounds (VOCs) related to the Federal action

equal to or exceed 25 tons per year (tpy), a General Conformity Determination (GCD) must be issued by the Federal agency undertaking the action. The GCD must state how the project conforms, or would conform, to the SIP for that pollutant prior to undertaking the action. A GCD would also be required if the increase in emissions due to the Federal project would equal or exceed 10 percent of the total emissions of those pollutants for the entire non-attainment area.

Coastal Zone Management Act (16 U.S.C. 1451 *et seq.*): The Coastal Zone Management Act requires all Federal projects or activities authorized by Federal permit to comply, to the greatest extent practicable, with the state's Coastal Zone Management Program (CZMP). Texas' CZMP was developed to effectively and efficiently manage coastal natural resource areas and the uses that affect them. The Texas Coastal Management Program (TCMP) is the plan by which the state's CZMP is enforced.

The Texas Legislature passed the Coastal Coordination Act of 1991. This act directed the Texas General Land Office (TXGLO) to develop a long-range, comprehensive plan for the coast in cooperation with state agencies, local governments, and coastal citizens. It established the Coastal Coordination Council (CCC) to oversee development of the state's coastal management plan, to adopt coast-wide management policies, and to put the plan into action.

The TCMP uses existing state laws and regulations to set uniform coast-wide policies. The coast-wide policies for critical areas are based on the CWA Section 404(b)(1) guidelines, which apply to the discharge of dredged or fill material. With respect to compensatory mitigation, the provisions of the TCMP's critical areas policy reflect many years of implementing the Section 404(b)(1) guidelines and are based on generally accepted practices. The CCC reviews significant actions taken or authorized by state agencies and subdivisions that may adversely affect coastal natural resources to determine their consistency with the TCMP goals and policies.

The Texas CZMP gives the state the ability to review permits for consistency with the CZMP. This provides the state the ability to review Section 10 and 404 permits. Coordination allows for joint state-USACE public notices. If the state consistency review is not complete, then the USACE can consider issuance of a provisional permit.

Endangered Species Act (16 U.S.C. 1531-1544): The Endangered Species Act (ESA) provides for the designation and protection of invertebrates, wildlife, fish and plant species that are endangered or becoming extinct and conserves the ecosystem on which such species depend. The ESA makes it illegal to kill, collect, remove, harass, import, or export a protected species without a permit from the Secretary of the Department of the Interior. Regulatory and administrative actions are the responsibility of the FWS and the NMFS. All federal agencies must follow regulations as outlined under Section 7 of the ESA, which defines the process through which federal actions that may affect protected species are approved, disapproved, and appealed. This process includes consultation with the FWS and the NMFS regarding potential impacts to species protected by the ESA.

Fish and Wildlife Coordination Act (16 U.S.C. 661-666c): Federal agencies are required to consult with the FWS and the NMFS, if applicable, and the appropriate State agency regarding the conservation of wildlife resources by prevention of their direct or indirect loss and damage due to the activity proposed in a permit application.

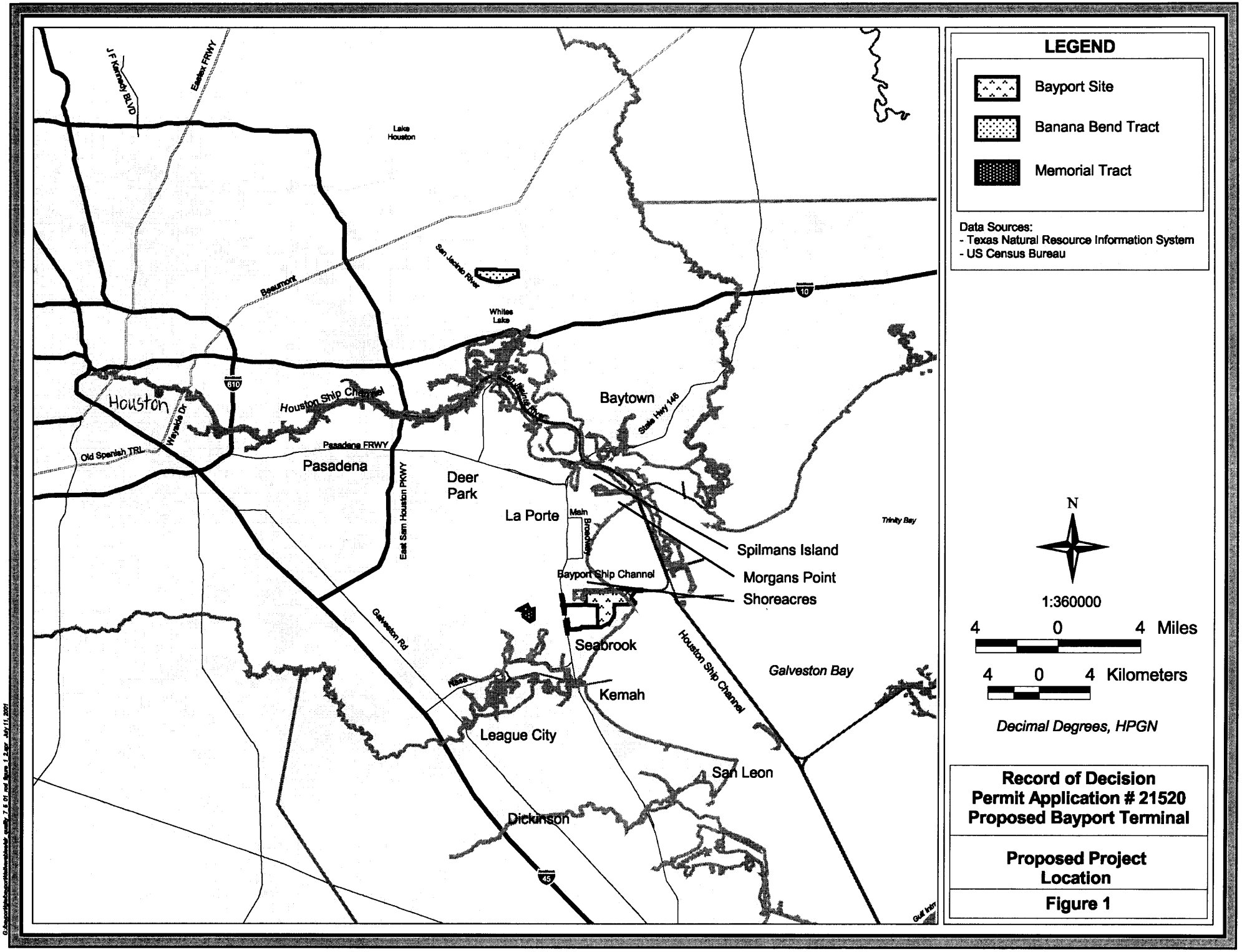
Fishery Management Conservation Act (16 U.S.C. 1801 *et seq.*): Congress enacted amendments to the Magnuson-Stevens Fishery Conservation Management Act in 1996 that established procedures for identifying Essential Fish Habitat (EFH) and required interagency coordination to further the conservation of federally-managed fisheries. Rules published by the NMFS specify that any Federal agency that authorizes, funds or undertakes, or proposes to authorize, fund or undertake an activity that could adversely affect EFH is subject to the consultation provisions of the above-mentioned Act. These rules identify the consultation requirements.

Migratory Bird Treaty Act (16 U.S.C. 703-712): The Migratory Bird Treaty Act provides protection to migratory birds such as waterfowl, shorebirds, passerines, hawks, owls, vultures, and falcons. The Act makes it unlawful to pursue, hunt, take, capture, or kill any migratory bird, part, nest, or egg, except as permitted by regulation.

National Environmental Policy Act (42 U.S.C. 4321 *et seq.*): The National Environmental Policy Act (commonly called NEPA) requires that the responsible federal agency perform an assessment of all reasonable alternatives to a proposed action that would avoid or minimize adverse effects upon the quality of the human environment. An EIS was prepared pursuant to the Council on Environmental Quality Regulations (40 CFR parts 1500-1508) and the USACE of Engineers Procedures for Implementing NEPA (33 CFR Parts 230 and 325). This ROD documents the decision regarding DA Permit Application No. 21520.

National Historic Preservation Act (16 U.S.C. 407(f)): The National Historic Preservation Act (NHPA) requires the Federal agency responsible for the action to consider the effect on historically significant cultural resources. Requirements of Section 106 of the Act apply to any Federal undertaking, funding, license or permit. In Texas, the Texas Historical Commission (THC) is consulted when projects are subject to review under Section 106 of the NHPA. The review process typically requires a broad range of activities, including Federal and State agency coordination, public involvement, identification of cultural resources in the project area, formal assessment of National Register eligibility, and development of mitigation strategies, if applicable.

4. <u>Project and Site Description</u> The proposed Bayport Channel Container/Cruise Terminal would be located on 1,043 acres along the south and north sides of the BSC, to the west of the Houston Ship Channel (HSC), and 25 miles southeast of downtown Houston, in Harris County, Texas. The location of the Proposed Project is shown in Figure 1. An additional 90 acres of existing Applicant-owned lands and public rights-of-way would accommodate improved and new road/rail rights-of-way. The total developed area would be 1,133 acres. The Applicant owns, or would have possession of, approximately 1,219 acres of land at and near the site, but not all of their property is


LEGEND
Bayport Site
Banana Bend Tract
Memorial Tract
Data Sources:
- Texas Natural Resource Information System
- US Census Bureau
N
1:360000
4 0 4 Miles
4 0 4 Kilometers
Decimal Degrees, HPGN
Record of Decision
Permit Application # 21520
Proposed Bayport Terminal
Proposed Project Location
Figure 1
J F Kennedy BLVD
Eastex FRWY
Lake Houston
San Jacinto River
Beaumont
Whites Lake
Houston
Houston Ship Channel
Wayside Dr
Old Spanish TRL
Pasadena FRWY
Pasadena
Deer Park
East Sam Houston PKWY
Baytown
State Hwy 146
La Porte
Main
Broadway
Trinity Bay
Spilmans Island
Morgans Point
Shoreacres
Bayport Ship Channel
Galveston Rd
Seabrook
Kemah
League City
Galveston Bay
Houston Ship Channel
San Leon
Dickinson
Gulf Intr

part of the proposed project site. Prior to construction of each phase of the project, the Applicant would be required to own or acquire the rights to build on the property.

The proposed project includes: 1) 756 acres for a container terminal complex (wharves, container yards, gate facilities, intermodal yards, container freight stations, ancillary and support facilities, and industrial co-development areas); 2) 131 acres for a cruise terminal complex and related co-development areas; and 3) 156 acres for buffer area and stormwater management area. The facilities would ultimately include approximately 7,000 linear feet of new wharves and berths for container operations and approximately 3,200 feet of wharves and berths for cruise operations. The proposed project also would require dredging a new 1,600-foot-diameter cruise ship turning basin on the south side of the existing BSC, east of the proposed cruise terminal complex, and a transition area between the wharves and the BSC.

Development of the proposed project would require improvement or new construction of 4.8 miles of road. Trucks would have direct access via new ramps connecting State Highway (SH) 146 to Port Road through a grade-separated entrance. New rail track would be added from Strang Yard, which is located near the Applicant's existing BCT, to the proposed project within an existing rail right-of-way, generally along SH 146. Rail track would be added in a new southern corridor that would require a new grade separation at SH 146 near Red Bluff Road and continue to the southern end of the intermodal terminal yard. Cruise terminal complex traffic would use a new road developed in this southern corridor to separate it from truck traffic.

Construction of the proposed berths to a depth of -40 feet Mean Low Tide (MLT), with 2 feet of advanced maintenance and overdepth would generate approximately 7.8 million cubic yards (mcy) of dredged material. During construction to install the container wharf sheet pile wall, the area along the wall will be dredged to -56 feet MLT. This area will be allowed to fill in to -40 feet MLT upon completion of construction. A depth of –40 feet MLT is considered sufficient for operation of the Panamax vessels that are expected to be the most common vessels calling at the proposed facilities. The Applicant has stated that while it has no plans for a HSC channel depth deeper than –45 feet MLT and that depth may never be needed, the 50+ year design life of the wharf extends well beyond any current and realistic planning period. The Applicant has further stated that while the cost to construct the first 1,660 feet of wharf and to dredge the channel to –40 feet MLT is approximately $60 million, the incremental cost to construct the wharf with an additional 5 feet of foundation depth (-45 feet to –50 feet) is approximately $650,000, or slightly more than 1% of the construction cost. However, the cost to reconstruct a wharf in the future is prohibitive: demolition and reconstruction of the wharf would cost $35 million to $50 million (2004 dollars) and an estimated $11 million in lost net revenue during a two-year construction period.

The dredging and filling activities would be accomplished during four phases over 15 to 20 years. Initially, 2.91 mcy of dredged material for the container facilities and 0.36 mcy for the cruise facilities would be dredged for onsite use to construct berms and infill for facilities construction. An additional 0.42 mcy of dredged material from future

cruise berth dredging would also be placed onsite. Approximately 4.1 mcy of dredged material would be transported offsite. Approximately 2.4 mcy would be discharged into dredged material placement area (PA) No. 14 and PA No. 15 in Galveston Bay. Approximately 1.7 mcy of new work dredged material would be used to reconstruct levees at PA No. 15. In addition, the dredged material may be used to construct new containment berms for a beneficial uses of dredged material site (BUS) on the east side of PA No. 14 as part of the creation of up to 200-acres of inter-tidal marsh area in coordination with the Beneficial Uses (of dredged material) Group (BUG). The final dredging phase would generate approximately 0.24 mcy of dredged material, and since this action is many years in the future, the placement of this dredged material has yet to be determined, but would be coordinated with the BUG.

Navigational improvements initially consist of a 1,400-foot-diameter turning basin dredged to a depth of -33 feet MLT, with 2 feet of advance maintenance and overdepth. In the final development phase, the turning basin would be increased to 1,600 feet in diameter and a -40 feet MLT project depth, with 2 feet of advance maintenance and overdepth.

The areas (in acres) of aquatic resources within the construction boundaries of the proposed project would be affected in the following manner:

Type	Total	Filled	Dredged	Slope[1]
Jurisdictional salt marsh wetland	0.4	0	0	0
Jurisdictional freshwater wetland	19.3	19.3	0	0
Non-jurisdictional freshwater wetland	126.7	126.7	0	0
Open water and mudflat	130.4	2.2	127.3	0.9

[1] Area of concrete slope protection from mean high tide line to bottom of protection.

There are approximately 146.4 acres of wetlands on the proposed project site, of which 19.71 have been verified by the USACE to be jurisdictional wetlands. The Applicant proposes to provide compensatory mitigation at three tracts (see Figure 1) for impacts to 19.3 acres of jurisdictional freshwater wetlands, and for other ecological resources.

The 174-acre Memorial Tract is located 2.4 miles southwest of the proposed project site, approximately 0.25 mile southeast of the intersection of Red Bluff Road and Bay Area Boulevard, and adjacent to the Armand Bayou Nature Center and Taylor Bayou, in Harris County, Texas. The Memorial Tract Mitigation Plan includes: 1) the creation of approximately 66.8 acres of freshwater emergent wetlands; 2) the enhancement of approximately 12.0 acres of existing prairie wetland, tallow forest wetland, shallow pond wetland, oak forest wetland, and intertidal freshwater wetlands; 3) the preservation of approximately 23.7 acres of forested and scrub uplands; and 4) the enhancement of approximately 71.0 acres of coastal prairie habitat. In addition, the Applicant will transfer ownership and management of the property, subject to USACE approval, to a non-profit organization or a State resource agency for permanent protection under a conservation easement. By agreement, the entire mitigation site

would be protected and managed for the benefit of both the existing and created wetland resources. The habitats preserved under the conservation easement would provide wildlife habitat for numerous resident and migratory species. The construction and planting schedule, proposed monitoring program, success criteria, and performance standards, and the record keeping and reporting process are described in the FEIS.

In consultation with environmental resource agencies, the Applicant agreed to provide compensatory mitigation at the Banana Bend Tract and at a 500-acre tract of primarily coastal prairie.

The Applicant proposes to permanently preserve the Banana Bend Tract. The Applicant has stated that the 456-acre Banana Bend Tract supports a mixture of wetlands and uplands on a tidally- influenced meander set of point bar, chute/channel, and oxbow lakes. The Applicant generated a map of the tract showing six vegetation communities using interpretive mapping from infrared aerial photographs, National Wetlands Inventory (NWI) data, a United States Geologic Survey topographic map, and knowledge gained during two cursory site visits. The Applicant field-validated the vegetation communities map and plotted estimated community boundaries in order to calculate approximate acreage for each habitat: 133 acres of forested upland; 2 acres of scrub shrub forest; 62 acres of forested wetlands; 104 acres of emergent wetlands; 82 acres of coastal prairie; 40 acres of mudflats; and 33 acres of open water.

The Applicant also proposes to purchase and permanently preserve 500 acres composed primarily of coastal prairie, and located primarily within the floodplain or floodway of the Cypress Creek watershed. The tract would be purchased subject to approval of the Applicant, the FWS, and the TPWD. The property would be purchased at the soonest practical time and placed in escrow or trust until the Applicant has a valid and legally defended permit from the USACE to construct and operate the proposed project. Upon release of the property from escrow or trust, the property would be transferred to the Katy Prairie Conservancy or another conservation entity approved by the Applicant, the FWS, and the TPWD. The exact location of the tract to be purchased and preserved has not been determined at this time.

In total, the Applicant proposes approximately 1,130 acres of compensatory mitigation: the 174-acre Memorial Tract, 456-acre Banana Bend Tract, and 500 acres of coastal prairie.

5. Environmental Assessment Summary

a. Purpose and Need for Work The purpose of the proposed project is to provide "state-of-the-art" facilities to support existing business and meet anticipated increases in throughput demand (5 percent per year) for containerized cargo and cruise ship passengers in the Galveston Bay area. It is the Applicant's intent to develop a modern load center facility with sufficient waterfront and land area behind the berths to deploy, organize, and load/unload containers to/from trucks and rail. This would include integration of efficient intermodal systems (water, rail, and highway), warehousing and

storage, and cost effectiveness. The Applicant identified the following minimum needs for new container facilities: 1) 1,660 feet of new container berth and 66.5 acres of new terminal backland by 2004, and 2) an additional 5,340 feet of container berth and 689.5 acres of terminal backland developed incrementally by 2024. A berth depth of –40 feet MLT is required to meet the draft needs of Panamax vessels.

Studies performed through the Texas Transportation Institute (TTI) predict a continued worldwide container movement growth rate of 7.2 percent through 2010 with projected growth rates as high as 13.1 percent for container terminal facilities along the Gulf of Mexico coast. If a growth rate of 10 percent were sustained, up to 28 new container berths could be needed in the Texas Central Gulf Region between 2001 and 2028. A permit has been issued for a proposed six-berth terminal at Shoal Point, but the overall projected need for additional container terminal facilities indicates that both facilities may be needed in the future.

According to the Applicant, the PHA is developing the final tract of land at its BCT for container operations. Improvements to the existing BCT equipment and facilities are in progress to accommodate container growth until additional container capacity can be developed, to replace and extend the life of aged facilities, and to improve operational efficiencies. The Applicant leased a terminal in the Port of Galveston capable of handling approximately 100,000 twenty-foot equivalent units (TEUs) per year. Utilization of this facility amounted to 7 percent of the Applicant's total container throughput in 2001. However, the Applicant stated that carriers strongly preferred to unload closer to the Houston metropolitan market to reduce overland transportation costs, and in 2002 the carriers terminated use of the Galveston facility. In 2001, a total of 71,548 TEUs, or approximately 6.7 percent of the Applicant's total container volume, was handled at the Houston Turning Basin. However, terminals at the Houston Turning Basin were not designed for container operations.

Container throughput grew at an average growth rate of approximately 10 percent per year between 1992 and 1999; however, growth slowed between 1999 and 2000 to 3 percent. The Applicant projects this trend of diminishing (flat-lining) container throughput growth to continue as a result of container facilities being at capacity. According to the Applicant, the primary issue restricting expansion at BCT is the lack of backland and the resulting constraints on the staging of the cargo containers.

The Applicant stated that without additional container facilities, it will not be capable of fulfilling its mission to provide, operate, and maintain cargo/passenger facilities, promote trade, generate favorable economic effects, and contribute to the economic development of the Port of Houston, the City of Houston, the communities of Harris County, and the Texas Coastal Region.

In addition to the proposed container cargo facilities, the Applicant's business plan includes diversifying to include the cruise industry. The Applicant needs new land and dockside cruise terminal facilities to attract cruise lines, ships, and passengers.

These facilities must be able to handle larger ships and increased passenger load, as well as the support services these large vessels require.

b. Alternatives The goal of the Alternatives Analysis was to identify the environmentally preferable alternatives, the alternative(s) with the least overall adverse impacts to the existing environment. According to NEPA and the CWA, the "environmentally preferable" alternative promotes the national environmental policy. In general, the selected alternative should minimize impacts to the biological and physical environment. NEPA requires that impacts to the human environment be addressed. The human environment "shall be interpreted comprehensively to include the natural and physical environment and the relationship of people to that environment" (40 CFR 1508.14).

To identify reasonable alternative site locations for proposed container terminal complexes, the USACE used the statement of need presented by the Applicant to develop a set of basic criteria against which potential sites were evaluated. The USACE determined that each reasonable alternative must provide an ultimate annual container throughput capacity of 1.4 million containers (2,352,000 TEU) to accommodate the container cargo shipping growth projected by the Applicant.

To support the Applicant's proposed operational plan, each alternative site must provide 7,000 feet of berths for container vessels and approximately 700 acres of backland directly behind the berths suitable to deploy, organize, and load/unload containers to/from trucks and rail. This would include integration of efficient intermodal systems (water, rail, and highway), warehousing, storage, and cost effectiveness. The USACE determined that the container berths needed could be realized by developing separate terminal facilities at more than one location to achieve the ultimate container throughput capacity, although that might not be the configuration desired by the Applicant.

A three-tiered approach for identifying potential locations for the proposed project (without the cruise terminal complex) was undertaken. This approach is described briefly below and in detail in Section 2.2 of the FEIS.

- A Tier 1 evaluation applied a broad set of basic siting criteria to identify a wide range of possible locations for terminal complexes in the Galveston Bay/Freeport vicinity (the reasonable operational area of the Applicant);
- A Tier 2 evaluation applied a set of basic operational, social, and environmental criteria to identify which of the possible locations should be eliminated from further consideration;
- A Tier 3 evaluation, which consisted of a more focused and refined evaluation of the locations which remained after the Tier 2 evaluation, using the same Tier 2 operational, social, and environmental criteria; and
- The sites remaining after the Tier 3 evaluation formed the set of alternatives considered in the FEIS.

Berth length and backland area for the cruise facilities were not considered in this analysis as the cruise operations and container operations are not dependent on each other.

The Tier 1 set of criteria included:

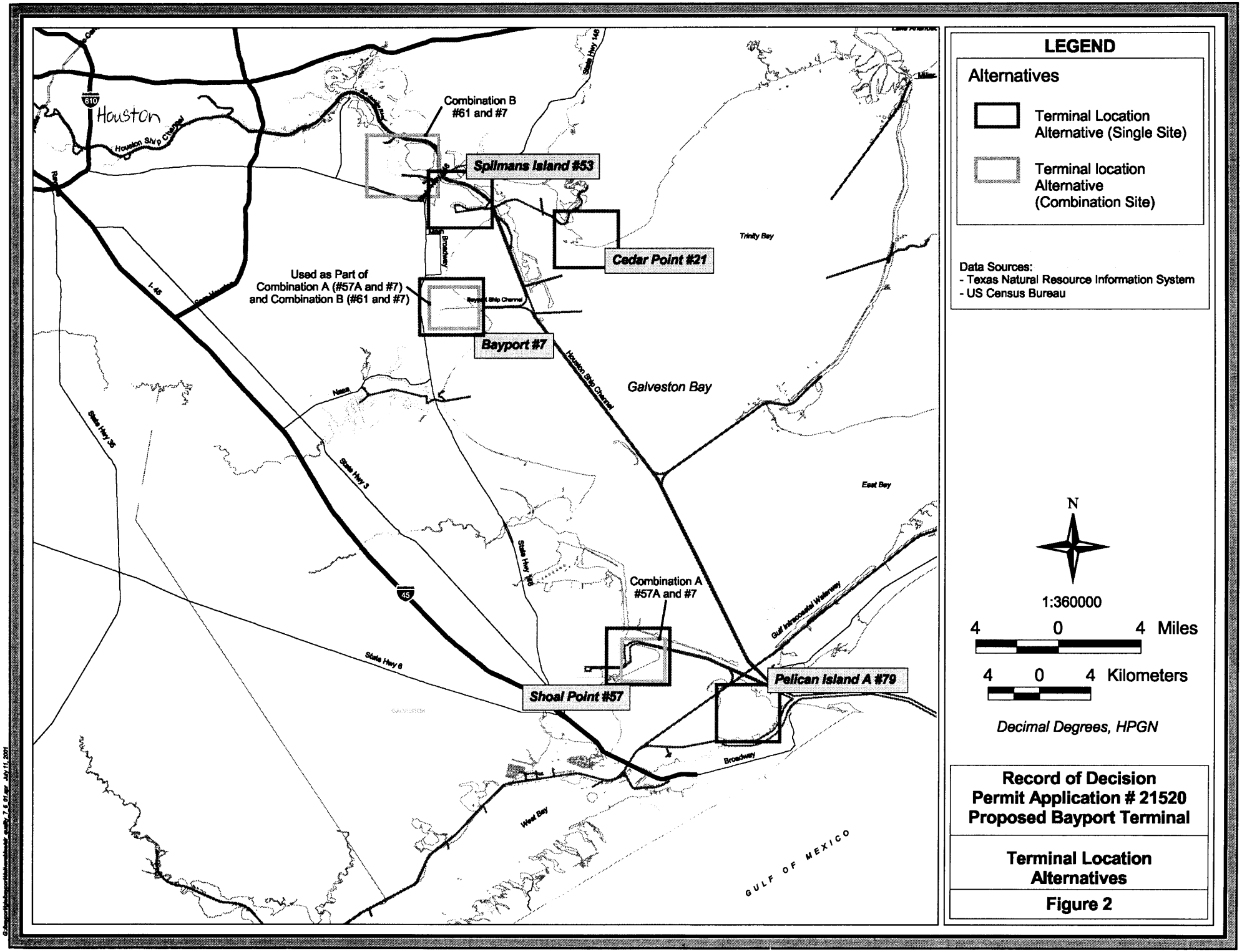
- A minimum of 200 acres of upland property;
- Accessibility to an existing deep-draft channel by either an existing or new channel;
- The potential to develop a minimum of 2,000 feet of berth and wharf; and
- Location in the Galveston Bay/ Freeport vicinity.

Each of the 78 preliminary sites identified through the Tier 1 evaluation was evaluated against the following Tier 2 criteria to determine which sites should be eliminated from further consideration:

- Navigational access,
- Dredging requirements,
- Available backland,
- Land development constraints associated with existing land use,
- Road access,
- Rail access,
- Potential social impacts, and
- Potential environmental impacts.

The Tier 2 evaluation process left 11 remaining locations as potential candidates for Tier 3 evaluation. These 11 sites were assessed to determine which individual sites, or combination of sites, could provide sufficient berth length and backland area to support development of up to 7,000 feet of container berths and 700 acres of terminal backland for container operations. The Tier 3 evaluation included a more focused and refined application of the Tier 2 evaluation criteria to eight individual sites and seven combination sites identified to be large enough to provide adequate berth and backland area. The Tier 3 evaluation process identified substantial inadequacies with three of the individual and five of the combination alternatives; these eight alternatives were eliminated from further analysis.

Six action alternatives were developed, in addition to the proposed project at the Bayport site and the No-Action Alternative. The locations of these alternatives are shown in Figure 2. Each of the action alternatives considered in the FEIS includes a layout for a container terminal yard and a seven-berth, 7,000-foot wharf. The layout of each action alternative would be similar to the Bayport Alternative in terms of comparable levels of service for paved area, lighting, drainage, and container/intermodal capabilities. The exact site layout and the need for a land access corridor, turning basin and/or channel deepening are dependent upon the configuration of the alternative site. In order to allow for a consistent comparison with the proposed facilities at the Bayport location, a cruise terminal complex with approximately 3,200 feet of wharf was added to the layout for each of the action alternatives.


Houston
Houston Ship Channel
Combination B
#61 and #7
Spilmans Island #53
Cedar Point #21
Trinity Bay
Used as Part of
Combination A (#57A and #7)
and Combination B (#61 and #7)
Bayport #7
Broadway
I-45
Galveston Bay
Houston Ship Channel
East Bay
State Hwy 3
State Hwy 35
State Hwy 146
Combination A
#57A and #7
Gulf Intracoastal Waterway
Pelican Island A #79
Shoal Point #57
State Hwy 6
Broadway
West Bay
GULF OF MEXICO
LEGEND
Alternatives
Terminal Location Alternative (Single Site)
Terminal location Alternative (Combination Site)
Data Sources:
- Texas Natural Resource Information System
- US Census Bureau
N
1:360000
4 0 4 Miles
4 0 4 Kilometers
Decimal Degrees, HPGN
Record of Decision
Permit Application # 21520
Proposed Bayport Terminal
Terminal Location Alternatives
Figure 2

Aquatic resources present at each alternative site would be the subject of avoidance, minimization, and mitigation efforts, and compensatory mitigation for aquatic values would be commensurate to that required for the Bayport Alternative aquatic values. These alternatives are described in detail and discussed in Section 2.4 (*Alternatives Identified for Further Analysis*) of the FEIS and throughout the FEIS. The following provides a brief description of each alternative considered in the FEIS.

(1) No-Action Alternative Under the No-Action Alternative, the permit would be denied and a container cargo and cruise terminal complex would not be constructed adjacent the BSC. It is assumed that additional market demand for goods transported by containerized cargo into and out of the HGA would be met by other terminals, such as New Orleans, via truck and/or rail, or the proposed Shoal Point terminal recently permitted by the USACE. Land use alteration and conversion related to the No-Action Alternative may include, but not be limited to, petrochemical processing facilities, residential, and highway related commercial development. The regional need to meet the projected containerized cargo capacity demands of up to 28 new container berths for the Texas Central Gulf Region by 2028 may not be met. It is anticipated that the Applicant-owned portion of the proposed project site would be developed to accommodate other types of port facilities similar to the petrochemical production plants located along the western portion of the Bayport Channel. Likely facilities would include liquid bulk cargo terminals, petrochemical facilities, and similar industrial facilities requiring direct waterfront locations.

Under the No-Action Alternative it is assumed that future development would occur in a series of smaller actions as occurred in the past, especially in non-jurisdictional areas. Traditionally, these smaller projects do not require an EIS and typically do not result in the level of mitigation that occurs with a large project. Therefore, it is assumed that under the No-Action Alternative the level of mitigation would be much less than the approximately 1,130 acres of compensatory mitigation (174-acre Memorial Tract, 456-acre Banana Bend Tract, and 500 acres of coastal prairie) being proposed by the Applicant. The USACE has considered that, as a practical matter, under the No-Action Alternative if the impacts to the 19.7 acres of jurisdictional wetlands have been avoided, it is possible that the site could be cleared, paved and used for industrial purposes without a requirement for compensatory mitigation.

(2) Alternative 1 Spilmans Island is an active confined PA located along the San Jacinto River on the HSC, and adjacent to the BCT. Construction of the proposed project at this location would include construction dredging (see Table 1) of a new channel that would extend northwest from the existing BCT Ship Channel. Seven container berths would be constructed along the northeast side of this new channel. The facility would also include three cruise berths on the northwest and southwest sides of the channel. Roadway access would be provided by Broadway Boulevard and Barbours Cut Boulevard or by a new road connecting to SH 146 along the north side of an existing rail right-of-way. The facility would include an intermodal rail yard on the west side, with rail service provided by a connection to the Southern Pacific rail line now

TABLE 1. ACREAGE OF DREDGED AND FILLED AREAS FOR ALTERNATIVES

Alternative	Submerged Area Dredged/Filled	Upland Areas Excavated	Total	Acreage Required for Offsite Placement of Dredged Material Options
Bayport[1]	129.2	25.2	154.4	200/BUS (use of additional PAs proposed)
Spilmans Island	44	247	291.0	2724/BUS - 623/PA
Shoal Point	171	8	179.0	1375/BUS -279/PA
Cedar Point[2]	178	241	419.0	2676/BUS - 612/PA
Pelican Island	32	191	223.0	3400/BUS - 568/PA
Shoal Point/Bayport	208	25	233.0	233/BUS -211/PA
Upper San Jacinto Bay/Bayport	291	17	308.0	726/BUS - 206/PA

(1) From new LAN calculations – includes container berths, cruise berths, and turning basin, but exclude existing Bayport Channel areas.
(2) This is for the channel to the HSC and assumes a top width of 525 feet and a length of 14,800 feet.

serving the BCT. The design of the Spilmans Island Alternative would be similar to the Applicant's preferred alternative in terms of comparable levels of service for paved area, lighting, drainage, and container/intermodal and cruise terminal complex capacities. An estimated 210 acres of non-jurisdictional wetlands would be impacted, including 207 acres isolated and freshwater depressional wetlands and 3 acres of salt marshes and brackish tidal waters (see Table 2).

The newly dredged open water area would be approximately 7,000 feet long and 2,200 feet wide, and would include a navigational channel, two turning basins, and berthing areas. This area would be dredged to a depth of -40 feet MLT. Approximately 22 mcy of material would be dredged. The total area of dredging, excavation, and fill associated with constructing the proposed new berths, turning basin, and adjacent transition areas is approximately 291 acres. Approximately 44 acres of existing bay bottom would be impacted, and approximately 247 acres of land would be converted to bay bottom. Approximately 7 mcy of material would be placed on site, and 48.3 mcy of material would be taken offsite. Fine sediments that exist at the site from previous maintenance dredging would be removed for the new channel and would be placed into other confined PAs, which have not been identified at this time.

(3) Alternative 2 Shoal Point is an active upland confined PA located in the southwestern part of Galveston Bay, adjacent to the existing Texas City Channel. A permit has recently been issued for a 400-acre container terminal at this location. However, this alternative has been carried forward as a reasonable alternative for the NEPA analysis and is addressed further under the discussion of Practicable Alternatives below.

For this EIS the facilities at Shoal Point would include seven container berths along the north shore. Development of these seven berths would require filling an area of submerged lands at the east end. The terminal layout also includes three cruise berths to be developed adjacent to the existing Texas City Turning Basin. Dredging would be required to provide access to the piers and bulkhead of the container and cruise berths. An intermodal rail yard would be constructed south of the container terminals. A new road and rail corridor that would be constructed over or adjacent to an existing drainage canal to the west would provide surface access to the terminal complexes. The access road would connect to Interstate (I) -45 at the Loop 197 interchange. The rail spur would connect to the existing Texas City Terminal rail lines near the SH 341 and Loop 197 interchange. An estimated 129 acres of non-jurisdictional wetlands and 13 acres of jurisdictional wetlands would be impacted, as would approximately 507 acres of dredged material, 113 acres of older dredged material and 102 acres of upland berms and levees.

Development of these facilities would require the dredging and placement of approximately 11 mcy of dredged material from the existing Texas City Channel and the terminal channel. The total area of dredging, excavation, and fill associated with constructing the proposed berths, turning basin, and adjacent transition areas would be approximately 179 acres. Approximately 171 acres of bay bottom would be impacted,

TABLE 2. WETLANDS ON EACH ALTERNATIVE SITE MAPPED FROM AERIAL PHOTOGRAPHIC STUDY (IN ACRES)

Wetland Type	Bayport[1]	Spilmans Island	Shoal Point	Cedar Point	Pelican Island	Shoal Point/Bayport		Upper San Jacinto Bay/Bayport	
						Shoal Point	Bayport[1]	Upper San Jacinto Bay	Bayport[1]
Salt Marshes and Brackish Tidal Waters	0.4	3.0	13.0	14.0	30.0	13.0	0.4	0.0	0.4
Freshwater and Isolated Depressional	146.0	207.0	129.1	165.0	48.0	44.0	116.1	17.0	116.1
Total Wetlands	**146.4**	**210.0**	**142.1**	**179.0**	**78.0**	**57.0**	**116.5**	**17.0**	**116.5**
Open Water Lake/Pond	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0
Open Water/Bay Bottom	460.0	200.0	510.0	13.0	150.0	375.0	370.0	190.0	370.0

[1] Only Bayport wetland acreages are derived from a USACE final approved wetland delineation.

8 acres of land would be converted to bay bottom, 15 mcy of new work dredged material would be placed onsite, and 7.7 mcy of dredged material would be placed offsite. The dredged material deposits at Shoal Point are described by Shiner Moseley and Associates and Berger/Abam in the Site Preparation for Construction of Proposed Shoal Point Container Terminal, January 2000, and the Preliminary Project Description and Environmental Document, July 2000, as "primarily very sandy clay, slightly clayey sand, some high plasticity clay and silty sand." Additionally, the existing dredged material at the Shoal Point site has been in place longer than that at the Spilmans Island site. Therefore, the existing dredged material at Shoal Point would likely be less difficult to consolidate as part of facility development than the existing dredged material at Spilmans Island.

Development of the Shoal Point Alternative would require replacement of approximately 21.7 mcy of dredged material capacity at another site, which could require a 279-acre PA or a 1,375-acre BUS. Such a site is not identified at this time.

(4) Alternative 3 Cedar Point is located on the northeast shore of Galveston Bay. The site is currently undeveloped. The layout for a container and cruise terminal complex at Cedar Point would necessitate excavating a new channel into the Cedar Point property. Excavation would include an area 5,500 feet long with a 600-foot top width for a harbor channel and ship berths, as well as an area 3,000 feet long with a 2,200-foot top width for a turning basin and berthing areas. Seven container berths would be developed along the south side of this harbor channel and turning basin. Three cruise berths would be developed on the north side of the turning basin. An intermodal rail yard would be located on the east side, and a new transportation corridor extending to the north would provide road and rail access. The access road would connect to FM 1405 at US Steel Road. The rail line would connect to Union Pacific lines via the rail spur now serving the industrial facilities north of the site or via a new dedicated spur. An estimated 179 acres of wetlands would be impacted, including 165 acres of fresh water and isolated depressional wetlands and 14 acres of salt/brackish tidal wetlands.

This alternative would require dredging of a new entrance channel from the HSC through a portion of Atkinson Island and the associated BUS. The entrance channel would be approximately 15,000 feet long, with a top width of 500 feet and a depth of -40 feet MLT. The harbor channel and turning basin would also have a depth of -40 feet MLT. Total dredging volume to create the entrance channel, harbor channel, turning basin, and berths is approximately 29 mcy. The total area of dredging, excavation, and fill associated with constructing the proposed berths, turning basin, and adjacent transition areas is approximately 419 acres. Approximately 178 acres of bay bottom would be impacted, 241 acres of land would be converted to bay bottom, there would be no capacity for new work onsite, and the offsite volume is 35.4 mcy. Material placed offsite would likely be used to create wetlands in Galveston Bay and/or be placed in confined PAs in and adjacent to the bay.

If the Cedar Point Alternative were to be developed, it has been estimated that 6.4 mcy of BUS capacity would be lost due to the required navigation channel that would be dredged through the Atkinson Island BUS. A replacement site to accommodate this lost capacity is not identified at this time.

(5) Alternative 4 The Pelican Island Alternative is located directly north of the eastern end of Galveston Island, adjacent to the Texas A&M University Galveston (TAMUG) campus and east of Seawolf Park. The alternative is and north of the Galveston Historic District and is partially located on property purchased by the Applicant in 2000. This alternative would include new construction dredging of a harbor channel extending west from the existing Galveston Channel. Seven container berths and three cruise berths would be constructed along the north side of the new channel. Roadway access would require a new multilane fixed bridge over the upper reach of the Galveston Channel and improvements to Harborside Drive (SH 275) to provide access to I-45. The facility would include an intermodal rail yard, with rail service provided by a connection to Burlington Northern Santa Fe, Union Pacific, and Galveston Houston and Henderson rail lines, which now serve the Port of Galveston. This rail connection would include a new lift bridge across the upper reach of the Galveston Channel. An estimated 78 acres of wetlands would be impacted consisting of 48 acres of freshwater and isolated depressional and 30 acres of salt marsh and brackish tidal waters.

The new harbor channel and berthing area would be approximately 13,000 feet long with a top width of 500 feet, would include a turning notch and a turning basin, and would be dredged to a depth of -40 feet MLT. Approximately 20 mcy would be dredged. The total area of dredging, excavation, and fill associated with constructing the proposed berths, turning notch, turning basin, and adjacent transition areas is approximately 223 acres. Approximately 32 acres of bay bottom would be impacted, 191 acres of land would be converted to bay bottom, an estimated 7 mcy of new work material would be placed onsite, and approximately 44.2 mcy of material would be placed offsite. Fine-grained maintenance-dredged sediments that now exist in a portion of the site that is a PA would be excavated for construction of the new channel and placed into other nearby confined PAs. Coarser sediments would be used to the extent practical to raise the elevation of the development areas on Pelican Island. Development of this alternative would require replacement of approximately 32 mcy of PA capacity due to impacts to the southern cells of the existing PA. A location for development of this replacement capacity has not been identified.

(6) Alternative 5 Under the Shoal Point/Bayport Alternative, three container berths would be developed at Shoal Point and four container berths and three cruise berths would be developed at Bayport. The Shoal Point facility would include an intermodal rail yard, and road and rail access would be similar to that described for the Shoal Point Alternative (see Alternative 2 above). A permit has recently been issued for a 400-acre container terminal at the Shoal Point location. However, this alternative has been carried forward as a reasonable alternative for the NEPA analysis and is addressed further under the discussion of Practicable Alternatives below.

The facilities at the Bayport site would include an intermodal rail yard and other features similar to that included in the Bayport Alternative (Section 4 above). Road and rail access to these new facilities would be provided by improvements similar to those included in the Bayport Alternative (e.g., widening of Port Road east of SH 146), plus a new southern transportation corridor extending from the intersection of SH 146 and Red Bluff Road around the southern side of the new facilities. Road access to the cruise passenger terminal and rail access to the intermodal yard would be provided within the southern transportation corridor. An estimated 173 acres of wetlands would be impacted including 160 acres of freshwater and isolated depressional wetlands, and 13 acres of salt marshes and brackish tidal waters.

Even though the Bayport component of this alternative includes a turning basin and berth construction similar to the Bayport Alternative, this alternative would require less dredging at the Bayport site due to the reduced number of container berths. Similarly, this alternative would require less dredging at Shoal Point than projected for the Shoal Point Alternative due to the reduced number of container berths and the elimination of the cruise terminals. The total dredging volume required for both facilities under this combination alternative is estimated to be approximately 12.4 mcy. The total area of dredging, excavation, and fill associated with constructing the proposed berths, turning basin, and adjacent transition areas is approximately 233 acres. An estimated 208 acres of bay bottom would be impacted, 25 acres of land would be converted to bay bottom, 16.7 mcy of new work dredged material would be placed onsite, and 17.4 mcy of dredged material would be placed offsite.

Development of this alternative would require construction or improvement of infrastructure such as navigation access, roadways, and utilities at two locations rather than at a single location, possibly increasing development costs and environmental impacts associated with those improvements.

(7) Alternative 6 The Upper San Jacinto Bay/Bayport Alternative would include the same Bayport facility components as the Shoal Point/Bayport Alternative. Three container berths would be developed on the west side of Upper San Jacinto Bay, west of Alexander Island and next to the existing Reliant Energy facility. Navigational access to the Upper San Jacinto Bay site would be provided by a new deepwater channel extending south from the HSC on the east side of Alexander Island. Road and rail access to the site would be provided by improvements to existing roads and a rail spur that provides access to the Reliant Energy facility. An estimated 134 acres of fresh water and isolated depressional wetlands would be impacted.

Approximately 11 mcy of sediments would be dredged and placed to create the access channel and turning basin in the Upper San Jacinto Bay. Approximately 7 mcy of material would be dredged from the existing channel at Bayport. The total projected dredging volume for this alternative is approximately 18 mcy. The total area of dredging, excavation, and fill associated with constructing the proposed berths, turning basin, and adjacent transition areas is approximately 308 acres. An estimated 291 acres of bay bottom would be impacted, 17 acres of land would be converted to bay

bottom, 2.7 mcy of material would be placed onsite, and 15.3 mcy would be placed offsite.

(8) Applicant's Preferred Alternative The Applicant's preferred alternative is the proposed project at the approximately 1,100-acre Bayport site, including seven container berths and three cruise berths adjacent to the existing Bayport Channel. A detailed description of this alternative is presented in the Project and Site Description section (Section 4) of this document and also in Section 2.4.3 of the FEIS.

c. Environmentally Preferred Alternative To determine the environmentally preferred alternative, relevant public interest factors identified during the scoping and public coordination processes and the environmental impacts associated with the environmental factors at each alternative site were considered (see Table 3). Differences may exist between the table and the FEIS due to the USACE evaluation of these environmental impacts in light of the Agency's statutory mission and jurisdictional authority, and the fact that the analysis was performed without consideration of compensatory mitigation. The complete discussion on each alternative is presented in Sections 2.4 through 3.21 of the FEIS.

Environmental impacts are expected to be considerably more adverse for the Cedar Point and the Shoal Point/Bayport alternatives, when compared to the other alternatives. Therefore, as outlined in the following paragraphs, those two alternatives were eliminated.

Impacts are expected to be more adverse for the alternative site at Cedar Point when compared to all other alternative sites. There would be significant adverse impacts to surface transportation, air quality (potential for short-term PM 2.5 impact from fugitive dust related to construction), aquatic sediments, dredging (additional maintenance dredging and offsite placement of dredged material), wetlands, and ecology (terrestrial vegetation and wildlife). There would be less than significant adverse impacts to land use and coastal zone management, social characteristics (local property values and conversion to tax-exempt status), community infrastructure and municipal services (new water and wastewater treatment plants and an additional water supply needed), navigation, noise levels, aesthetics and light, parks and recreation, air quality (short-term impact of NO_x, SO_2, and PM_{10} during construction and long-term impacts from operations-related NO_x, SO_2, PM_{10}, and $PM_{2.5}$), public safety, hazardous wastes and materials levels, shoreline erosion, hydrology/drainage/flooding, water quality, dredging (elutriate discharged from a confined PA and replacement of PA capacity), ecology, and EFH. Additionally, ten residences, four pumping stations, and five pipelines would be displaced. For these reasons, the Cedar Point Alternative was eliminated from further evaluation.

Construction of the Shoal Point/Bayport Alternative would have significant adverse impacts on surface transportation, noise levels, vibration, air quality (potential for short-term PM 2.5 impact from fugitive dust related to construction), aquatic sediments and dredging (replacement of capacity of displaced PA, and short- and long-

Table 3. Impacts of Alternatives Without Considering Compensatory Mitigation

Public Interest Factors	No Action Alternative	Bayport Alternative	Spilmans Island Alternative	Shoal Point Alternative	Cedar Point Alternative	Pelican Island Alternative	Shoal Point/ Bayport Alternative	Upper San Jacinto Bay/ Bayport Alternative
LAND USE AND COASTAL ZONE MANAGEMENT								
Existing and future land use and development patterns.	O	O	O	O	II	O	O	O
Coastal Natural Resource Areas (CNRA)	UNKNOWN	II	II	II	II	II	II	II
SOCIOECONOMICS								
Economic benefits (jobs, personal income, business revenue, and indirect purchases).	III	III	III	III	III	III	III	III
Additional state and tax revenues from construction jobs and wages.	III	III	III	III	III	III	III	III
SOCIAL CHARACTERISTICS AND ENVIRONMENTAL JUSTICE (EJ)								
EJ.	N/A	O	O	O	O	O	O	O
Population increases in Chambers County, Galveston County, and Harris County.	UNKNOWN	III	III	III	III	III	III	III
Displacement of residences, businesses, or community facilities.	N/A	N/A	II	N/A	II	N/A	N/A	II
Local and county tax base change from conversion of project site to tax-exempt status.	N/A	N/A	N/A	N/A	II	N/A	N/A	II
Local property values.	UNKNOWN	II	O	O	II	O	II	II
SURFACE TRANSPORTATION								
Construction of surface transportation improvements.	UNKNOWN	II	II	II	I	II	I	II
COMMUNITY INFRASTRUCTURE AND MUNICIPAL SERVICES								
New facilities or upgrades to systems required.	II	N/A	II	II	II	II	N/A	II
NAVIGATION								
Increase of commercial vessel/recreational boat and/or commercial fishing vessel conflicts.	II	II	II	II	II	II	II	II
NOISE AND VIBRATION								
Noise.	UNKNOWN	I	O	O	II	I	I	I
Vibration.	UNKNOWN	I	O	O	O	O	I	I
AESTHETICS AND LIGHT								
Change in viewshed from sensitive receptors.	II	II	O	O	II	II	II	II
Change in nighttime ambient light levels experienced by sensitive receptors.	II	II	O	O	II	II	II	II
CULTURAL RESOURCES								
Cultural resource sites.	O	O	II	O	O	II	O	I
PARKS AND RECREATION								
Parks and recreation.	II	II	O	O	II	II	II	II

Public Interest Factors	No Action Alternative	Bayport Alternative	Spilmans Island Alternative	Shoal Point Alternative	Cedar Point Alternative	Pelican Island Alternative	Shoal Point/ Bayport Alternative	Upper San Jacinto Bay/ Bayport Alternative
AIR QUALITY								
Long-term impact from emissions (NO_x, VOCs, CO_2, SO_2, PM_{10} and $PM_{2.5}$) generated by overland transport of cargo into the HGA from other ports.	II	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Short-term impact of NO_x, SO_2, and PM_{10} during construction.	UNKNOWN	II	II	II	II	II	II	II
Potential for short-term $PM_{2.5}$ impact from fugitive dust related to construction.	UNKNOWN	I	I	I	I	I	I	I
Long-term impacts from operations related NO_x, SO_2, PM_{10} and $PM_{2.5}$.	N/A	II	II	II	II	II	II	II
PUBLIC SAFETY								
Demand for public safety services.	O	O	O	O	O	O	O	O
Incremental increase in risk of a terrorist event.	II	II	II	II	II	II	II	II
HAZARDOUS WASTES AND MATERIALS								
Increase in volumes of hazardous wastes and materials.	II	II	II	II	II	II	II	II
Potential offsite contamination exists near the area.	O	O	O	N/A	N/A	N/A	O	O
SHORELINE EROSION								
Increased erosion from vessel traffic.	O	O	II	O	II	II	O	II
HYDROLOGY, DRAINAGE, AND FLOODING								
Hydrology and drainage patterns.	II	II	II	II	II	II	II	II
Flooding and floodplains.	II	II	II	II	II	II	II	II
WATER QUALITY								
Dredging activities would cause a short-term increase in levels of suspended solids, turbidity, and a variety of chemicals.	II	II	II	II	II	II	II	II
New berth, basin, or channel construction would have a long-term impact on dissolved oxygen levels.	II	II	II	II	II	II	II	II
Stormwater discharges would include increased levels of constituents, with levels dependent on stormwater management and treatment facilities.	II	II	II	II	II	II	II	II
AQUATIC SEDIMENTS AND DREDGING								
Changes in bay bottom surface sediments from dredging.	UNKNOWN	II	II	II	I	O	I	I
Additional maintenance dredging.	O	II	I	II	I	I	II	I
Elutriate discharged from a confined PA.	II	II	II	II	II	II	II	II
Replacement of capacity of displaced PA.	O	O	I	I	II	I	I	O
Offsite placement of new work dredged material.	N/A	O	I	II	I	I	II	II
WETLANDS								
Jurisdictional and non-jurisdictional wetlands.	I	I	I	I	I	I	I	I
ECOLOGY								
Terrestrial vegetation and wildlife.	II	II	II	II	I	II	II	II
Aquatic vegetation and wildlife.	II	II	II	II	II	II	II	II

Public Interest Factors	No Action Alternative	Bayport Alternative	Spilmans Island Alternative	Shoal Point Alternative	Cedar Point Alternative	Pelican Island Alternative	Shoal Point/ Bayport Alternative	Upper San Jacinto Bay/ Bayport Alternative
Protected species.	II	II	II	II	II	II	II	II
Introduction of nonindigenous species.	O	II	II	II	II	II	II	II
ESSENTIAL FISH HABITAT (EFH)								
EFH.	II	II	II	II	II	II	II	II

NOTE: All project impacts are identified as belonging to one of the following categories:

Class I - Significant adverse impact.

Class II – Less than significant adverse impact.

Class III - Beneficial impact.

O - No impact.

N/A - Not applicable.

UNKNOWN - Data not available to determine impact.

NOTE: Differences may exist between the table and the FEIS due to the USACE evaluation of these environmental impacts in light of the Agency's statutory mission and jurisdictional authority and the fact that this analysis was completed without consideration of mitigation.

term changes in surface sediments from dredging), and wetlands. There would be less than significant adverse impacts to coastal zone management, social characteristics (local property values), navigation, aesthetics and light, parks and recreation, air quality (short-term impact of NO_x, SO_2, and PM_{10} during construction and long-term impacts from operations-related NO_x, SO_2, PM_{10}, and $PM_{2.5}$), public safety, hazardous wastes and materials, shoreline erosion, hydrology/drainage/flooding, water quality, dredging (additional maintenance dredging, elutriate discharged from a confined PA, and offsite placement of dredged material), ecology, and EFH. For these reasons, the Shoal Point/Bayport Alternative was also eliminated from further evaluation.

All of the other remaining alternative sites are relatively close when comparing and evaluating the projected impacts to the existing environment. The projected impacts from the remaining action alternatives (Bayport, Spilmans Island, Shoal Point, Pelican Island, and Upper San Jacinto Bay/Bayport) are summarized into three categories for the remainder of the alternatives discussion: 1) public interest factors where impacts are considered almost equal; 2) public interest factors that have moderate differences among the alternative sites; and 3) public interest factors that have substantial differences among the alternative sites. In the end, the criteria that were identified as most important during the public interest review and those that exhibited the greatest differences among the alternatives were used in determining the environmentally preferred alternative.

It should again be noted that the Galveston District authorized a Section 10 and Section 404 permit (DA Permit No. 21979) on 23 April 2003 for the City of Texas City to construct another proposed container facility on some of the same lands that comprise the Shoal Point Alternative. The City of Texas City's project, which was permitted after the release of the Bayport FEIS and for which construction has not begun, includes a 400-acre footprint, 6 container berths, and no cruise facilities. Since authorization of a permit does not guarantee that a facility will be constructed in whole or in part, the Shoal Point Alternative continues to be considered in this analysis of the environmentally preferred alternative.

Evaluation criteria considered to have impacts, both adverse and beneficial, that would be almost equal among the remaining alternatives are; land use, coastal zone management, socioeconomics, a social characteristic (population increases), environmental justice, navigation, air quality, public safety, hazardous wastes and materials, hydrology/drainage/flooding, water quality, an aquatic sediments and dredging subfactor (elutriate discharged from a confined PA), wetlands, ecology, and EFH.

None of the remaining action alternatives would have adverse impacts to existing and future land use and development patterns. All of the alternative project sites are within industrial districts or are currently being used as PAs or industrial areas. No adverse land use or development pattern impacts are anticipated in communities surrounding the alternative project sites.

Without mitigation, all alternatives could potentially have adverse impacts on the following CNRAs: coastal historic areas, coastal wetlands, submerged land, special hazard areas, intertidal sand or mudflats, and water under tidal influence. Additionally, coastal barriers, coastal shore areas, and oyster reefs could be impacted at the Shoal Point Alternative. Oyster reefs could also be impacted at the Cedar Point, Pelican Island, and Upper San Jacinto Bay/Bayport Alternatives.

Any of the action alternatives would create approximately 32,000 additional jobs and generate increased personal income, business revenue, indirect purchases, and additional state and local tax income. Employment and revenue growth would be long-term, beneficial impacts. The overall economic impacts to the region would be the same under any of the alternatives.

Concerning environmental justice, construction of the terminal complexes would not divide existing residential communities, and there are no community structure impacts. Additionally, the terminal complexes would not disproportionately affect minority or low-income populations at any of the alternatives.

All alternatives would result in beneficial impacts from increases in population in Harris, Galveston, and Chambers counties. Construction of the terminal complexes at any of the alternatives would result in an increase of approximately 40,000 residents in the three-county study area, with distribution among the individual counties varying according to the alternative location.

Navigation impacts are projected to be less than significantly adverse for all of the action alternatives. Analysis factors included projected increased background vessel traffic in Galveston Bay, increased vessel traffic attributed to the particular alternative, and distances traveled through Galveston Bay. Since the projected increase in vessel transits under any of the alternatives is a very small percentage of the total vessel transits in the Houston-Galveston Navigation System, the effects to navigation of any of the alternatives is expected to be similar.

Terminal development would result in emissions from both construction and operations, and each alternative would result in similar adverse impacts to air quality. Construction related NO_x, SO_2, PM_{10}, and $PM_{2.5}$ airshed atmospheric loading would result in short-term, less than significant impacts with the $PM_{2.5}$ impact being potentially significant, unless mitigated to a less than significant level. The impacts at the Bayport Alternative would generally be less than those at the other action alternatives, since the Bayport Alternative would potentially require less stabilization and/or increase in elevation. Airshed atmospheric loading of NO_x, SO_2, PM_{10}, and $PM_{2.5}$ due to terminal operations at any of the alternatives would result in long-term, less than significant impacts. There is a potential for short-term significant air quality impacts due to $PM_{2.5}$ levels resulting from fugitive dust at all action alternatives. Ozone resulting from NO_x and VOC emissions related to construction and operation of any of the action alternatives would result in a long-term, less than significant impact. CO emissions at nearby intersections result in air quality levels within the National Ambient Air Quality

Standards (NAAQS); this would be a long-term, less than significant impact. The FEIS discloses that any of the action alternatives could be built in compliance with the State (Clean Air) Implementation Plan (SIP) for the Houston-Galveston Ozone Non-Attainment Area (HGONAA).

Construction and operation of the terminal complexes at any of the alternatives are anticipated to have less than significant adverse impacts on public safety in the HGA. Residential, commercial, and industrial growth would continue in the HGA, consistent with current growth projections. This would result in a commensurate growth in public safety services in the HGA. This situation is expected to be adequate to serve the terminal complexes at any of the alternatives. As disclosed in the FEIS, construction or operation of the terminal complexes would not affect hurricane evacuation. Due to the fact that truck volume would be similar for any of the action alternatives, the potential for increased hazardous material spills and truck accidents would be similar. All alternatives represent an incremental increase in the risk of a terrorist event. Additional container terminals provide the opportunity for additional containers that could be used to transport conventional or weapons of mass destruction, and additional cruise ships increase the number of potential terrorist targets. However, this may not substantially increase the risk of a terrorist attack at the terminal itself.

All alternatives would produce an increased, less than significant adverse risk of a hazardous material spill from construction and operation and an increased localized risk of a spill from the transport of hazardous materials. No onsite environmental contamination was identified at any alternative site. Though potential offsite contamination (petrochemical and tank farm facilities and the BCT) exists near the Bayport and Spilmans Island Alternatives, no significant adverse impacts are expected. Each of the alternative sites present minimal potential for adverse impacts to existing hazardous material sites. The types of hazardous materials transported through the proposed terminal complexes are not expected to differ appreciably from the types that occur at the BCT and the quantity of hazardous materials is expected to remain below five percent of the annual cargo. Under the No-Action Alternative, hazardous material use and waste generation could increase in the future if petrochemical facilities or bulk cargo facilities were constructed along the Bayport Channel.

Concerning flooding conditions, the present land use would be altered at each alternative site, including under the No-Action Alternative, and drainage systems would be designed to comply with applicable floodplain regulations. With appropriate drainage system designs, stormwater could be discharged to nearby receiving water bodies without significant impacts on flooding conditions in the vicinity of any of the alternatives.

The impacts to water quality would be almost equal for all alternatives. All alternative sites would result in a substantial area of paved impervious cover that would lead to rain runoff, and impacts could be reduced by facility design. Although dredging volumes and area of dredging differ among the alternatives, temporary increases in turbidity or total suspended solids (TSS) from dredging activities would occur.

Additionally, construction of new berths, channels, or turning basins would create areas of bay bottom where low levels of dissolved oxygen can be expected during summer months – a long-term adverse impact. Stormwater discharges would include increased levels of constituents, with levels dependent on stormwater management and treatment facilities. There would be an increased potential for periodic discharges of contaminants contained in cargo moving through the terminal complexes, with the level of such increased potential dependent on the effectiveness of emergency preparedness and response programs. Overall, no significant impacts to water quality would occur.

The development of navigational features at any of the alternative sites would involve substantial dredging and placement of aquatic sediments and upland soils. The impacts of dredging activities would include both short-term and long-term adverse changes in surface sediments, particularly in new deepwater areas. The surface sediments in the deepened areas would generally become finer grained after dredging. Based on elutriate and sediment analysis for each of the proposed alternatives, the discharge from a confined PA is not considered to be a significant potential source of impact. In the short term, dredging would likely suspend fine-grained sediments near the terminal complexes, which would increase turbidity. Some of these sediments would settle in nearby areas, possibly degrading sediment quality in those areas; this should not be a potentially significant source of impact to the water quality for any of the alternatives

Wetland Impacts were evaluated with regard to wetlands subject to the jurisdiction of the USACE under Section 404 of the Clean Water Act, and with regard to non-jurisdictional wetlands. All alternatives would significantly impact wetlands if appropriate compensatory mitigation, commensurate with the functions and values of impacted wetlands, was not required. Any water dependent facility development under the No-Action Alternative that did not specifically avoid existing wetlands would result in significant adverse impacts. If impacts to jurisdictional waters, including wetlands, were avoided under the No-Action Alternative, the 126.6 acres of non-jurisdictional wetlands might be impacted with no compensation.

All alternatives would have adverse impacts to ecology. Terrestrial vegetation and wildlife, protected species, and introduction of non-indigenous species would be less than significantly impacted. Aquatic vegetation and wildlife would be significantly adversely impacted. Under the No-Action Alternative, any type of development that is likely to occur, such as other types of industrial and commercial facilities, would result in similar effects to biotic communities as construction and operation of the terminal complexes.

Overall impact to EFH was summarized in the FEIS (Section 3.21.3.2) as short-term significant impact from construction and maintenance activities, long-term significant adverse impact due to filling of bay bottom habitat, long term beneficial impact resulting from the creation of estuarine marsh, and long-term less than significant adverse impact resulting from increased ship traffic. However, an overall net benefit to Federally managed species could result if intertidal marsh at a BUS site was

properly designed, created, monitored, and maintained. Since all alternatives would generate more dredged material than could be placed at the terminal sites, it is assumed that all action alternatives would include some level of construction of BUS sites to provide placement capacity for dredged material as well as for beneficial uses. Under the No-Action Alternative, any type of development that included dredging, maintenance dredging, or shipping operations would result in less than significant short- and long-term adverse impacts.

The evaluation criteria that appear to have moderate differences in the amount of impacts among the alternative sites are some social characteristics (displacement of residences, businesses, or community facilities; conversion to tax-exempt status; and local property values), surface transportation, community infrastructure and municipal services, aesthetics and light, parks and recreation, and shoreline erosion.

No community properties or businesses would be acquired or relocated for the construction of any of the alternatives. The applicant owns or would have possession of all the land needed for the Bayport Alternative. The Spilmans Island, Shoal Point, and portions of Pelican island Alternatives would require the replacement of an existing PA. High-voltage transmission lines would have to be relocated at the Spilmans Island site, and the Upper San Jacinto Bay component of the Upper San Jacinto Bay/Bayport Alternative would require the relocation of several Reliant Energy storage tanks and high-voltage power lines. The Bayport, Spilmans Island, Shoal Point, and most of the Pelican Island sites are tax-exempt. The Upper San Jacinto Bay site is private property and the conversion of the site to tax-exempt status would impact the local and county property tax base. However, new residential and business development attributed to the terminal complexes would enhance the tax base for the jurisdictions where the construction occurs. It is not possible to precisely quantify how the proposed project would impact local property values and local government revenues. However, since residential properties that experience adverse impacts such as noise could experience decreases in property values, it is assumed that some adverse environmental impacts from developing terminal complexes at the Bayport and Upper San Jacinto Bay/Bayport Alternatives may have a negative impact on the property values of those residences in closest proximity to the proposed facilities.

Surface transportation impacts were less than significantly adverse for all action alternatives. Key criteria taken into consideration in regard to surface transportation were the existing roadway and rail infrastructure, its ability to provide adequate access to and from the proposed site and potential infrastructure, and traffic impacts predicted for each site was measured by level of service (LOS) changes (which generally measure congestion). In general, the majority of the roadways in the HGA included in analysis in the FEIS will require capacity improvements in the future. The number of lane miles required on roadways significantly impacted by the alternatives would vary. The Bayport Alternative would need the fewest number of additional lane miles of improvements (2 lane miles by 2005, 16 lane miles by 2015, and 82 lane miles by 2025) by location, followed by Pelican Island, Spilmans Island, Upper San Jacinto Bay/Bayport, and the Shoal Point Alternative, which would need 1 lane mile by 2005,

15 lane miles by 2015, and 127 lane miles by 2025. Most of the roadway improvements would be required regardless of whether or not the terminal complexes are built, but construction of the terminal complexes would accelerate the requirement. The need for improvements in the majority of the study area roadways would be triggered by the projected increases in "background" traffic, trips that are not associated with the terminal development. The No-Action Alternative will include continued growth in roadways in the Bayport area.

The evaluation of community infrastructure and municipal services involves an evaluation of the types of new infrastructure (water, wastewater, electricity, etc.) that the alternatives would require. The Bayport Alternative and the No-action Alternative would not require a new municipal service infrastructure, while the remaining alternatives would require upgraded or new water and wastewater treatment plants and an additional water supply source. In addition to upgraded or new water and wastewater treatment plants and an additional water supply source, the Pelican Island Alternative would possibly require underwater installation of water lines across Galveston Channel.

The change in visual character from an unlit, vegetated area to a lighted, continuously operated industrial facility is expected to have a less than significant adverse impact on the viewshed under the No-Action, Bayport, Pelican Island and Upper San Jacinto Bay/Bayport Alternatives, due to the presence of sensitive receptors. Likewise, the change in nighttime ambient light levels would be adverse under those alternatives. The Spilmans Island and Shoal Point Alternatives are not expected to cause adverse impacts to aesthetics or light levels, due to the absence of sensitive receptors.

No direct impacts would occur to recreational properties associated with or having access to the remaining alternatives. The most likely indirect impact at the Bayport Alternative is the potential for conflicts between commercial vessels and recreational boats, and the potential for increased wave intensity at recreational property piers and beaches. No impacts would occur under the Spilmans Island or Shoal Point Alternatives, since the general public does not typically recreate there. Short-term, less than significant impacts would occur at the Pelican Island site while road access to Seawolf Park undergoes modification, but the resulting improved access would result in a long-term beneficial impact. No adverse impacts to the San Jacinto Battleground and Monument State Park would occur under the Upper San Jacinto Bay/Bayport Alternative, but less-than-significant adverse impacts would occur to the Bayport portion of the alternative.

Analysis in the FEIS of potential shoreline erosion, assuming that the shorelines would not be protected, showed that, of the remaining alternatives, the Pelican Island Alternative would result in the most erosion, resulting in less than significant adverse impacts, followed by Spilmans Island. Upper San Jacinto Bay has unprotected shoreline, but is largely protected by Alexander Island from wind waves and wake waves due to vessel traffic in Galveston Bay. However, this unprotected shoreline would be subject to increased impact from wake wave erosion if a 3-berth container

terminal complex were constructed at the Upper San Jacinto Bay site, resulting in less than significant adverse impacts. The remaining alternatives, Bayport and Shoal Point, had no impact due to existing shoreline protection.

The evaluation criteria that appear to have substantial differences in the amount of impacts among the alternative sites are noise and vibration, cultural resources, aquatic sediments, additional maintenance dredging, replacement of capacity of displaced PA, and offsite placement of dredged material.

Noise is defined as loud, unpleasant, unexpected sound that disrupts or interferes with normal human activities. Noise impact analysis was based on the noise generated by the construction and daily operations of the terminal, including increased truck traffic along roadway segments, and the effects on the surrounding communities. The receptors nearest to the Bayport site are the communities of El Jardin and Shoreacres and to the Pelican Island site, TAMUG dormitories. Nighttime (10 p.m. to 7 a.m.) dredging and CIDH would result in adverse noise impacts for Bayport, Pelican Island, and the Upper San Jacinto/Bayport sites. No adverse impacts were identified for any site as a result of vehicular traffic. Adverse noise impacts from container terminal operations and the intermodal yard were identified for the Bayport, Pelican Island, and Upper San Jacinto/Bayport sites. The Bayport site would result in a less than significant rail impact and a potentially significant impact from operations and impact noise.

Vibration in buildings is typically perceived as rattling of windows or items on shelves or the motion of building surfaces. The vibration of building surfaces can also be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise. Vibration impacts would occur at the Bayport, Pelican Island, and Upper San Jacinto/Bayport Alternatives. Under the Bayport Alternative, ground-borne vibration impacts as a result of construction, vehicular traffic, rail, or terminal operations is considered less than significant as a result of the substantial distance from the source to receptor. The dredging of the BSC and Galveston Bay has potential to cause short-term, less than significant, adverse impacts from low frequency noise-induced vibration in buildings, perceived as window rattling or wall vibration, when tugboats are used to relocate a dredge. Ship maneuvering may occasionally cause potentially significant noise-induced vibration at residential structures, also perceived as window rattling or wall vibration, up to 4,600 feet from the BSC. The Pelican Island Alternative would have adverse vibration impacts because residents in the TAMUG dormitories may experience perceptible low-frequency noise-induced vibration of windows. Since no residences are located near the Upper San Jacinto Bay site, no significant noise or vibration impacts would result from this portion of the Upper San Jacinto Bay/Bayport Alternative; impacts resulting from the Bayport portion would be similar to those reported for the Bayport alternative. Adverse noise or vibration impacts are not projected at the Spilmans Island or Shoal Point Alternatives because there are no sensitive receptors in close proximity to those alternatives. Under the No-Action Alternative, the continued growth of industrial facilities at the Bayport site would most likely cause an increase in noise and vibration impacts, but these impacts are difficult to predict.

Concerning cultural resources, the Bayport Channel was constructed from upland areas in 1966, and therefore potential underwater historic sites, such as shipwrecks, do not exist there. The proposed new turning basin site in Galveston Bay would warrant an underwater survey. The three terrestrial historic sites at Bayport have been determined ineligible for listing in the NRHP. The No-Action, Bayport, and Shoal Point Alternatives would be expected to yield no adverse impacts to historical and cultural resources. The Spilmans Island Alternative would result in indirect impacts to the NRHP-listed Morgan's Point Historic District, as would the Pelican Island Alternative to the NRHP-listed Galveston Historic District, resulting in less than significant adverse impacts. The Upper San Jacinto Bay/Bayport Alternative could result in direct impacts to two archaeological sites as well as potential indirect impacts to three other sites.

Following dredging, sediments that accumulate in the deepened areas would likely have different characteristics than the sediments that existed in the area prior to dredging. Typically, deepening reduces water velocity and turbulence, which enhances the sedimentation rate of fine-grained material. Consequently, sediments occurring in areas deepened by dredging would generally become finer than the sediments present in the same area before dredging. The Shoal Point Alternative and the Upper San Jacinto Bay/Bayport Alternative, with dredging of 171 acres and 291 acres of open water, respectively, would have significant adverse impacts to bay bottom surface sediments. The Bayport Alternative, with 127 acres, and the Spilmans Island Alternative, with 44 acres of open water impact; would both have less than significant adverse impacts to surface sediments. There would be no impacts from the Pelican Island Alternative, since the 32 acres of open water impact would primarily consist of turning basin construction in the existing footprint of the Galveston Channel.

Additional maintenance dredging could be a potential source of impact for any of the proposed alternatives. The maintenance volumes and the frequency of required maintenance dredging is dependent upon a number of factors. Relative maintenance dredging is based on changes in channel dimensions, alternative footprint size, and position in Galveston Bay, and comparison with current maintenance dredging trends. Some alternatives require the creation of a new navigation channel, which substantially increases the necessary additional maintenance quantities and frequency. Additional maintenance dredging can impact water quality, bay bottom, and a myriad of environmental factors impacted by establishment of new PAs. The Bayport and Shoal Point Alternatives would have less than significant adverse impacts from additional maintenance dredging, and the other alternatives would have significant adverse impacts.

Developing the facilities at the Spilmans Island, Shoal Point, or a portion of the Pelican Island Alternative sites would displace existing active PAs, and would require replacement of the present volume capacity provided by those displaced PAs. The possible use of material dredged from the development of the terminal facilities at any of the action alternatives for marsh creation could contribute to the long-term productivity of Galveston Bay and offset bay bottom impacts. However, BUS constructed in open water require much more acreage than the area of the PA replaced. For example, the

Spilmans Island Alternative would require an open bay area four to five times that of the Spilmans Island PA. Environmental impacts to oysters, bay bottom, circulation, etc. could result from establishment of the BUS. Using large areas of land to replace displaced PAs could also have environmental impacts. Therefore, the Spilmans Island, Shoal Point, and Pelican Island Alternatives would have significant adverse impacts, and the Bayport and Upper San Jacinto Bay/Bayport Alternatives would have little or no impact from displacement of PAs.

Offsite placement of new-work dredged material could result in adverse environmental impacts. Considerations include the minimum size of the PA or BUS required and the alternative's relative position in Galveston Bay, with the upper bay able to support less acreage than the lower bay. The Bayport Alternative may require up to a 200-acre BUS to handle all new work dredged material, resulting in no adverse impacts. The Shoal Point Alternative, requiring a 1,375-acre BUS or a 279-acre PA, would have less than significant adverse impacts, as would the Upper San Jacinto Bay/Bayport Alternative, which would require a 726-acre BUS or a 206-acre PA. The Spilmans Island and Pelican Island Alternatives would have significant adverse impacts, requiring 2,724 acres of BUS or 623 acres of PA, and 3,400 acres of BUS or 568 acres of PA, respectively.

Upon evaluating the alternative sites, it is clear that there is a wide range of potential adverse impacts that can be introduced to the existing environment at each site. Determining which site would be the least environmentally damaging is challenging because it is difficult to determine which impact, noise and vibration impacts or dredging impacts to bay bottom, for example, is more important. However, when considering total impacts to the public interest factors identified as most important during the public interest review and those that exhibited the greatest differences among the alternatives, the Pelican Island and Upper San Jacinto Bay/Bayport Alternatives are generally found to have more impact to the existing environment than the Bayport, Spilmans Island, and Shoal Point Alternatives. Therefore, the Pelican Island and Upper San Jacinto Bay/Bayport Alternatives were removed from further analysis. Examining more closely the evaluation criteria between the three remaining sites, the Bayport and Spilmans Island Alternatives would introduce more impacts to the existing environment if the project were constructed at either of the sites. Based on all of the above, Shoal Point is considered the environmentally preferred alternative, followed by the Bayport and Spilmans Island Alternatives.

d. <u>Practicable Alternative</u> A key provision of the Clean Water Act Section 404(b)(1) Guidelines is the "practicable alternative test" which requires that "no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed fill which would have a less adverse impact on the aquatic ecosystem." This is especially true when the project is not water dependent. For an alternative to be considered "practicable", it must be available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose. The basic purpose of the seven-berth container facility and three-berth, 1,043-acre Bayport development is to satisfy a regional need to meet containerized cargo capacity demands and allow the Texas Southeast Gulf Coast region to remain a viable

competitor in the containerized cargo market. The purpose and need for the cruise terminal is to expand diversify further into the growing cruise business in accordance with the Applicant's business plan. For this project, the water dependency test is met. The overall purpose for the Applicant is to construct a container terminal and cruise terminal to expand their economic base as a major U.S. port and stimulate the economy of Harris County, Texas.

The Applicant owns Spilmans Island. The site is currently being used as a PA to satisfy the Applicant's responsibility to provide a PA for material dredged from the HSC Federal Project. The soils at Spilmans Island consist of unconsolidated material, much of which is from recent dredging events and historic maintenance dredging.

Lockwood, Andrews & Newnam, Inc. (LAN) conducted an evaluation of the estimated stabilization costs associated with construction of the proposed project at the Spilmans Island Alternative site for the Applicant. S&ME, Inc. (S&ME) conducted a similar evaluation for Harris County. The USACE contractor and USACE engineering staff assessed these studies. Both studies provide similar cost ranges based on the available subsurface data and differing assumptions regarding the current conditions of the PA and projected costs for soil stabilization. Coarse sediments would be used to the extent practical to raise the elevation of the development areas at Spilmans Island. USACE engineering staff estimates that stabilizing the soil of, for example, a 600-acre site at Spilmans Island would increase the cost of the proposed project by $150 million to $300 million. In addition, it is estimated that it would take up to ten years to stabilize the site, and that completion of the first phase of development would be delayed by several years.

In order to develop the Spilmans Island Alternative, it would be necessary to replace approximately 33.3 mcy of dredged material capacity at another site. No available upland area of comparable size (900 acres) has been identified in the vicinity of the current Spilmans Island PA. Developing replacement upland PA at an alternative location further south may result in increased dredged material placement costs. Development of an in-water PA, such as a beneficial use site, would likely require four to five times the current PA area (approximately 4,000 acres). Such a PA would be costly, and it is unlikely that it would gain environmental approvals based on the availability of a suitable location in the upper portion of Galveston Bay, potential impacts on circulation and biotic resources, and the chemical constituents in the dredged material from the reaches of the HSC that such a PA would serve.

The Galveston Bay Conservation and Preservation Association (GBCPA) submitted two documents that challenge the Applicant's assumptions regarding the possible use of Spilmans Island for the development of the proposed facilities. The first of these documents presented a cost comparison for development of the two sites and reports that development of the proposed facilities at the Bayport site would cost $209 million more than at Spilmans Island. This document addresses costs associated with soil consolidation, Land acquisition, wetland mitigation, roadway and rail improvements, and lost tax revenues. The second document discusses the current and historical

geomorphology of the Spilmans Island site and states that consolidation requirements would vary significantly across the site and may be less than projected by the Applicant.

Upon examining options and costs for replacement of the Spilmans Island PA capacity it was determined that, while it could be replaced, the environmental and financial cost of that replacement further reduces the practicability of the Spilmans Island Alternative. Opportunities for creating either BUS or additional leveed PAs for dredged material in the northern part of Galveston Bay are more limited than in the area of the Shoal Point Alternative. Based upon our analysis, taking into consideration availability, cost and logistics in light of the overall project purpose, we have determined that the Spilmans Island site is not a practicable alternative for the Applicant's proposed project.

The City of Texas City owns portions of the Shoal Point Alternative site and the USACE and TXGLO own portions. A portion of the site is a former PA and a portion is a currently active PA for maintenance of the Texas City Channel. The dredged material deposits at Shoal Point are described by Shiner Moseley and Associates and Berger/Abam in the Site Preparation for Construction of Proposed Shoal Point Container Terminal, January 2000, and the Preliminary Project Description and Environmental Document, July 2000 as "primarily very sandy clay, slightly clayey sand, some high plasticity clay and silty sand." A detailed geotechnical report cited in these documents indicates the soils can be pre-consolidated and ready for construction with 18 - 24 months at a reasonable cost. According to the Applicant, the PHA cannot use condemnation outside of Harris County to acquire land, or purchase property outside of Harris County with bond funds. For land purchases outside of Harris County, operating revenue money must be used.

On 26 March 2003 the Galveston District approved the City of Texas City record of decision to authorize the Section 10 and Section 404 permit for the construction of a six-berth, 400-acre container facility at some of the property included in the Shoal Point Alternative. The USACE received the final Section 401 Water Quality Certification for the project from the TCEQ on 17 April 2003, and the USACE authorized DA Permit No. 21979 on 23 April 2003. According to the City of Texas City, construction at the Shoal Point site is anticipated to begin in early 2004. It is likely that the facility will be constructed by the City of Texas City. While the Shoal Point Alternative is an environmentally acceptable alternative, the Applicant does not own Shoal Point, it is doubtful that the Applicant would be able to negotiate the sale or lease of the facility, and the Applicant cannot condemn the property. Since the Shoal Point site is not available to the Applicant, the Shoal Point Alternative and the Shoal Point/Bayport Alternative are not considered practicable alternatives.

The USACE believes the Applicant has shown that, for the proposed Bayport facility, all onsite impacts to waters of the United States have been avoided or minimized to the maximum extent practicable. Therefore, the Bayport site is the least environmentally damaging practicable alternative.

6. Environmental Impacts Summary - Bayport Alternative

a. Environmental Setting The following is a brief discussion of the environmental setting of the proposed project site. A more detailed description can be found in Section 3.0 of the FEIS.

The Bayport site is vacant property located on the south side of the Bayport Channel east of State Highway (SH) 146. The majority of the site is situated on pasture and prior dredged material PAs. Elevations on the site are generally around 15 feet mean low tide (MLT).

A review of historical information was performed to determine past activities conducted at the Bayport location. From examination of historic maps and photos, it can be concluded from assessment of similar surrounding properties that the area was originally covered primarily by coastal prairie, with hardwood forest found along the immediate banks of Boggy Bayou, a tributary of Taylor Bayou that is located to the southwest. Over the past century, various disturbances, including residential development (1800s and 1900s), cultivation, grazing, channel construction, deposition of excavated materials, airport construction, road construction, pipelines, drainage pattern alterations, oil and gas activities, and other forms of development and land leveling have changed the native habitat so that it is no longer representative of coastal prairie.

Aerial photos of the site dated 1944 show an airport with three runways on the western side of the property on what is now a portion of the Bayport study area, and a portion of the industrial facility developed on the western boundary of the property. This airport was located south of the current turning basin and is still visible on aerial photos dating up to 1969. By 1979 the airport is no longer in existence, but instead an industrial facility has been constructed on a portion of the former airport site.

It is also apparent on the 1944 aerial photos that the BSC and current turning basin have not yet been constructed. The channel and turning basin appear to be under construction in aerial photos dated 1969, and these features have been fully developed by 1979. By this time, Boggy Bayou has been filled and no longer exists. Up until the time that the BSC and turning basin were constructed, the nearby surrounding land on what is now the northern portion of the Bayport study area appears to be level and under grazing or cultivation, except for the forested areas along Boggy Bayou.

During construction of the BSC and turning basin during the 1960s, excavated material and dredged material were deposited on the northern section of the study area, between what is now Port Road and the BSC. Evidence of this deposition is clear in the 1969 aerial photo.

By 1979, the majority of the former airport location is covered by an industrial facility. Land to the east of the former airport remains undeveloped but was disturbed by 1979. By 1992, Chinese tallow invasion on large areas of the study area is obvious in aerial photos. Topographic signatures characteristic of coastal prairie are absent. Some portions of the study area are open pasture, some areas are covered by Chinese tallow, some areas of remnant hardwood forest exist, Pine Gully has been straightened, and Boggy Bayou no longer appears as a drainage, although low areas of wetlands associated with the former bayou are visible on aerials and on USGS topographic maps.

Topographic maps dated 1993 and 1995 (for the eastern and western portions of the study area, respectively) show signs that the former owner excavated a series of drainage ditches in various locations on the southern portion of the study area (south of Port Road). Excavated soils from the construction of these ditches are placed along the sides of the excavations. These ditches had a permanent impact on the natural drainage on the entire southern portion of the study area. Although there has been significant disturbance during the 1900s, wetland areas remain scattered throughout the property.

Areas subject to USACE jurisdiction within the Bayport site include freshwater and estuarine marshes and tidal ponds. The approximately 146 acres of onsite wetlands at the Bayport site are primarily isolated, depressional wetlands, occurring both within upland/wetland mosaics and as individual isolated depressions. Approximately 19.7 acres of wetlands, comprising approximately 1.7 percent of the proposed development area, are jurisdictional and would require USACE authorization to fill or excavate. Of the 19.7 acres of jurisdictional wetlands, impacts to 0.4 acres of intertidal salt marsh wetlands north of the BSC would be avoided. The remaining approximately 126.7 acres of the onsite wetlands have been determined not subject to CWA jurisdiction because they are "isolated" and not hydrologically connected to "the waters of the United States".

Jurisdictional areas that would be impacted by the project also include approximately 127.3 acres of open water to be dredged for berthing areas and a turning basin, approximately 2.2 acres of open water and intertidal mudflats to be filled, and 0.9 acres of land below the MHT line to be covered by bank stabilization.

Primary access to the Bayport site would be from SH 146 (a four-lane arterial highway) via Port Road, which would be expanded from its current two lanes to four lanes. Rail access to the site would be provided by a new line running from the site through or adjacent to an existing rail right-of-way to the Strang Yard, located west of the BCT.

The project area is located in the Houston-Galveston Air Quality Control Region, also referred to as the HGA. This area includes Harris County and the seven surrounding counties of Montgomery, Liberty, Chambers, Galveston, Brazoria, Fort Bend, and Waller. The HGA has been classified as a non-attainment area with the

1- hour NAAQS for ozone. Under current regulations, the HGA has until 2007 to attain the NAAQS for ozone.

b. Environmental Impacts The possible consequences for this proposed project were studied for environmental concerns, social well being, and the public interest, in accordance with regulations published in 33 CFR 320-330. All factors that may be relevant to the proposal were considered. The following is a brief discussion concerning factors that were determined during the scoping and public coordination process to be particularly relevant to this application. More detailed information can be found in Section 3 of the FEIS.

(1) Land Use and Coastal Zone Management The Bayport Alternative is currently vacant land located within the Pasadena Industrial District and the City of Seabrook. It has been designated for industrial development for many years.

The City of Pasadena: The Bayport site is located within Pasadena and has been designated as an area for future industrial development and use by the City of Pasadena as part of the Pasadena Industrial District. The terminal complexes may generate ancillary industrial and commercial land uses. However, much of the anticipated ancillary development may be accommodated within the proposed footprint of the site. According to City officials such development is considered consistent with Pasadena's long-range planning according to city officials for the general area surrounding the Bayport Alternative. The majority of these ancillary land uses would occur south of the Bayport Channel, east of SH 146, north of Red Bluff Road, and west of Todville Road. Vacant residential lots within El Jardin would continue to be developed as single-family residential housing. Land use and residential development patterns within the developed areas of El Jardin and Pasadena should not be adversely affected.

The City of Seabrook: The City of Seabrook is developed east of SH 146 with residential uses and commercial along NASA Road 1. There are very few vacant parcels remaining within Seabrook, and it is anticipated that Seabrook would be fully developed by 2020. Parcels bordering SH 146 and NASA Road 1 could be developed into commercial uses. No adverse land use or development pattern impacts are anticipated in association with the Bayport Alternative. The proposed action would utilize land in Seabrook for the development of a railroad corridor. Seabrook has recently passed a zoning ordinance prohibiting the development of railroad facilities within their jurisdiction. This issue would have to be resolved between the Applicant and the City of Seabrook prior to utilization of this property as a railroad corridor.

The City of Shoreacres: Land use and residential development patterns within the developed areas of the City of Shoreacres, east of Broadway Boulevard, should not be adversely affected by the Bayport Alternative due to distance from the proposed facility and direct access to limited access highways. A currently vacant parcel along SH 146 south of Shoreacres Road has the potential to be converted into uses that

support the needs of the proposed terminal facilities due to its adjacency to a limited access highway.

The City of La Porte: Similar to Pasadena, currently vacant parcels along SH 146 could be converted into uses that support the needs of the Bayport Alternative due to their proximity to a limited access highway. In fact, the City of La Porte has already received rezoning requests for commercial and industrial uses near the alternative. However, these rezoning requests have been deemed inconsistent with the La Porte Master Plan's Future Land Development Plan by the City of La Porte. Based on the BCT development model, it is unlikely that areas in the City of LaPorte in excess of 2.0 miles of the Bayport Alternative and not directly on SH 146 would experience any adverse conversions.

The City of El Lago: The City of El Lago is nearly developed to total buildout with a few vacant residential lots remaining. No adverse land use or development pattern impacts within its city limits are anticipated in association with the Bayport Alternative due to distance from the terminal complexes.

Taylor Lake Village: Taylor Lake Village is almost completely developed with few vacant residential lots remaining. No adverse land use or development pattern impacts are anticipated due to distance from the terminal complexes.

Coastal Zone Management: The Bayport Alternative would include the impacts to the following CNRAs: coastal historic areas, coastal wetlands, submerged lands, special hazard areas, intertidal sands or mudflats, and water under tidal influence.

(2) Socioeconomics If the proposed Bayport container complex were developed and utilized as projected by the Applicant, by the year 2030 the net increase in container operations resulting from the new container terminal complex would generate approximately 29,000 jobs. By 2030, there would be approximately 9,900 direct jobs created by container operations at the Bayport complex, 71 percent of which would be in the maritime service sector. Approximately 4,000 of these jobs would be with warehouse and container repair businesses. Trucking companies and railroads would provide about 2,600 of the 9,900 direct jobs, the majority of which would be in trucking companies.

If the proposed cruise terminal complex were developed and utilized as projected by the Applicant, cruise activity would, by 2030 generate a net increase of approximately 2,900 jobs. Harris County residents are projected to hold 78 percent of the jobs generated by the operation of the container and cruise terminal complexes. Galveston County residents would hold approximately 8 percent of these jobs, and residents of other counties would hold approximately 14 percent. Construction activities would create approximately 3,500 new construction jobs in the first year, and annual construction employment over remainder of the projected 21-year construction period would range from approximately 200 to approximately 2,800.

(3) Social Characteristics and Environmental Justice

Displacement of Existing Residences, Businesses, and Community Facilities: No residential properties would be acquired for the construction of the proposed terminal complexes. The Seabrook Fairgrounds formerly located on the site has been relocated to a site at the intersection of SH 146 and Red Bluff Road. The Applicant is currently in the process of acquiring property from the American Acryl company for use as part of the proposed facilities. The Applicant has stated that, prior to construction of each phase of the proposed project, it would own or acquire the rights to build on the property required for that phase of development. Authorization of work or structures by the USACE does not convey a property right, nor authorize any injury to property or invasion of other rights.

Changes in Population Growth: Operation of the proposed facilities would create approximately 32,000 additional direct, induced and indirect jobs. By 2030, population growth generated by this additional employment would result in nearly 34,000 more residents in Harris County, 4,822 more residents in Galveston County, and 1,000 more residents in Chambers County.

Community Values: In 1999, Harris County residents passed a $387 million bond referendum authorizing the construction of a container terminal complex. Several municipalities adjacent to, or near the site have passed resolutions or have submitted comments opposing construction of the proposed facilities at this location citing potential impacts to local residents primarily in the areas of noise, traffic, air quality, aesthetics, property values, and recreation. These resolutions and comments are described in Section 3.4 of the FEIS. Responses to those comments have been provided in Appendix 6.2 of the FEIS.

Impact to Local Businesses: No local businesses would be acquired or relocated. Most of the secondary development likely to be associated with the proposed terminal facilities is projected to occur onsite in the industrial and commercial co-development areas. Facilities in the Clear Lake area should be able to retain their market share of recreational and boating activities, and may benefit from the development of additional cruise facilities on Galveston Bay. NASA Road 1 is a major access road to these tourist and boating facilities, and no traffic impacts from the Bayport Alternative are projected for this road.

Impact to Tax Base, Property Values, and Government Revenues: The Applicant is an autonomous political subdivision of the State of Texas and is not subject to local government taxation, including property taxes. The Applicant has stated that it will own, or would have possession of, the land needed for the proposed facilities prior to each phase of construction. The Applicant has owned most of the tax-exempt Bayport site for a number of years. The annual net increase in state and local taxes attributed directly to the proposed development range from approximately $12 million in 2005 to $128 million in the years 2025 and 2030. The construction jobs and wages

would generate a total of approximately $80 million in the years of state and local tax revenues during the 21-year construction period (Martin 2002b).

A key issue is how project impacts on noise, traffic, air quality, light, and other factors would affect property values in surrounding communities. The Applicant has incorporated features into the design of the terminal complexes to minimize such impacts that were evaluated in the FEIS.

Residential properties that experience adverse impacts such as noise from the proposed facilities could experience decreases in property values. Several studies conducted in the 1970s examining the relationship of highway noise to residential property values estimated that background noise in a typical urban neighborhood was roughly 55 decibels (A-weighted) (dbA) day-night average noise level (L_{dn}), These and several more recent studies indicated that housing prices may decrease by 0.2 to 1.5 percent for every decibel increase in L_{dn} above 55 dbA. Such noise impacts may be temporary in nature (during dredging and construction activities), or they may be long-term impacts associated with noise from terminal operations.

Other project-related impacts such as light, nightglow, truck traffic, and air quality would be associated with terminal operations, and may also contribute to future rates of change in property values. The Bayport area has several unique market characteristics, such as proximity to Galveston Bay that would interact with impacts of the proposed facilities. These factors make it speculative to quantitatively project future property value changes. However, those residences in closest proximity to the proposed facilities would likely experience some reduced property appreciation as the result of facility operations.

The net increase in jobs, personal income, business revenues and indirect purchases resulting from the Bayport complexes would generate additional state and local taxes during the entire period of development and operations as discussed in Section 3.3.3 of the FEIS. The projected annual net increase in state and local taxes attributed directly to the proposed facilities range from approximately $12 million in 2005 to $128 million in the years 2025 and 2030. Construction jobs and wages would generate a total of approximately $80 million in state and local tax revenues during the 21-year construction period.

Growth attributed to the proposed development would also impact local government revenues. County population growth projections are based on the current employment by residence patterns of the direct port-related employment. The location choices of new residents and business establishments would determine the specific impacts to individual communities.

Environmental Justice: The EJ Index for the geographic areas studied in the FEIS ranges from 1 to 3, which indicates a low potential for disproportionate impacts based on the 100-point scale with 0 indicating the lowest potential. Based on these

results, it is concluded that the proposed terminal complexes at the Bayport site would not disproportionately affect minority and low-income populations.

(4) Surface Transportation Several roadway improvements would be needed to roadways impacted by the Bayport Alternative. Facilities such as SH 146, Red Bluff Road, and Port Road, would need improvements in future years to maintain acceptable levels of service. Because of the relatively small size of the terminal complex when first opened, only two lane-miles of improvements would be required for 2005. However, a total of 16 lane-miles of improvements would be needed on roadways impacted by 2015. Similarly, for 2025, approximately 82 lane-miles of improvements would be needed on those facilities significantly impacted by development of the proposed facilities.

The majority of the roadways requiring improvements would need to be improved in the future regardless of whether or not the project is built. The need for improvements in the majority of the study area roadways would be triggered by the projected increases in 'background' traffic (i.e. trips that are not associated with the terminal development). The exceptions are the widening (from two to four lanes) of Port Road from the proposed site to SH 146 and interchange and ramp improvements near the Port Road and SH 146 interchange. The need for improvements along SH 146 would be accelerated as a result of the proposed facilities. A comparison of the required improvements at buildout of the proposed facilities with the No Action Alternative indicates that SH 146 would need one additional freeway lane in each direction from Kemah Road to SH 225 if the proposed project were constructed.

Intersection Improvements: Several intersection and interchange improvements are proposed as part of the proposed project and are being planned and designed under a separate study, the Bayport Master Plan. Among the projected improvements are major modifications to the SH 146 and Port Road interchange, including the addition of direct ramps to and from the terminal complexes and SH 146. Todville Road would be realigned and physically separated from traffic entering and leaving the terminal complexes. The Applicant has made commitments to provide a portion of the funding for these improvements. Two of the intersections in the immediate project area (SH 146 and Shore Acres and SH 146/Red Bluff Road) are expected to require grade separation by 2015. The need for grade separation at these two locations would be justified even without the additional container and cruise terminal complex traffic. The proposed project accelerates the need for grade separation at these two intersections.

Railroad Improvements: New railroad crossings and improvements to existing crossings would be needed as part of the proposed facilities. These improvements would result in a grade-separated railroad crossing promoting a safe and efficient transportation system. Among the identified improvement needs are grade-separated crossings for rail at SH 146, Port Road, Red Bluff Road, Fairmont Parkway and Choate Road. The crossing at Fairmont Parkway is currently funded in the Transportation Improvement Plan (TIP), and the Applicant has provided a portion of the funding. The

Choate Road and Port Road intersections are in the TIP but currently are not funded. The Applicant has given written commitments to provide a portion of the funding for these improvements.

(5) Community Infrastructure and Municipal Services The Bayport Alternative would not require an additional source for water supply nor additional sanitary wastewater treatment capacity. It is anticipated that the City of Pasadena would provide potable water service and the Gulf Coast Waste Disposal Authority (GCWDA) would provide sanitary wastewater collection. Capital improvements to support potable water delivery infrastructure, as well as construction of a critical water storage tank or facility located at or near the Bayport Terminal may be necessary to meet potable water needs. An onsite lift station and force main would also be required to carry wastewater to the GCWDA Depending on the project phasing schedule and project needs, additional treatment facilities may need to be constructed to meet wastewater needs

(6) Navigation The transit distance to the Bayport turning basin would be approximately 35.5 miles from the entrance buoy. Total vessel traffic in the BSC is projected to increase from 125 transits per week in 2000 to approximately 380 transits per week in 2030. Background vessel traffic associated with the existing petrochemical plants is projected to increase at approximately 3 percent annually in response to general economic growth until reaching the maximum capacity of the existing terminals. It is projected that a maximum increase of 20 percent over current traffic levels (to approximately 150 annual transits) would be reached in approximately ten years. Further increases in vessel traffic in the BSC would be associated with the proposed container and cruise terminal operations.

The proposed design includes a setback of 225 feet from the existing ship channel, which would contribute to maneuvering safety. It is anticipated that container-related traffic from Panamax class container vessels could potentially delay petrochemical facility vessel transits in the interior portion of the Bayport Channel during docking maneuvers, and in the open-water section of the channel while underway. These potential vessel-meeting situations would require coordination by the Harbor Pilots and USCG.

Recreational traffic in the vicinity of the BSC is also projected to increase in response to regional population increases. There is potential for future conflicts between commercial vessels and recreational boats in the reach of the BSC between the Bayport site and the HSC due to these increases in both recreational and commercial vessel transits. The primary conflict risk factors are associated with recreational boats operating near, or attempting to cross, either the BSC or HSC in close proximity to deep-draft commercial vessels and tows that are underway. Collisions between vessels, capsizing or swamping from ship wakes could occur if the proper safety precautions and navigational rules are not observed. Recreational boaters and commercial fishing vessels crossing the BSC or HSC will continue to experience encounters with commercial vessel traffic. These meeting situations

between recreational boaters, commercial fishing vessels, and commercial vessels are too randomized to reliably predict adverse consequences.

Potential mitigation measures could include programs to minimize transits by tugboats and support vessels, and programs to provide recreational boater safety education. Support vessel operations associated with the alternative, such as tugs and bunker barges, could be staged in the channel to reduce the number of transits from these types of vessels. Educational pamphlets concerning commercial vessel awareness, avoidance, and safety could be circulated to area marinas or otherwise made available. A reduction in numbers of bunker barges could be achieved by installing dockside bunker stations.

Impacts from increased transits to shoreline structures and activities would potentially occur in the vicinity of the Houston Yacht Club (HYC), Shoreacres Recreational Association pier and boat ramp, and Bay Colony Park facilities located on the north side of the BSC. Displacement waves generated by vessels, tows, and tugs – especially during inbound transits (due to shoreline orientation) – will cause wave run-up at these locations, which would have adverse effects on in-water structures or operation of small recreational vessels. Such impacts could be reduced by providing additional wave attenuating barriers along exposed sections of the north side shoreline in the vicinity of Shoreacres Recreational Association pier, HYC, and Bay Colony Park.

(7) Noise and Vibration

Construction: Dredging activities could occur 24 hours per day, 7 days per week. The dredge would come as close as approximately 800 feet from the nearest residence when working in the Bayport Ship Channel (BSC) and approximately 1,500 feet when working in Galveston Bay. Primary noise sources would include electric dredges or diesel dredges with associated pumps and tugboats used to position dredges. Line-of-sight sound levels from electric dredges and diesel dredges vary from approximately 65 dBA to 85 dBA at 50 feet and 80 dBA to 90 dBA at 50 feet, respectively, depending on the engine components and dredge configuration. Noise from electric dredging at the closest residence would range from 41 dBA to 61 dBA when activity is occurring within the BSC and 35 dBA to 55 dBA when activity is occurring within Galveston Bay. Line-of sight sound from diesel dredging at the closest residence would range from 55 dBA to 65 dBA when activity is occurring within the BSC and 50 dBA to 60 dBA when activity is occurring within Galveston Bay.

Other equipment, such as tending boats and survey boats, would not contribute substantially to ambient noise levels. Intervening topography and structures would reduce noise at receptors. Approximately 10 dBA of noise reduction would result from the proposed 20-foot high noise barrier, if the barrier were constructed prior to dredging. The sound level from nighttime (10 p.m. to 7 a.m.) dredging at the closest residence would be 51 dBA for electric dredging and 55 dBA for diesel dredging.

The Cast In Drilled Holes (CIDH) process, as opposed to the typical pile driving process, would be used to install piles. Sound levels from this type of drilling activity have been measured at 78 dBA at 50 feet. Sound levels from concrete trucks and/or pumping systems necessary to create the piles have been measured at approximately 85 dBA at 50 feet. Drilling could occur 24 hours per day, 7 days per week. Noise at the closest residence to the development area would be approximately 63 dBA from concrete trucks and/or pumping systems and 58 dBA from the CIDH process. Approximately 10 dBA of noise reduction would result from the proposed 20-foot high noise barrier, if the barrier were constructed prior to drilling. The nighttime (10 p.m. to 7 a.m.) sound level at the closest residence would be 53 dBA or below.

Project construction would also involve the use of bulldozers, graders, loaders, generators, cranes, concrete trucks, pavers, and miscellaneous trucks and equipment. Sound levels from this equipment range from approximately 70 dBA to 90 dBA at 50 feet. Noise from construction would be audible at the closest residences; however, this activity would generally be limited to the daytime hours (7 a.m. to 7 p.m).

Cumulative Project Sound Levels During Operations: Noise impacts at noise sensitive receptors are based on the cumulative sound level from rail, the intermodal rail yard, and operations. Cumulative sound levels for major noise sources (not including vehicular traffic) were modeled and for locations discussed surrounding the proposed terminal site using the Cadna A Noise Prediction Model to estimate the project-generated hourly sound level at noise-sensitive receptors.

Sound levels were calculated for three meteorological conditions (National Weather Service, 2002):

- Standard conditions of 59° F and 70 percent relative humidity ("standard") and without wind effects;
- Houston area annual average day and night temperature of 70° F and 75 percent relative humidity; prevalent day and night wind direction from the southeast and northeast (SE/NE), respectively; and average day and night wind speed of 7.6 knots and 5.2 knots, respectively; and
- Houston area annual average day and night temperature of 70° F and 75 percent relative humidity; prevalent day and night wind direction from the southeast (SE/SE); and average day and night wind speed of 7.6 knots and 5.2 knots, respectively.

Because of the uncertainty associated with any computer model, the terminal operating parameters were designed to evaluate a worst-case condition as described in Section 3.8.3.3 of the FEIS. For example, it was assumed that all seven container berths and all three cruise berths were operating concurrently on a 24-hour basis, and the entry and exit gates were operated on a 24-hour basis. However, the noise attenuating effects of major buildings, residences, the proposed 20-foot-high sound berm on the south and east side of the project the 20-foot-high wall on the north shore of the BSC, docked ships, and areas of dense vegetation were also included in the model.

The Cadna A modeling results predict the following conditions should the proposed facilities be developed:

- Standard Conditions: Cumulative project sound levels would range from 44 to 63 dBA L_{dn} at the surrounding residences. No residence would be exposed to sound levels exceeding 65 dBA L_{dn}. The sound level would exceed the existing level by more than 5 dBA at modeled locations on the north side of the channel and at modeled locations to the east of the intermodal rail yard.
- SE/SE: Cumulative project sound levels would range from 44 to 66 dBA L_{dn} at the surrounding residences. The sound level would exceed the existing level by more than 5 dBA at all modeled locations on the north side of the channel directly across from the proposed container wharves. The sound level would exceed 65 dBA L_{dn} by 1 dBA at a single north shore location across from the middle of the seven proposed container wharves.
- SE/NE: Cumulative project sound levels would range from 44 to 63 dBA L_{dn} at the surrounding residences. The sound levels would not exceed 65 dBA L_{dn} at any receptor. The sound level would exceed the existing level by more than 5 dBA at two modeled locations on the north side of the channel and at one modeled location to the east of the intermodal rail yard near the El Jardin subdivision.

Based on this worst-case analysis, noise impacts may occur to nearby residential areas for each of the meteorological conditions assessed because the project sound level would exceed the ambient sound level by 5 dBA. The USACE Contractor identified one possible solution, increasing the height of the proposed 20-foot high noise barrier to 30-feet. Because building the noise barrier may or may not occur (due to engineering issues and neighborhood resistance) the noise impact is recognized as an unavoidable adverse impact.

Impact Noise: Acoustical calculations were performed to estimate the sound level from impact events at the closest residences based on the highest measured maximum sound level. Impact levels were considered a point source. Assuming a direct line-of-sight, impact sound levels may be as high as 70 dBA at the closest residences to the north of the channel and 64 dBA at the closest residences to the south and east of the intermodal rail yard. The insertion loss afforded by the proposed 20-foot noise barrier is estimated to be approximately 11 dBA and 8 dBA at the closest residences north of the channel and to the south and east of the intermodal rail yard, respectively. Therefore, impact noise may be as high as 59 dBA to the north and 56 dBA to the south and east.

Sound levels from individual impacts may exceed the existing measured ambient sound level by 5 dBA during the nighttime hours at El Jardin in the City of Pasadena. Impact sound levels may exceed the existing measured ambient sound level by 10 dBA at other receptors. Based on a worst-case analysis, the impact sound level at the closest residences would exceed the City of Pasadena and/or EPA criteria.

Indoor Sound Levels: Sound levels at the first floor at residences immediately north of the BSC would be 66 dBA L_{dn} when the wind is from the southeast during the daytime and nighttime. Sound levels would be 65 dBA L_{dn} or below at the first floor all other receptor locations for each meteorological condition assessed. Second floor sound levels would be as high as 70 dBA L_{dn} at the first row of homes on the north side of the channel. There are approximately 15 homes with a second floor within the first two rows of homes. Based on a worst-case analysis, the sound level at the closest residences would exceed the EPA and HUD interior noise guideline.

Noise-Induced Vibration:

Construction: The dredging of the BSC and Galveston Bay has potential to cause low frequency noise-induced vibration in buildings when the tugboats are used to relocate the dredge. The effects would be perceived as window rattling or wall vibration. Factors that may affect this phenomenon would include the level of low frequency noise, distance between the source and receptor, orientation of the structure to the noise source, and the physical design and condition of the structure. The impact is considered short-term and less than significant. The electric dredges or CIDH process would not cause noise-induced vibration at sensitive receptors.

Operations: Ship maneuvering may occasionally cause noise-induced vibration at residential structures up to 4,600 feet from the BSC. The effects would be perceived as window rattling or wall vibration. Factors that may affect this phenomenon would include the level of low frequency noise, distance between the source and receptor, orientation of the structure to the noise source, and the physical design and condition of the structure. The impact is long-term and considered potentially significant depending on the design, condition and orientation of a noise wall, if built.

(8) Aesthetics and Light The proposed facilities at the Bayport site would change the visual character of this site from an undeveloped, vegetated area to a lighted continuously operated industrial facility. Changes in the visual character of the Bayport site and subsequent changes in viewsheds from offsite residential and industrial locations would occur. Nighttime ambient light levels at the site would occur due to high mast lighting, port activities, and reflections.

There will be a buffer zone on the south and east boundaries of the proposed terminal complexes. The buffer zone will be at least 100 feet wide and vegetated so that the view of the terminal complexes may be obscured. On the north side of the Bayport Channel, the viewshed from Shady Oaks, the HYC, Bay Colony, and Shoreacres subdivisions is currently obstructed due to the proximity of other houses, heavy vegetation, and large trees. Most of the vegetation on the north shore of the BSC is deciduous, meaning that the vegetation would be less of a shield during the fall and winter seasons when trees are bare. There would be vegetation (three trees for every 20 linear feet) planted on the north side of the proposed noise wall to minimize the visual presence of the wall.

The Bayport Alternative would change the viewshed from a vegetated shoreline with low-lying vegetation to an industrial facility including bulkheads, vessel berths, containers, and cranes. The viewshed from Galveston Bay would change from a natural coastline to industrial. The viewshed from Todville Road, Robinson Park, and the subdivisions of Surf Oaks and El Jardin would change from an undeveloped area with low-lying vegetation and trees to a vegetated 20-foot-high berm that would be constructed to mitigate potential adverse noise and aesthetic impacts. The viewshed from Taylor Lake Village and industrial facilities such as Atofina, Petro United, Baytank, American Acryl, and Jersey Enterprises would change from petrochemical to petrochemical and industrial including obscured views of the tops of container cranes and lighting masts.

Container terminals must be well lit facilities to meet Occupational Safety and Health Administration (OSHA) workplace safety regulations, and some lighting must be maintained at all times for security reasons. Lighting would primarily be provided by high mast poles, with elements strong enough to provide OSHA regulated light levels at the work surface. The masts would be elevated and widely spaced to avoid interference with the movement of containers. The proposed facilities include a number of design features to minimize glare, light spill, and light pollution to surrounding areas. These steps include shielded fixtures and the ability to individually control lighting within different sectors of the terminal. With these features the proposed facilities would result in an increase in nighttime ambient light levels of two to three foot-candles for general lighting conditions, and 0.2 foot-candles under security lighting conditions, at the property boundaries of the container terminal .

The residential properties of El Jardin, Shady Oaks, Bay Colony, Shoreacres, or Taylor Lake would not experience increases in nighttime ambient light levels from the general lighting or security lighting due to the distance of those areas from the site boundaries. Similar increases in nighttime ambient light levels would occur at industrial properties such as Atofina and Jersey Enterprises. A lighting glare study prepared for the Applicant demonstrated that direct and reflected light (glare) would not affect Shoreacres on the opposite side of the Bayport Channel .

El Jardin, Surf Oaks, Shady Oaks, Bay Colony, Shoreacres, and Robinson Park would be expected to experience an increase in nightglow. Nightglow at more distant properties is expected to be minimal due to the already existing nightglow characteristics from industrial sites in the area.

(9) Cultural Resources Three sites were identified on the proposed Bayport site during a survey performed by Prewitt and Associates. Deed records and structural features indicate Site 41HR831 is a 20th century house site and possible homestead; however, no associated artifacts were recovered from the site. Site 41HR832 is identified as a single component historic occupation consisting of the ruins or foundations of 20 structure groups, which reflect no significant pattern of history. Site 41HR833B was identified as a historic farmstead without associated artifacts .

The soils found throughout the majority of the Bayport site are low potential clays, mainly Beaumont with some Vamont and Ijam inclusions. The northern part of the project area is considered to be Beaumont-Urban complex and appears to be heavily disturbed by modern construction. While there are areas of higher potential Aris fine sandy loam and Midland silty clay loam that appear to be partially within the site , most of these areas were surveyed and found to be culturally sterile .

The high probability areas around the Bayport site appear to be confined to the coastal margins of Galveston Bay. This is where all of the previously known prehistoric, as well as most of the historic, sites in the Area of Potential Effect (APE) have been located. The APE is a term used by archaeologists to describe the footprint, which includes the project area and the surrounding area, which could be affected. Due to the nature of the soils that are found here, it is expected that sites within these high probability areas would be on the surface or shallowly buried . It is possible that sites located north of the Bayport Ship Channel have been destroyed or buried by modern cultural modifications of the landscape. The survey by Prewitt and Associates indicates that long-term erosion south of the Bayport Ship Channel has been extensive and has negatively impacted the presence of sites from all time periods .

The moderate probability area includes areas of previously unsurveyed tracts, specifically along the banks of former Boggy Bayou, south of the channel, and areas of Midland soils. The areas north of the channel are bayou channels with an indeterminate amount of cultural modification. It is unknown if archaeological sites exist within the area of moderate probability. Approximately 485.1 acres of high to moderate probability area would be directly impacted by development at this site.

While the HYC is not within the APE for the Bayport site, it is thought that construction and operation of the terminal complexes could indirectly impact it, both visually and aesthetically. The HYC is a Designated Texas Historical Marker location (a status conferring no regulatory protection), but National Register eligibility had not been determined as of November 2002.

Due to the nature of the modifications proposed as part of the proposed project, it may be appropriate to test for eroded sites or other submerged resources through underwater archaeological survey. The effect of the construction would require the assessment of structures located, as well as a consideration of the historical importance of this area to the history of early Texas. The Applicant has agreed that prior to beginning construction areas of the project (i.e. Memorial tract, cruise berth areas, and offshore areas) the Applicant will obtain the appropriate surveys/studies and approval. SHPO has provided concurrence that assessment prior to construction is acceptable.

(10) <u>Parks and Recreation</u> Recreational properties adjacent to the shoreline near the Bayport site are Bay Colony Park, Camp Casa Mare Girl Scout Camp, HYC, the Lyda May and Rueben Wright Park, and the Shoreacres Association Fishing Pier. With the exception of Wright Park, each site has piers, boat slips, and active water programs.

No direct impacts to designated recreational sites are projected to occur due to development of the proposed facilities at the Bayport site. The Seabrook Fairgrounds formerly located on the site have been relocated to a site at the intersection of SH 146 and Red Bluff Road. The most likely indirect impact is the potential for conflicts between commercial vessels and recreational boats. This potential is increased where the boater needs to cross the Bayport or Houston ship channel to reach a destination. Another likely indirect impact is the potential for increased wave intensity at piers and beaches that may interfere with small boat operations.

(11) Air Quality There was ongoing coordination between the USACE and the TCEQ and USEPA throughout the process of evaluation of potential project impacts. TCEQ and USEPA were given proposed protocols for major analysis elements including the techniques to be used to develop the air emission inventory and the procedures used for air dispersion modeling. Comments received on these protocols were discussed with the agencies; and after discussion agreement was reached on analysis techniques and assumptions.

Airshed Pollutant Loading: An emissions inventory was developed for projected pollutant loading related to the construction of the proposed container and cruise terminal complexes and the operation of each facility. This inventory is summarized in Tables 3.12-7 and 3.12-8 of the FEIS, and the complete inventory is contained in Appendix 3.12-2 of the FEIS. The construction emissions include diesel particulates and other emissions from construction equipment as well as fugitive dust, and are projected to reach their highest levels in 2010. Onsite and offsite emissions associated with container operations would increase over time, reaching a maximum around 2025, and then would likely decline as newer equipment and control technologies came into use. Cargo handling equipment (cranes, hustlers, etc.) and vessels represent the largest onsite sources of emissions. The largest offsite sources would include heavy-duty diesel trucks and vessels. Vessel emissions comprise almost all of the onsite and offsite emissions associated with operation of the cruise terminals.

Project Emissions and the HGONAA Ozone Attainment Plan: Table 3.12-9 of the FEIS presents the emission levels for oxides of nitrogen (NO_x) provided by the Applicant to the TCEQ for inclusion in the SIP, along with the actual projected NO_x emissions for the proposed project. Table 3.12-10 of the FEIS presents the comparable information for volatile organic compounds (VOC). These tables show that projected onsite emissions for NO_x and VOC are less than emissions levels provided to the TCEQ. Projected offsite emissions were not supplied to TCEQ, but were accounted for as part of the regional transportation-related emissions. As can be seen in the tables, even if offsite NO_x emissions are added to onsite emissions, the total (3.16 tpd) is less than the estimates provided to TCEQ (3.82 tpd) for inclusion in the SIP inventory.

The Applicant has committed to keep conformity related NO_X construction emissions less than 25 tons in any 12-month period. This commitment makes the NO_X emissions that are considered conformity related to less than the threshold for

applicability for conformity as listed in 30 TAC §101.30(c)(2)(A). The FEIS for the Shoal Point project indicates that the conformity related emissions are less than the budget for construction emissions that was established for the Houston-Galveston area by the TCEQ. On this basis, there are sufficient NO_x emissions set aside in the Houston-Galveston SIP to accommodate both the Bayport and Shoal Point projects.

The Applicant provided the TCEQ with emissions estimates for the operation of the proposed terminal and those estimates were included in TCEQ's demonstration of the effectiveness of the Houston SIP. For this reason, the Bayport project has allocated emissions in the approved Houston-Galveston area SIP. Further, in a September 16, 2002 letter from the TCEQ to the Galveston District of the USACE, the TCEQ makes the following statement. "The TCEQ confirms that secondary emissions resulting from growth in the region expected to occur as a result of both proposed projects have been accounted for in the HGA SIP. These emissions are inventoried in the vessel emissions inventory, non-road mobile emission inventory, and mobile emissions." The TCEQ further explains this statement by saying that the HGA SIP includes emissions from all projected port facility growth. Based on this information, the HGA SIP NO_X budget accounts for both Bayport and the Shoal Island facilities.

Conformity Emissions: A general conformity determination is required for any Federal action in the Houston area which would result in NO_x or VOC emissions greater than the threshold of 25 tons per year. Conformity-related emissions are a subset of total construction emissions and are those generated by activities subject to USACE review under Section 10 and Section 404. For the proposed project these would include primarily dredging activities, marine construction activities, and placement of fill into jurisdictional waters, including wetlands.

Conformity emissions were estimated assuming the use of an electric dredge. The maximum estimated NO_x 12-month total emission estimate for conformity sources would be 6.62 tons over 12 months occurring between the first and second years of construction. VOC construction emissions are less than NO_x emissions and, therefore, maximum VOC emissions are less than 6.62 tons during any rolling 12-month period. Estimated conformity-related emissions and maximum potential increases above that level are presented in Table 3.12-11 of the FEIS. Since estimated emissions are less than 25 tpy, the terminal development is not subject to conformity requirements.

The Applicant may use alternative dredging methods, including possible use of a diesel dredge. However, the Applicant has committed to the USACE that construction-associated emissions subject to evaluation under the USACE general conformity review will not exceed applicable conformity standards. The Applicant has indicated that this would be accomplished through the use of an emissions budget that will be incorporated into the dredging contract, a concept that has been accepted by the TCEQ.

Dispersion Modeling – Roadway Intersections: Modeling results indicate that maximum estimated CO levels at the intersections of SH 146 with Shoreacres Road and Red Bluff Road would be below the NAAQS for Carbon monoxide (CO) for both the 1-hour and 8-hour averaging periods.

Dispersion Modeling – Proposed Terminal Operations Impact on Pollutants with NAAQS: An EPA approved air quality dispersion model, ISCST3, was used to estimate the potential ambient air quality impact of the construction and operations of the proposed terminal on areas near the proposed Bayport location. Inputs to this model included the emission inventory described above and meteorological data obtained from the TCEQ. The method of use of the model and the emissions data was discussed with the TCEQ and the EPA, and comments and suggestions provided by those agencies were incorporated into the way the model was used. Appendix 3.12-3 of the FEIS provides a detailed description of the model and inputs to the model.

The model was run for two separate years, 2010 and 2025. The year 2010 was selected because, of all of the analysis years, this is the year with the highest construction emissions. The year 2025 was the second model analysis year. This year was chosen because it is the year with the highest estimated total emissions, when full buildout would occur. While the activity level in 2030 is assumed to be the same as 2025, emissions would either remain constant or decrease due to the assumption that the fleet of motor vehicles is continually changing and that older vehicles are replaced with newer, less polluting vehicles.

The results of the modeling show that the estimated impact of terminal construction and operation would not result in pollutant concentrations in excess of the NAAQS, with one exception. The 2010 model results for $PM_{2.5}$ suggest the possibility that elevated concentrations for this pollutant could be observed due to the high level of construction in that year. The FEIS states, "The 2010 model results for $PM_{2.5}$ suggest the possibility that elevated concentration for this pollutant could be observed. The area affected would be within the development area of the proposed terminal". Table 3.12-13 of the FEIS shows the estimated maximum $PM_{2.5}$ 24-hour average concentration in nearby neighborhoods to be 57ug/m^3, less than the NAAQS for $PM_{2.5}$.

Analysis of the model output shows that over 80 percent of the terminal's impact on $PM_{2.5}$ levels is caused by fugitive dust emissions from construction activities. The estimate of $PM_{2.5}$ emissions may be higher than what would actually occur. The inventory assumed that fugitive dust emissions would be 50 percent less than uncontrolled emissions due to the use of water to limit emissions. The Applicant could increase the level of dust control or could modify construction phasing to further reduce $PM_{2.5}$ emissions.

The model results also suggest that ambient $PM_{2.5}$ levels in 2025 may be very close to the NAAQS, due primarily to projected emissions from diesel trucks and other diesel equipment operating at the proposed container terminal. The locations that may

be affected lie within the development boundaries of the proposed project, including a portion of Port Road. Due to the fact that emissions were likely overestimated in order to determine worst-case impacts, it is likely that the impact of terminal operations would be less than the estimates presented and would not exceed the NAAQS.

It should also be noted that the background level that has been assumed for 24-hour averages of $PM_{2.5}$ is about 75 percent of the standard. Background levels of $PM_{2.5}$ should decrease over time as this pollutant is further controlled. This positive impact was not included in the analysis since it was not possible to determine the degree to which future background levels might decrease.

The USEPA issued the $PM_{2.5}$ NAAQS in July 1997. That standard was challenged in court in a case that went to the U.S. Supreme Court. The Supreme Court found the standard setting process constitutional, but remanded some technical issues related to the level of the standard back to the Appeals Court for the District of Columbia. The appeals court issued a decision in March of 2002 that upheld the $PM_{2.5}$ standard that USEPA had issued in 1997.

The Draft EIS, published on November 12, 2001, contained an analysis of particulate emissions impact measured as PM_{10}. The DEIS analyzed this particulate standard because at the time of the analysis, it was not clear what the fate of the $PM_{2.5}$ NAAQS would be. The PM_{10} analysis contained in the DEIS addressed the emissions in terms of the atmospheric loading of this pollutant.

The court decision upholding the $PM_{2.5}$ NAAQS occurred at the time that the analyses for the FEIS were being considered. Since the $PM_{2.5}$ NAAQS was no longer in question, plans were developed to address this standard as part of the analyses for the FEIS. The analyses that were carried out estimated $PM_{2.5}$ emissions in a manner similar to that used for PM_{10} emissions. In addition, $PM_{2.5}$ emission estimates were used as an input to an air quality dispersion model. This model was used to estimate the potential impact of $PM_{2.5}$ emissions on the areas surrounding the proposed project site.

Dispersion Modeling – Proposed Terminal Operations Impact on Pollutants with no NAAQS: The modeling procedure used to model pollutants for which there are NAAQS was also used to estimate the potential impact of toxic air pollutant emissions related to construction and operation of the proposed facilities. This analysis included diesel particulate matter (DMP). Appendix 3.12-3 of the FEIS describes how the emissions were estimated for these pollutants and how the modeling was conducted.

Nineteen toxic air pollutants were considered. They were selected based on U.S. EPA's list of 21 Toxic Air Pollutants identified as Mobile Source Air Toxics (MSAT) in the Technical Support Document for the MSAT Control Rulemaking. Tables 3.12-15 and 3.12-16 of the FEIS present the results of the toxic air pollutant modeling for the years 2010 and 2025, respectively. The results suggest that for 2010 and 2025 the

estimated DPM levels are lower than the EPA chronic inhalation Reference Concentration value of 5 ug/m3 for non-cancer effects of diesel exhaust.

The DEIS contained an analysis of PM_{10} emissions related to diesel exhaust. Since almost all the proposed project related emissions are generated by diesel engines, these emissions were considered to be representative of diesel exhaust emissions. PM_{10} emissions estimates were presented in detail in the DEIS. They were categorized by type and location of source. The FEIS added a $PM_{2.5}$ emissions analysis to the PM_{10} emissions analysis in the DEIS. As with the PM_{10} emissions, the $PM_{2.5}$ emissions are almost entirely associated with diesel exhaust. The FEIS also added an analysis of the potential ambient air quality impact of diesel exhaust related emissions through use of an air quality dispersion model. This model estimated concentrations of contaminants related to diesel exhaust in the areas surrounding the proposed project site.

EPA's May 2002 "Health Assessment Document for Diesel Exhaust" concludes that diesel exhaust is "likely to be carcinogenic to humans by inhalation". This document also states "Additional research is needed to ... reduce the uncertainty associated with the potential cancer hazard of exposure to diesel exhaust." EPA has established an inhalation reference concentration (RfC) for diesel exhaust. This level was used in the evaluation of potential non-carcinogenic effects of diesel exhaust related to the proposed project. EPA has not established a quantitative measure of the potential cancer risk because of "the absence of adequate data to develop a sufficiently confident dose-response relationship..." Therefore it was not possible to conduct a quantitative analysis of diesel exhaust and the potential impact of the proposed project related to potential cancer incidence. For individual components of diesel exhaust where there was an available dose-response estimate, the FEIS compared the nearby area's estimated concentrations to the contaminant level that is associated with a one-in-one-million cancer risk. The results of the comparison showed that impacts related to the proposed project did not exceed the one-in-one-million cancer risk level.

(12) <u>Public Safety</u> The primary responder in the case of a fire-related incident at the proposed Bayport terminal would be the Applicant's fire department. The Applicant would, with phasing, maintain firefighting capabilities similar to those at the BCT, which includes one fire truck, 1 fireboat, and 15 firefighters assigned to the station. The Applicant's firefighters are trained in structural firefighting, marine firefighting, hazardous material response, and emergency medical response. Channel Industries Mutual Aid (CIMA) and local municipal fire departments would provide back-up fire protection services. The Applicant would provide on-water fire protection from the BCT. Fireboats would take approximately 35 minutes to reach the Bayport location.

The Applicant would provide its own security force to guard the Bayport terminal facilities. Emergency Management System (EMS) for the Bayport terminal would be provided by the Clear Lake EMS, La Porte EMS, and the Memorial Hermann Lifeflight system in Houston, as necessary. CIMA would provide additional emergency medical services in the event of a major industrial accident.

When a hurricane is first categorized and warning notices are issued, companies shipping containers to the Applicant would begin to slow their shipments so the container vessels are not in the hurricane path. The trucking lines, which are directed by the shipping companies, also decrease the movement of trucks. The Applicant would remain open to receive trucks in transit to help minimize the trucks on the roadways. Vessels would stay at sea or unload if at a port and return to sea. The Applicant would secure all empty containers. Given the roadway improvements proposed by the Applicant or projected to be developed by the Texas Department of Transportation (TxDOT), there should be no impact to the hurricane evacuation plan for the Bayport area.

During the 2-year period used as the historical baseline for the analysis reported in the FEIS, no hazardous material truck spills occurred within the Bayport area. During that same period, 2 rail car spills occurred outside of rail facilities within the entire Harris County area. The proposed project would add 11,239 trucks per day to local roadways at full buildout. This increased truck traffic may lead to an incremental increase in truck accidents. However, the proposed roadway improvements with the latest safety controls and geometric standards for trucks would make the roadways safer. These controls and standards would minimize the safety impact of the additional trucks.

The proposed terminal facilities would not increase the risk of a terrorist threat on a national or state level but could present an incremental increase in the risk at a local or community level. A terrorist could use the facility to import conventional weapons or weapons of mass destruction. These weapons could be detonated at the proposed terminal complexes, or the weapons could be shipped to another location where detonation would affect more people or other strategic targets. In addition, the cruise ships could be terrorist targets. Six million containers enter the U.S. at various ports of entry annually for distribution by truck or rail to virtually every city in the U.S. Weapons could enter any of the ports and be shipped by truck or rail to the Houston area. Most of the containers destined for the proposed Bayport terminal complexes would still come to the Houston area even if the proposed facilities were not constructed.

Risks of terrorist activities associated with container terminal and passenger ships are not new and already exist at various locations along the Galveston Bay system. Other Federal agencies are taking the lead on reducing the risk of a terrorist attack on ports and passenger vessels. A successful attack at the proposed Bayport terminal complexes could impact a greater number of people than at other alternatives because of the greater residential population density near the Bayport site.

Col. Waterworth and his staff have met with representatives of the Applicant, the USCG, and the U.S. Customs Service to discuss and evaluate the risks of terrorism that may be associated with the proposed facilities.

(13) Hazardous Materials, Hazardous Wastes, and other Regulated Substances There are no existing facilities that use hazardous materials nor are there any known, or suspected, areas of environmental contamination within the footprint of the proposed facilities. No impacts (i.e., disturbance, spreading, or placement) to hazardous materials are anticipated during site preparation and construction activities. Construction contractors would be required to have emergency response plans for hazardous material and fuel products used in support of the work, as well as a waste management plan prior to initiating construction activities.

The types of hazardous materials transported through the proposed terminal complexes would be similar to those currently moved through the BCT. The quantity of hazardous material is expected to remain below five percent of the total cargo handled and transported. Since the annual estimated truck trips for the proposed container terminal at full buildout in 2025 is approximately 3,000,000, an estimated 150,000 hazardous material truck trips per year could occur.

(14) Shoreline Erosion The proposed facilities would result in approximately 175 additional weekly transits into or out of the BSC by 2030. Background weekly vessel transits are projected to increase from 125 in 2000 to 205 by 2030, resulting in an overall weekly total of approximately 380 transits in the BSC. Transits associated with the proposed facilities would comprise 46 percent of the total.

Within the BSC, the power density would increase from 2.0 hp/ft (2000) to 5.4 hp/ft (2030), which is a 270 percent increase. However, shorelines within the BSC either are already armored or would be armored as part of the proposed project, reducing the potential for erosion in these areas.

The average annual power density potential from wind and vessel waves affecting shorelines near but outside the BSC would increase from 13.9 hp/ft (2000) to 15.6 (2030), which is a 12 percent increase in the overall power density. Shorelines north and south of the entrance to the BSC are generally already armored and should not be subject to additional erosion as a result of the operation of the proposed facilities.

(15) Hydrology, Drainage, and Floodplains

Hydrology and Drainage: Under existing conditions, approximately 376 acres of the Bayport Alternative drain to Pine Gully, about 310 acres drain to the BSC, and about 342 acres drain to Galveston Bay or the BSC. According to preliminary stormwater management plans developed for the Applicant, stormwater runoff from approximately 310 acres in the northern portion of the site would be directed to the BSC through a first-flush pond with pipe outfalls. The existing overland flow pattern of surface runoff to the BSC would change to point-source discharges through man-made outfalls.

Stormwater runoff from approximately 267 acres in the eastern portion of the Bayport site south of Port Road would be routed to Galveston Bay and/or the BSC through one or more retention basins with pipe outfalls. At present, portions of this area drain southward to Pine Gully as overland flow and eastward to Galveston Bay through roadside ditches. Stormwater runoff from approximately 451 acres on the southwestern portion of the Bayport site would be routed to Pine Gully through detention ponds and pipe outfalls. The surface drainage system may include some overland flow to Pine Gully from paved areas and small patches of lawns. At present, most of this area drains to Pine Gully as overland flow or through minor tributary channels. Grading and paving in a larger portion of the site would include filling existing depressions and some small ditches draining into the BSC and Pine Gully.

The design of the storm drainage system would comply with the provisions outlined in the HCFCD Criteria Manual for the Design of Flood Control and Drainage Facilities . These criteria require that peak flows reaching Pine Gully from the Bayport site may not be more than those reaching it under the pre-project conditions. To reduce peak flows and flooding conditions of Pine Gully, peak flow control devices would be incorporated into the design of the drainage system. These would include a dry pond to detain first flush surface runoff and a detention pond or ponds to attenuate peak outflows from the complexes. During final design of the proposed facilities, some changes may occur to the preliminary storm drainage plan for the facility. However, the drainage plan that may be implemented would comply with the HCFCD criteria.

Floodplains: Executive Order 11988, Floodplain Management, directs that if an agency has determined to allow an action to be located in a floodplain, the agency shall consider alternatives to avoid adverse effects and incompatible development in the floodplains. Some of the tools used to identify floodplains on the Bayport site included: Harris County Flood Plain FEMA information, U.S.G.S. Quadrangle Maps (historic and contemporary), site-specific field data, and November 2001 Light Detection and Ranging (LIDAR) elevations. The FEMA data helped provide a general baseline for the 100-year floodplain elevations on the site that were refined with the LIDAR data. Flood elevations on the proposed project site are due primarily to tidal surge. The BSC is bordered to the south and west by an area designated as "Special Flood Hazard Areas Inundated by 100-Year Flood." Outside of this band to the south, where the terminal complexes are proposed, land is primarily designated as "Outside the 500-Year Floodplain." Farther to the south and west of the proposed terminal site lie areas designated as "Other Flood Areas." Land immediately north of the BSC is designated as "Special Flood Hazard Areas Inundated by 100-Year Flood" and "Other Flood Areas" as are the areas surrounding Taylor Bayou to the west of the Channel.

Construction at the proposed facilities would affect lands designated as "Outside the 500-Year Floodplain," "Other Floodplain Areas," and "Special Flood Hazard Areas". Approximately 80 percent of the Bayport site is within areas designated as "Outside the 500-Year Floodplain." Areas designated as "Special Flood Hazard Areas" and "Other Floodplain Areas" are located predominately along the coast or watercourses and

experience flooding as a result of storm-surge tidal flooding and stormwater flooding, respectively.

Flooding at the Bayport site during the 100-year storm event would primarily occur as a result of wave action from Galveston Bay . Approximately 60 acres of the Bayport terminal development would encroach onto Zone A and AE flood zones. This would include the wharf, container storage yard, and administrative and maintenance buildings along the BSC. Approximately 25 acres of the proposed container terminal complex would encroach onto the Zone VE flood zone along Galveston Bay. The Flood Insurance Rate Map (FIRM) does not specify the 100-year flood elevations in Zone A floodplains. However, the estimated 100-year elevations in Zones AE and VE are 12 feet and 17 feet above the National Geodetic Vertical Datum (NGVD) of 1929, respectively.

The proposed development in areas outside the 500-year floodplain would not impact floodplains near the site. Areas adjacent to the BSC would be raised to be safe from coastal flooding. Flooded areas along existing watercourses include those along Pine Gully. Most of these areas would be separated from the Bayport site by the cruise terminal access road, a visual and sound barrier berm, and site grading. A relatively small floodplain area along the upper reaches of Pine Gully would lie within the Bayport terminal development site. No major structures are likely to be constructed there. The site drainage system for the terminal complexes would be designed to minimize stormwater discharges to Pine Gully, and residual impacts on the floodplains of Pine Gully are expected to be minimal.

(16) Water Quality A key consideration of the CWA §404 permit process is the potential impacts that a proposed project may have on water quality. The TCEQ certified by letter dated 16 December 2003 that the project would not violate established Texas Water Quality Standards pursuant to the provisions of Section 401 of the Clean Water Act, and that the action is consistent with the applicable Coastal Management Program goals and policies.

Construction Phase: Dredging for the Bayport Alternative would occur in phases over a period of 15 to 20 years. Dredging from the BSC would be by dry mechanical, wet mechanical, and hydraulic dredging. Drainage from dredged material PAs would be to the BSC. This would result in temporary increases in the turbidity of the BSC and the adjacent segment of Galveston Bay due to re-suspension of sediments. Dredging activities would include Best Management Practices (BMPs) to minimize water quality impacts.

The water quality data collected by the USACE under the Dredged Material Sample Program and the site-specific water quality and elutriate samples collected and analyzed for the EIS include some exceedance of copper both in water and elutriates. Recent elutriate samples from the sediments in the BSC indicated copper concentrations varying from less than 1.0 to 8.2 micrograms per liter (µg/l). The dredged materials may contain traces of heavy metals, nutrients, and organic matter

typical of the sediments in the BSC and the adjacent segment of Galveston Bay. Sediment quality data indicate that the contaminants measured in recent years have not exceeded TCEQ screening levels. The chemical constituents of runoff from the dredged material placement areas (PAs) would also be the same. Thus, dredging activities are not expected to have significant impacts on the concentrations of chemical and biological constituents of water in the BSC and the adjacent segment of Galveston Bay. In a letter from the TCEQ dated 15 March 2002, the TCEQ stated that the effluent from confined disposal of dredged material should not exceed 300 mg/L TSS. The Applicant agreed to this requirement in a 12 December 2002 letter and a 12 December 2003 letter. Therefore, a requirement has been included on the permit drawings that dredging operations, conducted by the Applicant, that will result in the placement of dredged material within upland placement areas will not produce effluent that exceeds a concentration of 300 mg/L of TSS prior to release of the decanted water into Galveston Bay. However, the Corps will look to the TCEQ for any enforcement actions related to the requirement.

During construction the quality of stormwater runoff would be controlled by provisions of the Texas Pollution Discharge Elimination System (TPDES) permit for construction activities and BMPs. These may include implementation of a stormwater management and pollution prevention plan, use of sedimentation basins, frequent inspections of temporary stormwater control facilities by construction personnel, and proper operation and maintenance of such facilities during the construction period. Because of phased development of terminal facilities, construction-related impacts on water quality would fluctuate over a period of approximately 20 years. BMPs that would be used to mitigate water quality impacts during construction may include:

- Implementation of a stormwater management and pollution prevention plan,
- Erosion/sediment control practices such as, sediment basins and /or sediment traps,
- Frequent inspections of stormwater control facilities by construction personnel,
- Regular operation and maintenance of stormwater control facilities during the construction period, and
- Good housekeeping.

Operation Phase: Long-term impacts on water quality would include increased stormwater discharges. It is anticipated that stormwater from the proposed facilities would contain a similar suite of constituents as stormwater currently discharged from the Barbours Cut Terminal (BCT), but may differ in volumes and concentrations because of different sizes of structures, BMPs, and pollution control measures. Stormwater from the proposed facilities area may include dust and grit from paved areas and rooftops. Small quantities of oil and grease and Total Petroleum Hydrocarbons (TPHs) similar to those found in surface runoff from parking lots, roadways, and washing of vehicles may also occur in the stormwater. It is expected that there would be no significant quantities of nutrients, BOD, toxic substances, PCBs, pesticides, fecal coliform, and heated or saline water associated with stormwater discharges from the terminal complexes.

Stormwater runoff from the site would be discharged into nearby surface water bodies through stormwater control facilities. To comply with Texas water quality regulations, the Applicant would acquire stormwater discharge permits for the proposed terminal complexes. The stormwater collection system would receive waters from multiple industrial tenants within the boundaries of its facility. Stormwater from the stormwater collection system would be discharged to various points along the BSC and into Pine Gully. Due to the nature of the activities that would be conducted at the Applicant's proposed facilities, the TCEQ has classified the Applicant as a small Municipal Separate Stormwater Sewer System (MS4). The Applicant has submitted an application for an MS4 permit to TCEQ for review. In addition, a Multi-Sector General Permit (MSGP) would be required for stormwater discharges from the proposed terminal complexes under Sector Q industrial activities related to water transportation, which includes ports and terminals. The Applicant would develop an MSGP application.

The Applicant's MS4 permit application includes the following water pollution control measures:

- A public education and outreach program to educate the public about steps they can take to reduce pollution in stormwater;
- A program to involve the public in the development and implementation of pollution prevention measures;
- A program to detect and eliminate illicit discharges;
- Post-construction runoff control;
- Construction site runoff control; and
- Pollution prevention by good housekeeping.

The Applicant has proposed the following measures to mitigate the impacts of the operation of the terminal complexes on water quality:

- Stormwater runoff from wash rack areas and other similar areas would pass through oil/water separators. Oil and grease would be collected and separately disposed,
- Facilities to respond to leaking containers, such as holding tanks and vacuum trucks, would be installed at the proposed facilities,
- Liquids leaking from containers would be managed according to Spill Prevention, Control, and Countermeasure Plan and retained in holding area to be disposed of separately,
- The first flush (runoff resulting from up to one inch of rainfall) would be captured in dry ponds and discharged to the BSC or Galveston Bay after decantation,
- Stormwater runoff following the first flush would pass through flow control devices in accordance with the Stormwater Pollution Prevention Plan (SWPPP) for the facility,
- Stormwater from areas south of Port Road would pass through flow control devices and detention ponds containing wetland vegetation before being discharged to Pine Gully,
- Sanitary wastewater from the facility would be treated and disposed of by GCWDA under its point-source discharge permit, and

- Automatic samplers and flow meters at would be installed at outfalls to monitor the volume and water quality of stormwater discharges.

The surface water bodies that would receive stormwater discharges from the Bayport Alternative include one water quality segment (number 2438) of the BSC and one water quality segment (number 2421) of the Upper Galveston Bay. Both have a Total Maximum Daily Load (TMDL) priority ranking of high, with dioxin found in blue crab and catfish tissues being the parameter of concern. Dioxin is released into water from commercial or municipal waste incinerators, the manufacture and use of certain herbicides, and chlorine bleaching of pulp and paper and is not expected to be a constituent in stormwater discharges from the terminal complexes.

Baseline information for the BSC that has been collected and reviewed indicates some exceedances of TCEQ criteria for fecal coliform and total nitrogen. Stormwater from the site area is not expected to contain any significant quantities of nutrients or human and animal wastes, which are common sources of nitrogen and fecal coliform.

Stormwater discharges to Pine Gully would be from some of the paved areas on the southern portions of the Bayport Alternative. The stormwater runoff would pass through stormwater control devices and a detention pond that would include wetland vegetation. These measures would provide filtration. Thus, impacts of stormwater discharges from the site area on the water quality of Pine Gully are expected to be minimal.

Sanitary wastewater from the terminal complexes would be collected, treated, and disposed of by Gulf Coast Waste Disposal Authority (GCWDA). GCWDA discharges treated sanitary wastewater into the BSC under a separate point-source discharge permit. The quantity of treated sanitary wastewater discharge attributable to the project would vary according to the stages of terminal development, but it is expected to be a relatively small fraction of the current point-source discharge of 3,869 mg/yr entering the BSC. The hydraulic capacity of the BSC is sufficiently large (about 7,000 acre-feet) to absorb this small quantity of additional treated wastewater.

Dredging activities associated with the turning basin and berths in portions of Galveston Bay and the BSC would create depressions in the existing beds of these water bodies. These depressions may form pockets of relatively low DO near the bottom during summer months due to warmer temperatures and relatively poor flushing similar to that currently found in the BSC. Existing data indicate that the water column in the BSC gets stratified during summer months, and this stratification creates zones of depressed DO and high salinity near the channel bottom and relatively high DO and low salinity near the channel surface.

(17) <u>Sediments and Dredged Material</u> The Applicant's proposed dredging and dredged material placement activities are described in Section 4 above. Based upon dredged volume estimates provided by the Applicant, the creation of the seven-berth container terminal would produce approximately 2.9 mcy of dredged material sediment.

The combined phases of the three berth cruise terminal and turning basin would produce approximately 4.9 mcy of dredged material sediment. Thus, if both terminal complexes were constructed, the wharf facilities and East Turning Basin would require a cumulative dredging and excavation of approximately 7.8 mcy of dredged material sediment. This would require 2.2 acres of open water to be filled and 127 acres of open water to be dredged. The material to be dredged consists of sandy silt and silty sand surficial sediments, underlain by stiff, dense clays. Details of the proposed onsite and offsite placement of dredged material are provided in Appendix 1-1 of the FEIS.

For the offsite PAs, the primary impact from the placement of the material would be temporary elevated turbidity levels in the bay waters during levee construction and also in the discharge water from the material hydraulically dredged and placed within the completed levees. These impacts should be comparable to the impacts experienced on other similar projects in the Galveston Bay area in which dredged material was used to create marsh habitat. Discharge water from offsite placement operations associated with the construction and maintenance dredging are not anticipated to negatively impact surrounding water quality.

Maintenance dredged material volumes for the terminal complexes would represent an increase over the existing dredged material volumes for the Bayport Channel. Placement of the maintenance-dredged material would likely continue to be at PA 14. The physical and chemical characteristics of the material are expected to be similar to the maintenance material currently dredged from the Bayport Channel. While PA 14 has capacity for the new work dredged material associated with the construction of the project, it would not have sufficient capacity for the 50-year maintenance dredged material volume. A possible beneficial use of some of the dredged material could be fill for marsh creation. It is anticipated that it would be necessary to develop a new PA to meet the 50-year maintenance dredging requirements of the terminal complexes. It should be noted that even without the terminal complexes, the estimated capacity of the PA 14 site would not be sufficient to accommodate the 50-year maintenance dredged material volumes from the Bayport Channel.

The construction of the terminal complexes would have an immediate effect on the physical characteristics of the sediments near the dredging projects. Fine-grained material disturbed during the dredging process may settle in the areas adjacent to the dredging activities. This may temporarily make the surface sediments in these areas finer. The surface sediments at the proposed container terminal facility and cruise berthing terminal areas would likely become finer, due to reduced currents and turbulence in the deep waters of the channel. The deeper water allows settling due to increased depth in relation to surrounding areas, and decreased lateral currents that may create quiescent zones.

(18) Wetlands Wetlands were identified on the site in accordance with the 1987 Wetland Delineation Manual (WDM), which require under normal conditions a predominance of hydrophytic vegetation, wetland soils, and sufficient hydrology to support this aquatic ecosystem. Then these aquatic resources were overlaid on the site

and reviewed to verify jurisdiction under Section 404 of the Clean Water Act. All of the jurisdictional wetlands on the site are adjacent and/or part of a surface tributary system as defined in Federal Regulations. Some of the tools used to identify the adjacent wetlands included: Harris County Flood Plain FEMA information, U.S.G.S. Quadrangle Maps (historic and contemporary), site-specific field data, and November 2001 Light Detection and Ranging (LIDAR) elevations. The FEMA data helped provide a general baseline for the 100-year floodplain elevations on the site; those elevations were refined with the LIDAR data to help identify which previously identified aquatic resources were actually adjacent wetlands. It should be noted not only were there some adjacent wetlands within the flood plain there were also uplands within the 100-year flood plain.

A 9 January 2001 Supreme Court decision, Solid Waste Agency of Northern Cook County vs. USACE (SWANCC), ruled that the Clean Water Act does not regulate intrastate, non-navigable, isolated water bodies, including intrastate, isolated wetlands, based solely on their use as habitat by migratory birds. Based on this ruling, many isolated, intrastate wetlands that were formerly considered jurisdictional by the USACE no longer fall under its jurisdiction.

While they are useful tools, NWI maps and FEMA floodplain maps are not jurisdiction maps. A preliminary jurisdictional determination was made on 28 April 1999 that approximately 102.2 acres of jurisdictional wetlands existed on the project site. As a result of the SWANCC decision and as described in the DEIS, the preliminary jurisdictional determination was revised to state that 2.5 acres of jurisdictional wetlands existed on the proposed project site. After additional site visits, and evaluation of information obtained by the USACE, the preliminary determination was re-examined, and an approved delineation stated that approximately 19.7 acres of jurisdictional wetlands exist on the site. Updated information was received from the Applicant regarding the project property, and jurisdictional wetlands and approximately 126.6 acres of isolated, non-jurisdictional wetlands were identified as present on the site. The updated acreage of jurisdictional wetlands was provided to the TCEQ for a Coastal Consistency Determination, and the TCEQ certified by letter dated 16 December 2003 that the project is consistent with the applicable Coastal Management Program goals and policies.

Areas subject to USACE jurisdiction within the Bayport site include freshwater and estuarine marshes and tidal ponds. The approximately 146 acres of onsite wetlands at the Bayport site are primarily isolated, depressional wetlands, occurring both within upland/wetland mosaics and as individual isolated depressions. Approximately 19.7 acres of wetlands are jurisdictional and would require USACE authorization to fill or excavate. Of the 19.7 acres of jurisdictional wetlands, impacts to 0.4 acres of intertidal salt marsh wetlands north of the BSC would be avoided. The remaining approximately 126.7 acres of the onsite wetlands have been determined to be nonjurisdictional.

Much of the wetland area at the site has been invaded by Chinese tallow (*Sapium sp.)*. Depressions in open pasture areas are dominated by spikerush, flatsedge, smartweed, and beakrush. Significantly disturbed remnant coastal prairie wetlands on the site typically support soft rush, sugarcane plumegrass, green flatsedge, beakrush, jointed rush, and little bluestem.

Development of the proposed terminal complex would result in the fill or excavation of approximately 146 acres of freshwater/estuarine wetlands within the project site. The intertidal marsh area would be avoided. These wetlands are still considered "aquatic resources" for evaluation in the NEPA process. The majority of the wetlands identified on the Bayport site would be filled or excavated for development of the Applicant's Proposed Project. This would be a long-term impact to the aquatic resources in the Bayport area. The Applicant has offered compensatory mitigation at the Memorial Tract, the Banana Bend Tract, and at a coastal prairie tract to mitigate for impacts to aquatic resources.

A temporary increase in turbidity in the BSC area may occur during construction. This may result in a short-term adverse impact to offsite estuarine wetlands and open water habitats in the general area.

(19) Ecology

Terrestrial Vegetation and Wildlife: Upland plant communities on the Bayport site consist of Chinese tallow, very small areas of deciduous forest co-mingled with Chinese tallow, grassland/pasture (mixed with some Chinese tallow), and developed/industrial land. Small, isolated areas of deciduous forest are primarily willow oak. Construction of the proposed terminal complexes would result in the loss of approximately 20 acres of hardwood forest, 357 acres of Chinese tallow/deciduous forest habitat, 735 acres of pasture/grassland habitat, and 21 acres of existing industrial land. Total long-term terrestrial habitat loss would be approximately 1,133 acres, but the quality of this habitat is generally low, and similar habitat is available in the area.

Although upland plant communities currently present on the Bayport site do not represent historic riparian forests and coastal prairie, the area nonetheless provides habitat for a variety of animal species. As part of the preparation of the EIS, a qualitative upland wildlife habitat assessment was developed. This assessment found that while the site is fairly large, it is fairly isolated within the context of regional development, which degrades the potential habitat quality of the site. Further, the site has been subject to considerable disturbance by human activities such as cultivation, grading, drainage and grazing. In addition, in recent years Chinese Tallow has heavily invaded the site.

Construction and operation of the terminal complexes would displace most individuals of those species described in Section 3.20.2 of the EIS. Available habitat for existing species, as well as habitat for recruitment of new species would be lost, and

incidental taking of non-mobile species would be expected to occur. Species potentially affected are common to the Galveston Bay area.

Primarily residential communities and industry surround the Bayport site, but portions of the property connect to other undeveloped lands. Disruption of wildlife movement patterns would be expected both on the site itself and as a result of barriers created by transportation corridors. Noise and light associated with the proposed terminal complexes would be expected to affect wildlife behavior, as would the general increase in human activity.

Cumulative effects would include a general reduction in the local population sizes of some upland animal species. The proposed terminal complexes would not be expected to extirpate or imperil any upland animal species or notably reduce species diversity within the upland animal community within the region.

Aquatic Vegetation and Wildlife: Development of the terminal complexes on the Bayport Alternative is expected to result in the loss of freshwater wetlands within development area. The nonjurisdictional wetlands are isolated, seasonal depressions. Although only 19.71 acres of wetlands are considered jurisdictional, all wetlands are considered aquatic resources. Long-term adverse impacts would occur as a result of the loss of these aquatic resources.

A temporary increase in turbidity during construction activities and maintenance dredging of the BSC may occur. This may result in a temporary secondary impact to area estuarine wetlands and may temporarily affect productivity in open-bay waters and on open-bay bottoms. Approximately 129.5 acres of open-bay waters and open-bay bottoms would be included within the development area.

Aquatic habitats on the Bayport site that support wildlife and fisheries include seasonal freshwater wetlands, intertidal mudflats, open-bay waters, and open-bay bottoms. Fish, shellfish, and estuarine reptiles and birds that utilize the open-bay waters and open-bay bottoms in the BSC would be temporarily displaced during project construction. Increased turbidity during the construction period may temporarily affect the foraging capability of some species.

During the initial dredging, the benthic infaunal community would be removed from the BSC and East Turning Basin areas. Maintenance dredging of the BSC would impact the benthic community occupying the open-bay bottom and increase suspended solids would temporarily lower phytoplankton productivity in the vicinity. Fish would be displaced during this activity. Estuarine reptiles in the area would avoid the terminal complexes. Initial dredging and the deepening of the bay bottom in newly dredged locations would have both short and long-term adverse impacts.

Within the BSC and East Turning Basin, surface sediments would be finer than on the normal bay bottom because the deeper water enhances settling. These areas could experience decreased dissolved oxygen levels during the hot periods of the

summer and, due to disturbance by ships, could have exposed clays in the center while the silts accumulate on the edges. These areas are likely to be characterized by the quicker colonizing infaunal species. Typically, fish avoid these deep channels during warm months and are found there during cooler months.

Intertidal flats lost to bulkheading would reduce resting and foraging habitat for pelicans, shorebirds, and other species that utilize these areas. Approximately 2.2 acres of unvegetated intertidal mud flats and shallow bay bottom would be lost to filling and bulkheading. A total of 127.3 acres of bay bottom would be deepened.

Additional potential effects resulting from operation of the terminal complexes may include decreased water quality due to stormwater runoff and high suspended solids resulting from ship maneuvering. These effects could result in an overall decline in abundance and diversity of estuarine animals in the vicinity of the terminal complexes. Terminal operations also present an increased risk for spills of potentially harmful substances.

Cumulative effects of the proposed project may include a general reduction in the local population sizes of some aquatic animal species. The terminal complexes would not be expected to extirpate or imperil any aquatic animal species or notably reduce species diversity within the aquatic animal community in the Galveston Bay System.

Protected Plants and Animals: No Federally or state-listed plant species are known to occur on the Bayport Alternative. No direct impacts on listed plant species would be expected as a result of either construction or operation of the proposed terminal complexes. Two plants categorized as Texas species of concern are known to occur near the Bayport Alternative. These are Texas windmill-grass and Houston machaeranthera. The TPWD has a record of both of these species near a major highway near the Bayport site. These populations, if not avoided, could be adversely affected by construction and operation of the terminal complexes. Unless avoided, long-term impact to these populations may occur. Indirect effects of construction of the proposed terminal complexes would include loss of available habitat for recruitment of new populations of these species.

Kemp's Ridley and juvenile loggerhead sea turtles, both Federally and state-listed species, are known to feed in numerous areas within Galveston Bay but neither species has been recorded near the Bayport site. Any potential impacts on these species, such as avoidance of the area, particularly during construction, would be limited.

Two reptile species listed as Texas species of concern, the Texas diamondback terrapin and the Gulf saltmarsh snake, may potentially be found in waters surrounding the Bayport Alternative. Salt marsh habitat typically occupied by these two reptiles does not occur directly on the Bayport Alternative. However, the TPWD has records of both of these species at a location to the south. Construction and operation of the terminal complexes would, therefore, not directly reduce habitat for or impact these species in

the immediate vicinity. Potential impacts on these species during construction, such as avoidance of the area, would be limited.

Several protected bird species potentially occur as transient visitors to the Bayport Alternative, including the brown pelican (Federally and state-listed endangered), American peregrine falcon (state-listed threatened), reddish egret (state-listed threatened), white-faced ibis (state-listed threatened), wood stork (state-listed threatened), interior least tern (Federally and state-listed endangered), mountain plover (proposed Federally threatened), piping plover (Federally and state-listed threatened), swallow-tailed kite (state-listed threatened), and white-tailed hawk (state-listed threatened). Habitat on the Bayport site is poor for all of these species; however, they may occasionally use the location for resting or, for some species, for foraging during the migration season. Brown pelicans are known to rest on shorelines throughout the entire region and to forage over the entire bay. However, most of the shoreline on the Bayport site is a steep bluff, so this species is not expected to occur in significant numbers.

All of these protected or rare birds are highly mobile and easily avoid construction activities. Therefore, accidental takings during construction would not be expected. None of these species is known to nest on the Bayport site, so reduction in habitat required for breeding is not expected. A long-term reduction in foraging habitat would occur due to terminal complexes development. Potential impacts on these species during construction would be considered a short-term adverse impact.

Dredging activities would result in a temporary increase in turbidity, which may in turn indirectly affect aquatic species. Transportation corridors associated with the terminal complexes, including roadways, railways, and BSC, may impact area saltmarsh habitat utilized by the Texas diamondback terrapin and the Gulf saltmarsh snake, as well as by wading birds. In that event, habitat reduction for these species would occur. Indirect effects of the development of the terminal complexes could include loss of available habitat for recruitment of new populations of animal species.

Nonindigenous Species: Operation of the proposed terminal complexes would result in increased container ship and cruise ship traffic. Both types of ships use minimal ballast water. This minimal introduction of additional ballast water into Galveston Bay would result in a small increase in the potential for introduction of nonindigenous species. Container vessels generally discharge less ballast water than bulk carriers and tankers, and some modern container vessels have closed systems with virtually no ballast water discharge. Because of fleet modernization, ballast water management practices, and associated technological changes that reduce the need for ballast water discharge, the proposed terminal complexes would result in a small change in ballast water discharge to Galveston Bay.

(20) Essential Fish Habitat Several activities associated with construction and operation of the terminal complexes have the potential to impact designated Essential Fish Habitat (EFH) and EFH Council-managed species that use EFH in the Bayport Alternative.

Dredging activities would disturb approximately 127.3 acres of bay bottom. Infaunal species and associated sediments located within the BSC and East Turning Basin would be lost through removal. Recolonization of these areas would be expected to occur over time; however, impacts would continue on a periodic basis in connection with maintenance dredging events. In addition, approximately 2.2 acres of nearshore intertidal flats and shallow bay bottom would be permanently lost to filling activities associated with the construction of the berthing areas.

Potential EFH impacts of dredging activities in open water areas include direct removal/burial of organisms; turbidity/siltation effects; contaminant release and uptake of nutrients, metals, and organics; and release of oxygen consuming substances. The recovery of the shallow water benthic infaunal community following dredging and/or deposition of dredged material would require approximately 18 months.

The placement of dredged material on open bay bottom is proposed as a beneficial use through the creation of up to 200 acres of estuarine emergent marsh habitat. This approach emulates previous marsh creation efforts undertaken in Galveston Bay by the BUG. Containment levees would be constructed first on open bay bottom using suitable dredged material from the Bayport site. The levees would occupy approximately 7.4 acres of the beneficial use area. The beneficial use site configuration would create a single cell to retain the softer sediments proposed for marsh creation. The constructed levee area above mean high water would be permanently lost as productive aquatic habitat. As the dredged material used to construct the levees consolidates and stabilizes, some sloughing of material onto adjacent bay bottom would occur. This would bury infaunal organisms in the fringe area until the levee consolidation is complete. Infaunal organisms would be expected to recolonize the impacted area as well as the portion of the levee side slope below mean low tide.

The proposed marsh creation cells would be filled incrementally with material removed from the proposed project and maintenance dredging events of the BSC and HSC. Variations in the depth of dredged materials placed in the cell would promote the development of tidal channels and pools that would accrue over time. The use of these areas by managed species would be delayed until completion of the construction and stabilization of the cells and dependent on development of the tidal features. The Applicant has provided no timetable regarding the completion (levee construction and filling) of the PA. Managed species would garner limited benefits from the created marsh until construction and stabilization are completed.

A long-term impact to EFH is expected to result from increased shipping traffic associated with the terminal complexes' effects on open-bay water habitat. A wide range of materials would move through the terminal complexes, both as cargo and as fuel and service items for ships. While major spills and other discharges of potentially harmful substances are uncommon, they are of concern throughout the entire Galveston Bay area.

The effects of vessel-induced wave damage or disturbance would be difficult to quantify, but may be of concern to EFH. In some areas, high-energy wave trains from large vessels may be responsible for erosion of shorelines and intertidal wetlands. In heavily trafficked areas, bottoms may become unstable and colonization by bottom dwelling organisms may not be possible or may be limited to quick colonizing organisms that favor a stiff clay bottom. Indirect effects may include increased bioavailability of contaminants through re-suspension of sediments that can affect EFH. Where sediments flow back into existing channels, the need for maintenance dredging, with its attendant impacts, may increase. Impacts from maintenance dredging would be similar to maintenance dredging throughout the Galveston Bay system.

Brown Shrimp: The creation of 200 acres of estuarine marsh would result in a net overall increase in beneficial habitat for this species.

White Shrimp: Because their preferred habitat is scarce in and near the Bayport Alternative, the creation of 200 acres of estuarine marsh would offset this impact and would generate a net increase in white shrimp habitat in the Galveston Bay System.

Red Drum: It can be expected that construction, maintenance activities, and ship traffic would adversely affect red drum in the vicinity of the Bayport site. In addition, prey species for red drum, including benthic organisms, shrimp, crabs, and small fish, may be adversely affected by these activities. The creation of approximately 200 acres of new marsh would offset this impact by providing beneficial estuarine marsh that currently does not exist in the area. The net effect should be an overall improvement in EFH for this species.

Spanish Mackerel: It can be expected that construction, maintenance activities, and ship traffic would impact Spanish mackerel in the Bayport area. Prey for Spanish mackerel, including benthic organisms, shrimp, crabs, and small fish, may also be adversely affected by these activities. The creation of approximately 200 acres of new marsh would offset this impact by providing beneficial estuarine marsh that currently does not exist in the area. Although the new marsh area would make 200 acres of open bay habitat unavailable, the net effect should be an overall improvement in EFH for this species because their prey species would benefit from increased estuarine marsh habitat.

Overall impacts to EFH can be summarized as short-term impacts from construction and maintenance activities, long-term adverse impacts due to filling of bay bottom habitat, long-term beneficial impacts resulting from the creation of estuarine marsh and long-term adverse impacts resulting from increase ship traffic.

The NMFS, by letter dated 11 December 2003, stated that the proposed project satisfies the consultation procedures outlined in 50 CFR Section 600.920 of the regulation to implement the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act, and that no further consultation is required for the action.

(21) Other Factors Considered The following factors were considered during the evaluation process but were determined not to be particularly relevant to this application: energy needs, food and fiber production, and mineral needs.

c. Cumulative Impacts Summary Section 4.0 of the FEIS summarizes the potential cumulative effects associated with the construction and operation of the Proposed project, taking into consideration a number of identified past, present, and future activities that may occur in the Galveston Bay area, including the proposed development of a new container terminal complex at Shoal Point. The projects considered in this assessment included:

- Texas City Shoal Point Container Terminal
- State Highway 87 Environmental Impact Study
- Cedar Crossing Industrial Park
- La Porte Bayfront Master Plan, Sylvan Beach
- Grand Parkway, Segment I-2
- Transportation Improvement Plan (TIP)
- 2022 Metropolitan Transportation Plan
- SH 146 Major Investment Study.
- I 10 (Katy Freeway) Improvements.
- Regional Planning State Implementation Plan (SIP).
- American Acryl Property
- Ongoing Deepening and Widening of the HSC
- Other Approved USACE Permits
- Burlington Northern and Santa Fe (BNSF) Bayport Loop Buildout
- Modifications to the Gulf Intracoastal Waterway (GIWW)

The Proposed project, when considered in the context of past, present, and future activities can be expected to contribute, in an incremental way, to the overall cumulative effects on a number of specific resources. There is not expected to be net loss to jurisdictional wetlands, as mitigation would be required. The Applicant would provide compensation for impacts to jurisdictional wetlands at a ratio of 3:1. The Applicant has also offered approximately 956 acres of compensatory mitigation for impacts to non-jurisdictional wetlands and other non-jurisdictional aquatic resource

impacts. The EPA, FWS, and the TPWD have indicated that the Applicant's proposed plan appropriately compensates for projected impacts to fish and wildlife resources, and TCEQ recognizes that the Memorial Tract marsh creation and the proposed preservation of a new mitigation site at the Banana Bend tract and preservation of 500 acres of coastal prairie habitat within the floodplain or floodway of the Cypress Creek watershed compensates for the lost water quality functions of 126.7 acres of hydrologically isolated wetlands in the US and provides important water quality functions.

Some of the cumulative effects can be considered positive, such as the increase in employment opportunities and increased tax base to the HGA. Cumulative effects on roadway traffic from the proposed Bayport and Shoal Point terminal complexes will require accelerated future public investment in roadway improvements if acceptable levels of mobility are to be maintained. For resources such as air and water quality, the overall cumulative effects of the proposed project are not expected to alter or impair the current trends of improvement indicated by recent historical data for these important resources.

The Proposed project is expected to have a small cumulative effect to navigation interests in the Bay as project-related ship and tow transits increase during the next 30 years. This cumulative increase in project-related shipping may also similarly increase the potential for wave-induced erosion along unprotected areas of the Galveston Bay shoreline currently affected by this phenomenon.

The air emissions associated with past, present and future projects and activities in the HGA that produce air emissions in the eight-county region are addressed through the EPA and TCEQ regulatory system to achieve, maintain, and improve compliance with air quality standards. In addition, industry in the HGA, including the Applicant, is working cooperatively with regulatory agencies to identify ways to continue to reduce emissions from all man-made emission sources.

The construction and operation of the proposed project would affect in a cumulative fashion the resources and ecological components addressed in this EIS, some in a positive way and some in a negative way. On balance, the potential cumulative effects associated with the proposed project are not expected to be significant.

7. Public Interest Review

a. Coordination Scoping in the EIS process helps ensure that the USACE fully understands and considers the public's interest. Scoping identifies issues and concerns related to the planning process and the scope of issues that will be addressed in the environmental analysis. Typically, scoping occurs at the beginning of the NEPA process.

A *Notice of Intent* was published in the Federal Register on 2 June 1999, announcing preparation of an EIS for the Applicant's Proposed project and the opportunity for public input. In August 1999, a scoping meeting and public information workshop were held at the Pasadena Convention Center, 7902 Fairmont Parkway, in Pasadena, Harris County, Texas, to determine the issues to be considered in the EIS. Representatives from the USACE and the Applicant, elected officials, and interested members of the public were present. The public workshop was held from 5:00 to 7:00 p.m., with the scoping meeting immediately following. Written and verbal comments received at, and in association with, this meeting were used to develop the scope of this EIS.

Following the scoping meeting, the USACE, Galveston District developed a Scoping Report summarizing the presentations and comments made during the scoping process. The public could request a copy of the EIS (on compact disc) from the Galveston District by contacting the project manager.

A computerized database was developed to process all comments received. This database identified the source and nature of each comment, the stage at which the comment was received in the EIS process, and the issues raised. The database allowed the USACE to identify similar comments and cost-effectively provide responses to all comments.

Community outreach meetings were held to address specific issues and concerns. Questions and issues raised at these meetings have been answered directly or incorporated into the EIS. Over the last several years a number of meetings, including the following, have taken place:

24 March 1999: With authorization from the USACE, a meeting was held with representatives from URS, the PHA, and the TxDOT to inform TxDOT about the proposed roadway improvements associated with the project.

20 May 1999: A meeting between URS, the TCEQ, the Federal Highway Administration (FHWA), the PHA, the USACE, and the EPA was held to solicit the participation of the various agencies as informal cooperating agencies and as technical resources. The discussion focused on the key environmental issues identified to date and some of the alternatives that would be addressed during the NEPA process.

3 June 1999: With authorization from the USACE, a surface transportation coordination meeting was held between URS, TxDOT, and the Houston-Galveston Area Council (H-GAC) for initial agency coordination.

17 August 1999: An agency scoping meeting was held between representatives of URS, FHWA, the NMFS, TxDOT, the Texas General Land Office (TXGLO), the USACE, and the EPA.

18 August 1999: With authorization from the USACE, representatives from URS and the Applicant met to discuss the issues raised during the Public Scoping Meeting held on 17 August 1999.

17 January 2000: A meeting was held between URS and the City Manager of the City of Seabrook to discuss perceived impacts and quality of life issues concerning the Proposed project and alternatives.

18 January 2000: A meeting was held between URS and the Mayor of the Village of Bayou Vista to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

18 January 2000: A meeting was held between URS and representatives of the City of Pasadena to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

18 January 2000: A meeting was held between URS and representatives of the City of Texas City to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

19 January 2000: A meeting was held between URS and representatives of Chambers County to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

19 January 2000: A meeting was held between URS and representatives of the City of La Porte to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

19 January 2000: An interview was arranged between URS and representatives and residents of the City of Shoreacres to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives. However, upon arrival, the EIS team discovered that the City of Shoreacres had convened an official city council meeting to discuss the Bayport project. There was a formal presentation of the EIS process at this meeting.

20 January 2000: A meeting was held between URS and representatives of the Community of El Jardin/GBCPA to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

20 January 2000: A meeting was held between URS and representatives of the Galveston County Economic Development Alliance to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

20 January 2000: A meeting was held between URS and a representative of the City of La Marque to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

25 January 2000: A meeting was held between H-GAC and URS to discuss highway traffic modeling.

20 March 2000: A meeting was held between Congressman Ken Benson, his staff, and URS to establish a point of contact and update the congressional office on the progress of the EIS.

18 April 2000: A meeting was held between URS and a representative of the City of Morgans Point to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

18 April 2000: A conference phone call was held between URS and a representative of the City of Beach City to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

18 April 2000: A meeting was held between URS and representatives of the City of Taylor Lake Village, the Community of El Lago, and the City of Seabrook to discuss perceived impacts and quality of life issues concerning the proposed project and alternatives.

11 and 12 July 2000: Meetings were held with Galveston County and City of Galveston officials to discuss the addition of the Pelican Island Alternative to the EIS.

25 July 2000: A meeting was held between H-GAC and URS to initiate the transportation modeling effort.

26 July 2000: An air quality assessment coordination meeting was held with representatives from URS, the Applicant, and the USACE.

17 August 2000: An air quality assessment coordination meeting was held with representatives from URS, the Applicant, and the USACE.

31 August 2000: An air quality assessment coordination meeting was held with representatives from URS and the Applicant with authorization from the USACE.

26 September 2000: An air quality agency coordination meeting was held with representatives from the USACE, the Applicant, the TCEQ, the EPA, and URS.

10 October 2000: Representatives of URS, the Applicant, the USACE, and the TCEQ met to discuss water quality issues pertaining to 401 water certification and 402 stormwater permitting.

1 November 2000: A meeting was held between the H-GAC, the USACE, the Applicant, TxDOT, DMJM, and URS to discuss this EIS and SH 146 Major Investment Study (MIS) coordination.

16 November 2000: An open discussion on EIS requirements and Martin Associates' (Applicants socioeconomic consultant) role in developing the required information was held between representatives from the USACE, the Applicant, and URS.

29 November 2000: An economic modeling meeting was held between the Applicant and URS, with authorization from the USACE, to discuss the 16 November meeting and what needed to be accomplished.

29 November 2000: A conference call was conducted between the PHA and URS, with authorization from the USACE, regarding the Air Emission Inventory.

29 November 2000: A SH 146 Corridor Travel Forecasting meeting was held between representatives from the USACE, URS, H-GAC, TxDOT, the Applicant, Texas Motor Transportation Association (TMTA), TITA, W.W.Rowland, and Southwest Freight.

12 January 2001: An air quality agency coordination meeting was held between H-GAC, PBS&J, URS, the USACE, and the TCEQ to discuss the City of Texas City-Shoal Point Container Terminal EIS.

24 January 2001: A meeting was held between H-GAC, JD Consulting, PBS&J, City of Texas City representatives, the Applicant, the USACE, and URS to discuss the City of Texas City-Shoal Point Container Terminal EIS.

24 January 2001: An air quality agency coordination meeting was held between the USACE, URS, the Applicant, the TCEQ, and the EPA.

30 January 2001: A meeting was held between the USACE, TPWD, TXGLO, USFWS, URS and the Applicant to discuss agency issues and concerns.

4 April 2001: A Public Agency Workshop was held between the USACE, USFWS, NOAA, TXGLO, EPA, TCEQ, TPWD, NMFS, the Applicant, URS, Vinson & Elkins, and Benchmark Ecological to discuss the revised permit application.

8 May 2001: A Public Agency Workshop was held between the USACE, TxDOT, USFWS, NOAA, TXGLO, FHWA, EPA, TCEQ, TPWD, NMFS, Applicant, and URS to provide an overview of topics in the EIS.

30 May 2001: A meeting was held between the USACE, USFWS, NOAA, TXGLO, EPA, TPWD, NMFS, Applicant, Benchmark Ecological, Vinson & Elkins, and URS to discuss the three-berth terminal alternative.

4 June 2001: A meeting to review the proposed project was held between the EPA, Applicant, TCEQ, URS, and USACE.

30 January 2002: A meeting between the TPWD, FWS, URS, USACE and the Applicant was held to discuss agency issues and concerns.

9 October 2002: A national security teleconference was held between the USACE and the USCG.

17 October 2002: A meeting was held between the USCG and the USACE to discuss port security.

18 December 2002: A meeting on the proposed mitigation plans was held between the Applicant, the USACE, EPA, TCEQ, TXGLO, TPWD, FWS, Benchmark Ecological, Vinson & Elkins, and URS.

Newsletters have been distributed to inform the interested public about the progress of the EIS and to present information regarding specific analyses and assessments that are being conducted as part of the studies.

A public hearing was held on 12 December 2001 at the George R. Brown Convention Center, 1001 Avenida de las Americas, in Houston, Harris County, Texas, to receive oral and written comments following the release of the DEIS. The date, time, and location of the public hearing was announced by the USACE in a press release, dated 13 November 2001. The hearing provided a formal venue for the public to make statements in support of, or in opposition to, the proposed project and the DEIS. A public information workshop was conducted at the same location immediately preceding the hearing to provide the public with an additional opportunity to gain information. Representatives of the USACE, its consultant team, and the Applicant were present to provide the public with information on specific issues and concerns. Two previous public information workshops were held on 28 November 2001 and 4 December 2001 at the Pasadena Convention Center. Additional written comments pertaining to the proposed project and the DEIS were accepted by the USACE from 12 December 2001 until 22 August 2002. The Final EIS was made available for public comment on 16 May 2003, and written comments were accepted by the USACE until 16 August 2003. Written comments on the proposed project were accepted until 12 September 2003. A Galveston District website was used to inform the public concerning the proposed project and the NEPA process.

b. <u>Public Response</u> Over the course of the EIS study, the USACE has received over 2,000 comment submissions from interested parties including state and federal agencies, local agencies and governments, elected officials, and the general public. The comment submissions have been in the form of letters, petitions, post cards, faxes, and court reporter transcripts of oral testimony, and have coincided with the following stages of the study:

- Those received during the EIS Scoping Process;
- Those received between the EIS Scoping Process and release of the Draft EIS;
- Those received during the Draft EIS review period ending 13 March 2002;
- Those received during the Final EIS review period ending 16 July 16 2003; and

- Those received following Public Notices to revise the Permit Application.

(1) Comments on the Draft EIS and Related Public Notices Due to the large number of comments received and their complexity, a computerized Comment Database system was developed to compile, inventory, analyze, consolidate, and respond to the comments during the course of the EIS study.

The USACE and its consultants reviewed all comment submissions and entered each individually in the database. For each comment submission, the key comment issues were identified, summarized, and consolidated into one or more of 34 specific comment categories contained in the database. The summarized comments in the database were then used by the USACE to assist in revising the Draft EIS and to develop a response to each comment.

Appendix 6-1 of the EIS provides copies of the Public Notices. Appendix 6-2 (Volume 7) of the Final EIS contains the following:

- A detailed description of how comments received on the Draft EIS and in response to several public notices were processed,
- Indexes to agency and public comments that have been received and have been processed, and
- A categorized report of the comments received which presents the responses of the USACE to each comment.

Scanned images of all comments received and processed are contained in the supporting documents to the Final EIS. The first supporting document contains the agency comments. Subsequent supporting documents contain the comments from the general public.

(2) Federal Agencies

EPA

In two letters dated 16 July 2003 the EPA submitted the following comments:

1. The alternative selected should be fully mitigated for those impacts that are unavoidable and the mitigation plan be incorporated into the ROD and made a part of the Section 10/404 Corps of Engineers permit.
2. EPA remains concerned about the nature and extent of jurisdictional wetlands to be impacted by the proposed project.
3. EPA believes full mitigation for all aquatic impacts must occur.
4. EPA does not believe that the Applicant has demonstrated ways to minimize impacts to wetlands.
5. EPA believes that preservation of an additional tract of land along the San Jacinto River knows as "Banana Bend would provide adequate compensation for impacts to wetlands not currently considered jurisdictional by the USACE, and recommends it be made a part of the permit requirements.
6. EPA recommends that the permit not be approved until these comments have been satisfactorily addressed.

In a letter dated 12 September 2003 the EPA noted that the Applicant has proposed preservation of the tract at "Banana Bend" cited above, and had in addition now proposed to purchase 500 acres of contiguous coastal prairie located primarily within the floodplain of the Cypress Creek watershed. These tracts, in addition to the Memorial Tract mitigation site and the following permit conditions would satisfactorily provide compensation for valuable wetlands and coastal prairie impacts at the proposed project site. EPA recommended the following information to be included and ensured as part of the permit mitigation requirement:

- No later than 360 days following the issuance of the permit, the Banana Bend tract shall be incorporated in a conservation easement by a certified land trust and have a management plan
- Within 360 days following the issuance of the permit, the Applicant shall have purchased the 500 acres of coastal prairie land tract and placed in escrow or trust. Upon release of the tract from escrow or trust, the tract should be incorporated in a conservation easement and have a management plan.

Response

The Applicant has entered into an agreement with resource agencies for, and has proposed, the preservation of approximately 456 acres of mixed habitat along the San Jacinto River at Banana Bend, along with the preservation of 500 acres of coastal prairie habitat in the Katy Prairie area or a suitable alternative location. This additional mitigation brings the Applicant's total mitigation proposal to approximately 1,130 acres when added to the 174-acre Memorial Tract. Even considering the EPA's earlier assertion that there were more acres of jurisdictional wetlands on the site (non-specific and not delineated by the EPA), the approximate 1,130 acres of total compensation adequately compensates for impacts to all aquatic resources, whether delineated jurisdictional or not. In fact, the EPA, the FWS, and the TPWD have indicated that the Applicant's proposed plan appropriately compensates for projected impacts to fish and wildlife resources. The TCEQ has stated that it recognizes that the Memorial Tract marsh creation and the proposed preservation of a new mitigation site at the Banana Bend Tract and preservation of 500 acres of coastal prairie habitat within the floodplain or floodway of the Cypress Creek watershed compensates for the lost water quality functions of 126.7 acres of hydrologically isolated wetlands in the US and provides important water quality functions. As a result, even if the USACE were to conclude that all of the aquatic areas on the site, including all of the wetlands on the site, were subject to CWA jurisdiction, the applicant has provided ample mitigation to compensate for the loss of all aquatic areas on site that will be filled or otherwise degraded by the project. Consequently, the CWA Section 404 permit that the USACE proposes to issue would still be fully justified in this case by the generous mitigation package offered by the applicant. Therefore, issuance of the proposed permit would still be appropriate under all applicable laws and regulations even if all aquatic areas on the project site were subject to CWA jurisdiction.

FWS

In a letter dated 16 July 2003 the FWS submitted the following comments:

1. The FEIS does not contain an evaluation of the function and values of the entire fish and wildlife habitat at the site. The FWS is concerned that the ecological impacts of this project are underestimated. FWS has asked that environmental studies/assessment be conducted to determine the wildlife values of the prairie wetland habitat complex found on the project site. The lack of evaluation and analysis of this habitat in terms of function and value in the FEIS is inconsistent with the spirit and intent of the NEPA.
2. The FEIS does not acknowledge the high value of the prairie wetland habitat beyond the Section 404 jurisdictional wetlands on the project site, nor does the document address adequate compensation for the loss of this valuable habitat. The FWS believes a minimum of 500 acres of coastal wetland should be conserved to mitigate for the non-jurisdictional coastal prairie habitat that will be lost on the Bayport site.
3. The FWS continues to advocate compensation for wildlife habitat loss at the project site. The FWS recommends this permit be issued with conditions that adequately compensate for the jurisdictional and non-jurisdictional coastal prairie habitat that will be lost during the development of the project.

In a letter dated 12 September 2003 the FWS submitted the following additional comments:

1. The addition of the 500 acres of coastal prairie habitat into the mitigation plan indicates that both the POHA and USACE have evaluated the impacts the project will have upon the coastal prairie habitat and are taking the appropriate measures to mitigate for the loss of values and functions at the site. We commend the POHA and USACE for proposing this measure.
2. FWS also recommended that the following conditions be incorporated into the final permit and the ROD to ensure the mitigation adequately compensates for the loss of the coastal prairie habitat:
    - The Applicant will purchase 500 acres of contiguous coastal prairie within the Cypress Creek watershed or within the San Jacinto-Brazos Coastal Basin, which includes Galveston Bay; the coastal prairie will be approved by the Applicant, the FWS, the USACE, and the TPWD and will be placed in escrow or trust within 360 days of issuance of the permit.
    - Upon initiation of any construction the Applicant will transfer 250 acres of the 500 acres coastal prairie tract to a conservation agency approved by the Applicant, FWS, TPWD and USACE. If the 500 acre tract has not been purchased upon initiation of construction, the Applicant will transfer the 250 acres to the approved conservation agency within 60 days following purchase. The remaining 250 acres will be transferred to the approved conservation agency after the Applicant acquires the authorization for project completion.
    - A plan to manage the 500 acres of coastal prairie will be accomplished within 90 days following purchase and approved by the Applicant, FWS, USACE and TPWD. The entire 500 acres tract of coastal prairie will be managed, regardless of time of transfer, immediately following the completion of the management plan.

This will ensure the coastal prairie will not degrade (become overtaken by invasive species) while the land remains in trust.

Response

The Applicant has entered into an agreement with resource agencies for, and has proposed, the preservation of approximately 456 acres of mixed habitat along the San Jacinto River at Banana Bend, along with the preservation of 500 acres of coastal prairie habitat in the Katy Prairie area or a suitable alternative location. The EPA, the FWS, and the TPWD have indicated that the Applicant's proposed plan now appropriately compensates for projected impacts to fish and wildlife resources.

NMFS

The NMFS has reviewed the Department of the Army permit applications noticed as follows: Notice Applicant Port of Houston Authority, Notice dated 8-12-03, Notice number 21520 revised. We anticipate that any adverse effects that might occur on marine and anadromous fishery resources would be minimal, and therefore do not object to issuance of the permit.

The NMFS, by letter dated 11 December 2003, stated that the proposed project satisfies the consultation procedures outlined in 50 CFR Section 600.920 of the regulation to implement the EFH provisions of the Magnuson-Stevens Fishery Conservation and Management Act, and that no further consultation is required for the action.

Response

Comments noted.

Representative Tom DeLay, Member of Congress

In a 23 May 2003 letter Representative DeLay requested an extension of the comment period for the FEIS as community leaders asked for additional time to respond to the study. In a subsequent letter Representative DeLay expressed appreciation for the 30-day extension and complimented the USACE on the effort, even though there is disagreement with many of the findings of "no significant impact". He still believes Bayport is the wrong site and requests a look at Spilmans with the new study by SM&E for Harris County.

Response

The comment period for the FEIS was extended by 30 days. The Harris County study by S&ME, Inc. was thoroughly analyzed and considered in the assessment of practicable alternatives in this ROD.

(3) State Agencies

Office of the Governor

In a letter dated 5 September 2003, the Office of the Governor stated that the application was submitted for comment to the THC, TXDOT, TCEQ, SWCB, TPWD, and

HGAC, that the THC and HGAC both responded with "no comment", and that no other substantive comments were received.

Response

The USACE interprets this letter to indicate that no substantive comments remain unresolved by State of Texas agencies.

TCEQ

The TCEQ's initial comment, dated 16 July 2003, requested ten additional days to respond due to the number of comments received regarding the 401 Water Quality Certification issues.

In a letter dated 30 July 2003, the TCEQ concurred that the Applicant's proposed mitigation compensates for the impacts to jurisdictional waters of the US, but recommended additional mitigation at the Banana Bend tract to compensate for the lost water quality functions of 126.7 acres of hydrologically isolated wetlands. The TCEQ also requested clarification of the aquatic resources evaluation presented in the FEIS. The TCEQ also requested a description of the possible changes to the preliminary storm drainage plan as mentioned in the FEIS.

The TCEQ's letter of 22 August 2003 addressed the potential air impacts of the proposed project. The TCEQ states that the FEIS is consistent with the clean air commitments made to the TCEQ by the Applicant. The TCEQ continues to support the use of the NO_x calculator to show that the emissions are below 25 tons per year and avoids the need for a General Conformity determination. Since the FEIS confirmed the commitments made by the Applicant to the TCEQ, the TCEQ had no further comments at that time. If construction emissions from the project are unable to remain below 25 tons per year, a general conformity determination would be triggered pursuant to 30 TAC 101.30(g)(3) and federal law.

In a letter dated 12 September 2003, the TCEQ recognized that the Memorial Tract marsh creation and the proposed preservation of a new mitigation site at the Banana Bend tract and preservation of 500 acres of coastal prairie habitat within the floodplain or floodway of the Cypress Creek watershed compensates for the lost water quality functions of 126.7 acres of hydrologically isolated wetlands in the US and provides important water quality functions. Additionally, the TCEQ requested reconciliation of the discrepancies in acreage between the last public notice and the 14 February 2003 Benchmark Ecological Services document for the Banana Bend Tract.

In a final letter dated 16 December 2003, the TCEQ certified that the project would not violate established Texas Water Quality Standards pursuant to the provisions of Section 401 of the Clean Water Act, and that the action is consistent with the applicable Coastal Management Program goals and policies.

Response

The Applicant has entered into an agreement with resource agencies for, and has proposed, the preservation of 456 acres of mixed habitat along the San Jacinto River at Banana Bend, along with the preservation of 500 acres of coastal prairie habitat in the Katy Prairie area or a suitable alternative location. The EPA, the FWS, and the TPWD have indicated that the Applicant's proposed plan now appropriately compensates for projected impacts to fish and wildlife resources.

With regard to the acreage of areas of habitat types at the Banana Bend Tract, the information in the Public Notice issued on 12 August 2003 is correct. The Applicant has indicated that the initial areas identified in the 14 February 2003 report were corrected following completion of the real estate survey.

With regard to the comments concerning air impacts, water quality certification, and Coastal Zone Program consistency, comments noted.

TPWD

In a letter dated 16 June 2003 the TPWD stated that many of their comments to the DEIS were apparently taken out of context, truncated, or misunderstood, and therefore many of the responses did not adequately address or incorrectly addressed the intent of the comment. In some cases, the TPWD disagreed with the responses provided. It was not clear to the TPWD if the 1.56 acres of intertidal mudflat habitat is included in either the dredging or filling activities. The proposed project is directly impacting approximately 1,178 acres of habitat with even more secondary and indirect impacts. Cumulative effects would include a general reduction in the local population sizes of some upland animal species currently living in the area. The TPWD believed that the proposed mitigation plan did not compensate for the direct or cumulative impacts to fish and wildlife resources from the proposed project and recommended denial of the permit.

In an additional letter submitted on 12 September 2003 the TPWD recognized additional mitigation proposed by the Applicant, which includes preservation of a 456-acre mitigation site at the Banana Bend tract and preservation of 500 acres of coastal prairie habitat within the floodplain or floodway of the Cypress Creek watershed. The TPWD recommended that the Applicant not limit the location of the coastal prairie preservation to the floodplain or floodway of the Cypress Creek watershed, but expand the options to include the coastal prairie within the San Jacinto River Basin and the San Jacinto-Brazos Coastal Basin. The TPWD stated that if the Applicant changes the terms of the proposed coastal prairie mitigation to include the following and implements the mitigation features described in the letter, then the proposed project impacts will be adequately compensated:

1. Within 360 days from the date of issuance of a section 404 permit by the USACE, the PHA will purchase a minimum of 500 contiguous acres of real property composed primarily of coastal prairie, and located primarily within the

floodplain or floodway of the Cypress Creek watershed, San Jacinto River Basin or the San Jacinto-Brazos Coastal Basin.

2. Within 30 days from completion of the real property purchase, PHA will provide to TPWD a deed or other documentation sufficient to demonstrate the identity of the property purchased. This documentation should be delivered to Jarrett Woodrow, TPWD, 1502 Pine Drive (FM 517 East), Dickinson, TX 77539.
3. If site construction has begun within 360 days of permit issuance date, the PHA will transfer 250 acres to the Katy Prairie conservancy or another conservation organization within 420 days of permit issuance (360 days for purchase and 60 days for transfer). "Site construction" means any land disturbance within the project footprint such as change in drainage, changes in elevation, land clearing activities, or construction of new infrastructure.
4. Within 60 days from the completion of the real property purchase, PHA will place in trust any portion of the property that has not been transferred to the Katy Prairie Conservancy or other conservation entity. The trustee shall take the following action with regard to the trust real estate:
   a. Hold 500 acres (or 250 acres in the event the transfer of the initial 250 acres has already occurred, pursuant to paragraph 3, above) of the property for conservation purposes pending its final disposition, and control woody species by mowing at least once annually
   b. Transfer the initial 250 acres within 60 days after site construction has begun unless the initial 250 acres has already been transferred, pursuant to paragraph 4, above.
   c. Within 60 days after the conclusion of litigation challenging the USACE section 404 permit for the project, transfer the remaining 250 acres to the conservation organization selected in paragraph 3, provided, however: In the event PHA is permanently enjoined from completing the project in its entirety, the remaining 250 acres will revert to PHA; In the event PHA is permanently enjoined from completing a portion of the project, the trustee will release to the conservation entity the amount of the 250 acres that is proportionate tot he construction that is allowed, Thus, if the PHA is permanently enjoined from completing 25% of the entire Bayport Terminal Project, 125 acres will be transferred to the conservation entity and 125 acres will revert to PHA; In the event of a dispute between the parties as to the percentage of the Bayport Terminal Project that is permanently enjoined, the parties shall submit the dispute to the State Office of Administrative Hearings (SOAH) whose decision shall be binding on both parties (the 60-day deadline in subparagraph (*b*) does not apply in the event of a SOAH hearing). PHA will bear the expenses of any SOAH hearing.
5. TPWD, the USFWS or the conservation entity selected in paragraph 3 shall each have an option to purchase at fair market value any portion of the 500 acres that reverts to PHA for 90 days after reversion to PHA under the terms of this agreement.
6. PHA implements the following mitigation features:
   - The Memorial Tract – Within the Memorial Tract, the Port will create 66.8 acres of emergent wetlands, enhance 12.0 acres of existing wetlands,

preserve 23.7 acres of upland forested/shrub habitat, and enhance 71.0 acres of coastal prairie habitat. The tract will be placed in a conservation easement.

- Pine Gully – The Port will preserve a 75-foot wide strip located between the southern berm and Pine Gully (9.3 acres). The area is to be set aside for habitat purposes and no future development. This area is to remain in its present natural condition.
- On-site Water Quality – The Port will develop and implement a storm water management and treatment plan that includes first flush, south terminal retention pond, inlet treatment units and high area impact treatment features.
- Banana Bend – The Port will purchase and conserve a 450-acre tract known as Banana Bend on the San Jacinto River.

Response

The 1.56 acres of intertidal mudflat is part of the 2.2 acres of intertidal and subtidal habitat that would be filled for construction of the proposed cruise terminal. The Applicant has entered into an agreement with resource agencies for, and has proposed, the preservation of 456 acres of mixed habitat along the San Jacinto River at Banana Bend, along with the preservation of 500 acres of coastal prairie habitat in the Katy Prairie area or a suitable alternative location. The EPA, the FWS, and the TPWD have indicated that the Applicant's proposed plan now appropriately compensates for projected impacts to fish and wildlife resources. Appropriate components of the recommended conditions of the agreement have been incorporated into the proposed conditions for the USACE permit.

Texas State Soil and Water Conservation Board

The Texas State Soil and Water Conservation Board indicated in a letter dated 11 September 2003 that they have no comments at this time in regard to the public notice for Permit Application No. 21520 (Revised).

Response

Comment acknowledged.

Texas House of Representatives, John E. Davis

In a letter dated 3 September 2003 Representative Davis wrote to support the request for Colonel Waterworth's disqualification as the final decision-maker for Permit Application No. 21520 (Revised).

Response

The assertions of bias have no basis in fact. Colonel Waterworth is charged with deciding a very complex and controversial permit issue, in which he has absolutely no personal interest. The USACE is confident that Colonel Waterworth will execute his responsibilities in a fair and equitable manner. Therefore, the USACE declines to remove him as the decision-maker.

(4) Local Agencies / Community Officials

City of El Lago

In emails dated 27 and 29 May 2003, the City of El Lago requested an extension of the FEIS comment period, and subsequently accepted the 30-day extension, but expressed disagreement with many of the finding of "no significant impact" and requested another look at Spilmans Island with consideration of the new Harris County study.

In a letter dated 16 July 2003, the City of El Lago submitted the following comments on the FEIS. These comments represent comments that have been received by many individuals during the comment period that are addressed in Section 7.b(6) below. The City of El Lago does not believe that the proposed project will have a less than significant impact on the community as stated in the FEIS.

- The permit has been issued for Shoal Point recognizing this location to be the least damaging location.
- El Lago has a noise ordinance that prohibits vibration and excessive noise from 9:00 p. m. to 7:00 a.m. Excessive noise is defined as +5 dBA (deviation above ambient sound levels) during those hours, with +10 dBA at other times.
- The city is concerned about the danger of inhaling particulate matter as small as 2.5 microns. The FEIS gives no assurance that the additional dispersion of small particulates will not harm children at play at Ed White Elementary and Seabrook Intermediate schools.
- Any decrease in property values, or a slowed rate of growth that does not keep up with inflation, impacts municipal tax base, school district's ability to fund operations, as well as individuals.
- The project will affect traffic, as the timing of road and rail improvements will lag site development.
- Spilmans Island is a better alternative for taxpayers that will be funding transportation development.
- City agrees with GBCPA.
- Updated topographic data from Harris County and FEMA as part of LIDAR study should be used to verify elevation and wetlands.
- The Harris County study on Spilmans Island contains lower estimates that the PHA estimates.
- There is no functional relationship between the container and cruise terminals.
- The alternative study is flawed and should be redone
- How, Who, and When will mitigation measures be monitored?
- Deny the permit.

In a letter dated 11 September 2003, the City of El Lago stated objections to the lack of public input into the assessment of changes to the Applicant's proposed mitigation plan and stated that the proposed mitigation plan is not acceptable, as it does not benefit the impacted areas. New developments such as Shoal Point, the proposed

San Jacinto Railroad, and dredging of the barge channel should be included as cumulative impacts.

Response

These comments have been received from many individuals during the comment period and are addressed in the body of the ROD and in Section 7.b (6) below. These discussions and responses specifically address the issues of noise, $PM_{2.5}$, NO_x emissions, health effects of diesel emissions, jurisdictional wetland areas and updated topographic data, the relationship of cruise terminals to container terminals, new information regarding the practicability of the Spilmans Island Alternative, the cumulative impacts of the Shoal point and Bayport facilities, the future deepening of the BSC and HSC, and the Applicant's proposed mitigation program. All changes to the permit application, including changes to proposed mitigation measures, have been described in a series of public notices inviting public comment.

City of La Porte

In a letter dated 14 July 2003, the City of La Porte submitted comments regarding the FEIS. The City is opposed to the Bayport site or any combination alternative including the Bayport site, indicating the Bayport site would have significant long-term negative environmental impacts for their community. The Bayport site displayed many negative environmental impacts that were more significant than at other sites such as Spilmans Island, including Noise, Jurisdictional Wetlands, Hazardous Materials, Navigation, Air Quality, Ecology, Parks and Recreation, Essential Fish Habitat, and Public Safety. The City requested that a supplemental EIS be performed to evaluate the following:

- Alternative sites: Other alternative sites have been identified that are less environmentally damaging and more acceptable; in the Shoal Point Rod the Shoal Point site was the least environmentally damaging practicable alternative for a container facility; the Bayport site was found to be more environmentally damaging; the Bayport FEIS does not mention that the Shoal Point site was found to be the least environmentally damaging alternative
- Co-Location: The Bayport FEIS, unlike the DEIS, does not consider cruise and container facilities to be functionally dependent which means they do not have to be co-located. This significantly affects the evaluation of alternatives.
- Spilmans Island: The Applicant determined Spilmans Island would be cost-prohibitive. Harris County had a study completed on Spilmans Island, which contradicts the Applicant's cost. USACE has not considered the study which needs to be evaluated.
- Air Pollution: The entire eight county region is being subjected to rules related to heavy construction limitations, landscape and lawn mowing limitations. The less than significant impact definition avoids the true impacts to communities. The modeling does not include vessel emission for both trips to and from port and while vessels are in port, and the railroad activity. The EPA adopted a NAAQS for PM 2.5 and federal air quality standards for these standards could be violated by 2010. These concerns are amplified by the fact that the 2007 SIP still falls short of needed NOx reductions.

- Noise Pollution: The La Porte Municipal Code prohibits sound levels greater than 65 dBA daytime and 58 dBA nighttime in residential areas. The FEIS now presents noise and vibration impacts in neighborhoods and concludes that residential property values will decline because of these significant noise impacts.
- Shipping: It is clearly the intent to serve post-panamax vessels, yet the FEIS does not address post-panamax vessels.
- If the USACE issues a permit for the Bayport site, we respectfully request that specific conditions for the following issues be part of the permit: request further analysis comparing the proposed wall to other alternatives, place restrictions necessary to insure the short-term impact is mitigated by additional control of fugitive dust, and refrain the port operations until after the completion of SH 146 including entry and exit ramps and proposed grad separations.

Response

These issues were included in general comments from agencies and the public that are discussed in Section 7.b.(6) below.

City of Seabrook

In an undated letter received 20 June 2003, the City of Seabrook indicated a majority of its citizens oppose the proposed Bayport expansion. City ordinances do not allow the property to be used as the Port of Houston is proposing.

In letters dated 15 and 16 July 2003, the City of Seabrook provided an official submission of documents comprising the City's comments on the FEIS. Included are four letters from the council members, a letter from the City Manager, a letter from the Mayor and an analysis of significant impacts by the City Manager. In addition, there are letters from Olson & Olson concerning condemnation of land, a letter from the Police Chief discussing impacts to the police department, minutes of a Seabrook Public Hearing, minutes of a Seabrook City Council Meeting, citizens' comments, and copies of letters collected at the community meeting.

In the 15 July 2003 letter the City requested the following:

- Full disclosure of all impacts of the project in one NEPA document including all road and rail facilities, including the widening of SH146 in Seabrook;
- Disclosure of the funding participation of any and all federal sources associated with the proposed action and explanation of NEPA compliance for these expenditures;
- Documented commitment of appropriate mitigation by alternative for the applicable impacts at that location;
- Reevaluation of alternatives to account for differences in necessary mitigation and impacts of the SH 146 widening and rail improvements;
- Reevaluation of the need for the proposal given the newly-permitted Shoal Point facility;
- Denial of all permits for the proposed facility and preparation of a supplemental EIS.

In addition, the 15 July 2003 letter requested an advisory committee be assembled with representation by all potentially affected communities to allow meaningful input into the evaluation process and to assure more complete public disclosure of analyses than has previously occurred. The City also outlined its expectations for committed mitigation at Bayport, including:

- Higher and broader berms,
- A perimeter conservation easement,
- Lighting noise and drainage restrictions,
- Training of City of Seabrook hazardous materials staff,
- Regulations of Port construction equipment, schedules, and dust control,
- A complete and mature visual landscape barrier,
- Compensation for loss of tax base, and
- Strict controls on port-related secondary development which have not been accounted for in the FEIS.

In a separate e-mail submittal dated 16 July 2003, the City of Seabrook provided a summary of responses to an online questionnaire regarding the project. The 44 responses in the survey demonstrated consistent opposition to the proposed project.

Another letter provided comment on the change in project area boundaries as the Applicant is attempting to acquire land outside of the footprint used in the EIS.

A letter dated 8 September 2003 provided comments on the Applicant's proposed compensatory mitigation plan and requesting the TCEQ to deny the CWA §401certification for the Bayport project. Specific issues raised included:

- The proposal does not adhere to federal law or USACE regulations and does not benefit the citizens in Seabrook;
- Practicable alternatives exist to avoid the need for this type of mitigation, specifically alternative project sites at Shoal Point, Spilmans Island, and Pelican Island;
- The container and cruise terminals should be separated;
- Any discussion of mitigation should be complete and in sufficient detail – but Seabrook has not been provided any details of the proposal;
- The Applicant's proposal does not meet USACE policy regarding onsite, in-kind compensation;
- The project impacts are occurring in the Coastal Zone, but the Katy Prairie mitigation is outside the Coastal Zone

In a letter dated 12 September 2003, the City provided supplemental comments to their letter of 8 September that asked for USACE consideration of the following:

- A letter dated 12 September 2003 from the City to the Executive Director of the PHA raising issues regarding:
  - ✓ Changes in the proposed project boundaries,
  - ✓ Monitoring of water quality in Pine Gully and other streams,
  - ✓ Forecasted sound levels,
  - ✓ Impacts of the widening of SH 146 and associated transportation issues

- The land being acquired by the Applicant for the proposed project is inconsistent with the project footprint in the FEIS;
- The FEIS is incomplete because it does include assessment of the impacts of related transportation improvements;
- The location of the proposed project endangers the highest concentration of abutting residents to potential harm by terrorist actions associated with intermodal container movements;
- Long term adverse economic impacts on America's middle class associated with global trade.

Response

The issues raised in the letters are discussed in Subsection (6) below and in Section 6.b of this ROD. The comments in the letters are acknowledged.

Taylor Lake Village

In a letter of 28 May 2003, the City of Taylor Lake Village requested an additional 60 days to review the document. Specific comments contained in this letter included:

- The cities of Seabrook, El Lago, Shoreacres, Clear Lake Shores, League City, Taylor Lake Village, and Pasadena have all adopted formal resolutions in opposition to the proposed Bayport location as have the LaPorte Independent School District and Clear Creek Independent School District.
- All of the alternatives presented in the FEIS would create the same number of jobs without losses to property values; Bayport has far more nearby residents than any other alternative
- Local government revenues would decrease due to property being acquired by the Applicant and reductions in property values
- The assumption under the No Action Alternative of future industrial development at the Bayport site is incorrect under NEPA requirements
- The analysis of light and aesthetic impacts on Taylor Lake Village is inadequate
- The air quality analysis failed to identify a number of schools near the Bayport site, and failed to assess important air pollutants such as $PM_{2.5}$, HAPs, and the cumulative impacts of the Shoal Point and Bayport facilities
- A new study for Harris County regarding the cost to develop Spilmans Island needs to be considered.

A letter of 16 July 2003 from the City of Taylor Lake Village states that their comments were not fairly represented in the FEIS. The City's master plan and vision for the future was not addressed in the FEIS. The City will be affected by trucks using Red Bluff Road, the aesthetics at the northern end will change, light pollution will affect the community, air quality will be affected, and there will be an increase safety risk for citizens. In addition, the loss of tax base will impact services such as police and fire protection. The FEIS is based on the position that the Shoal Point facility had not been permitted, which is incorrect. The cumulative impacts of both terminal facilities will not conform to the SIP. The FEIS is incorrect in regard to the property ownership of the Applicant. The City believes that the water code requires the consent of the municipality.

In a letter dated 2 September 2003, the City of Taylor Lake Village provided comments that the location of the proposed mitigation at Katy Prairie is unacceptable and inconsistent with USACE policies regarding onsite/offsite mitigation.

In a letter of 3 September 2003, the City of Taylor Lake Village expressed support for the GBCPA request for the disqualification of Colonel Waterworth as the final decision maker for Permit Application No. 21520 (Revised).

Response

The issues raised in the 28 May 2003 and 16 July 2003 letters are discussed in Subsection (6) below and in Section 6.b of this ROD. The comments in the letters of 2 September 2003 and 3 September 2003 are acknowledged.

City of Shoreacres

In a letter dated 15 July 2003 the City of Shoreacres requests a supplemental EIS. The City is opposed to the Bayport site as it would create unavoidable and unacceptable negative impacts. This letter was accompanied by numerous specific comments on the FEIS and the proposed project, including the following key issues:

- The City believes the FEIS suffers from a clear bias towards the Bayport site and that Bayport is not the least damaging practicable alternative under the §404(b)(1) Guidelines. The City believes Pelican Island, Spilmans Island, and Shoal Point are less environmentally damaging and economically feasible
- The Applicant's assertions on the practicability of alternative sites should not be accepted without independent study. The City submitted copies of three papers addressing the practicability of Spilmans Island.
- The City believes that as the project will be constructed over 20 years, construction impacts should be considered long-term.
- The organization and availability of the FEIS was challenged as many citizens lack internet access or computers with CD players, and the 60 day review period is described as inadequate.
- The City feels the revised permit application features such as the reduced number of cruise ships and berths and revised wetlands mitigation plan requires a supplemental EIS. The City believes that the USACE is not required by NEPA to address or even consider comments to the FEIS.
- The City feels the project economics and the need for the proposed facilities, in light of the approval of the Shoal Point permit, need to be re-examined; the appropriate examination of the underlying economics could reveal the project as an unnecessary waste of public funds.
- The issue of the Applicant's ability to build on the property studied in the FEIS is questioned in light of property owners who continue to fight condemnation and City of Seabrook regulations.
- The City believes the assumed five percent annual growth is unrealistically high for a 24-year period. The need for Bayport also assumes that Barbour's Cut is full, which will not be the case when American Ships leave Barbour's Cut for

Shoal Point, and there is no market support for the three-berth cruise terminal. The City states that the Port of Houston's container facilities are inefficient.

- The selection of the final alternatives for study was flawed because the required footprint is too large and co-location is not required.
- Additional combination alternatives not incorporating the Bayport site should have been analyzed.
- The No-Action Alternative is incorrect; the historical development at the site does not support the assumption of future development for additional industrial facilities.
- The intermodal rail yard and co-development areas are not water-dependent and should be eliminated from the project definition.
- The FEIS description of present and potential land uses in the City of Shoreacres is incorrect.
- The FEIS does not adequately address induced land use changes to developed lands in the vicinity of the proposed project.
- The FEIS is incomplete in its analysis of the consistency of the proposed project with the Coastal Management Program
- The FEIS is incorrect in regard to how long the proposed project site has been planned for industrial development.
- The socioeconomic analysis should not have been based on studies prepared for the Applicant.
- The socioeconomic analysis does not address the economic benefits of alternative uses of the proposed project site.
- The projected economic benefit of the cruise terminal operation is unsupported.
- The FEIS provides no analysis of the impacts of the proposed project on local property tax revenues.
- The FEIS fails to adequately recognize the differences in population living around each of the alternative sites.
- The social impact analysis does not adequately recognize that the proposed project would isolate El Jardin, La Porte and Shoreacres from the Clear Lake area.
- The community values discussion does not adequately describe the range of public opposition to the project.
- The analysis of potential impacts on tourism and the recreation industry is inadequate.
- The analysis of potential impacts on residential property values should be expanded.
- The assumptions regarding offsite roadway improvements used in the FEIS are not appropriate and the potential environmental impacts of those improvements are not included in the assessment; this analysis should be redone.
- The analysis of traffic congestion is inadequate.
- The FEIS does not include necessary traffic methodology data.
- The new train delay analysis is incorrect and inadequate, and the rail study fails to address the capacity of the rail system itself.
- The City questions how much water would be required for the dust control program.

- The navigation analysis should have looked more closely at differences between alternatives in terms of their proximity to recreational boating facilities such as the HYC.
- The FEIS does not assess the impact of increased navigation conflicts on property values and the economic vitality of the HYC and other facilities.
- The FEIS should better assess the impacts of increased ship traffic on commercial fishing.
- The FEIS fails to adequately support its assumptions regarding navigation under the No-Action Alternative.
- The analysis of noise for the No-Action Alternative provides no baseline for comparison.
- The FEIS does not indicate that the projected noise levels measured at Barbours Cut were adjusted for the larger size of the proposed project.
- The noise analysis does address noise from the cruise terminal.
- The noise analysis does not properly assess impacts to subdivisions near SH 146, assumes too low a percentage of truck traffic on SH 146, and does not appear to properly reflect the origin-destination study results in terms of the percentage of trucks assumed for SH 146 for the Bayport and Spilmans Island Alternatives.
- The noise analysis did not take into consideration the flyover ramps proposed in the Traffic section of the FEIS.
- Noise impacts in La Porte and Shoreacres from additional trains was not addressed in the noise section of the FEIS.
- The noise analysis in the FEIS did not properly consider the City of Shoreacres noise ordinance.
- The FEIS does not support the statement that increasing the height of the proposed noise wall would reduce noise impacts to "less than significant".
- The noise analysis masks maximum noise levels by using daily average levels.
- Sound insulation of houses is not acceptable mitigation as it requires residents to stay indoors.
- The proposed noise wall will be ineffective for most of Shoreacres.
- The analysis of light impacts improperly ignored light reflected from clouds.
- The assumption that vegetation on the north shore of the BSC will block the view of the proposed project is erroneous.
- Nightglow from the proposed project will reduce the usefulness of a telescope at Armand Bayou Nature Center.
- The effect of the proposed noise wall on aesthetics was not addressed in the FEIS.
- The FEIS is deficient in not including the HYC or information about 18th and 19th century history in the assessment of cultural resource impacts.
- The assessment of recreational impacts omitted the Seabrook Fairgrounds, the Shoreacres Bayfront Park, and the Shoreacres Recreation Association's Pier and Boat Ramp.
- The conclusion that there would be no indirect impacts on recreational facilities is not supported; Galveston Bay should have been recognized as a recreational resource.

- The FEIS does not include an analysis of health effects of any air pollutants.
- The FEIS does not consider the impacts of raising many pollutants to near or above federal standards.
- The FEIS incorrectly restricts the analysis of NOx and VOC emissions to the 2007 SIP, when the proposed facilities will not reach maximum emission levels until a later date.
- The air quality analysis for the No-Action Alternative assumes that 80% of the container traffic projected for the proposed terminal would come into the Houston area by truck of rail, but the Origin and Destination Study only shows 56% of the existing container traffic is destined for the study area.
- Construction emissions are considered as short-term, but will continue for 20 years and should be considered long-term.
- The projected $PM_{2.5}$ violations are a major problem with the project.
- The introduction of the assessment of $PM_{2.5}$ that requires a supplemental DEIS.
- The FEIS does not specify the dust control program to be used to reduce $PM_{2.5}$ emissions.
- Fugitive dust emissions from offsite sources are not identified in the FEIS and should have been.
- How will the Applicant meet the conformity-related emission budget if electric dredges are not used?
- The public safety discussion did not address differences in populations around each site when concluding there would be no public safety differences between the alternatives from hazardous spills and terrorism.
- The FEIS failed to recognize the additional risks associated with the Bayport site due to the proximity of liquid bulk petrochemical storage and transport facilities.
- The FEIS did not consider the impacts of traffic volume changes resulting from the proposed project on emergency response services to Shoreacres.
- The public safety implications of changes in vessel traffic levels are not addressed in the FEIS.
- The FEIS fails to recognize the differences between alternatives in terms of longer ship distances in Galveston Bay.
- The impact of ship wakes on the HYC harbor and bulkheads was not addressed.
- The floodplain analysis is not based on the best available data from FEMA.
- The Water Quality and Sediments/Dredged Material Management sections fail to address the impacts of a 50-foot channel while the application shows a facility designed for post-Panamax vessels; this biases the EIS.
- The FEIS should have analyzed the effects of potential hazardous spills and contaminated runoff on groundwater.
- Only runoff from rains up to one inch are subject to cleansing before release; the contamination from larger rains will be huge.
- The No-Action Alternative assumption of required construction and maintenance dredging is unsupported.
- The FEIS does not investigate alternative dredged disposal sites to replace the loss of capacity at Spilmans Island, Shoal Point, or Pelican Island; the Bayport site could serve as a dredge disposal site if another site were used for the proposed terminal.

- The determination of jurisdictional wetlands used in the FEIS biases the analysis, the treatment of wetland impacts at alternative sites is inconsistent, and inaccurate data was used to determine the 100-year floodplain.
- The USACE should not issue a permit for Bayport since there are practicable alternatives that require less filling of wetlands.
- There is no mitigation for the 126.6 acres of non-jurisdictional wetlands; the prairie pothole habitat that would be lost should be compensated at a 3:1 ratio.
- The evaluation of alternatives should clearly note that the wetland impacts associated with the Bayport project are much greater than previously identified.
- The Galveston District is using wetland criteria different from every other Corps District in the United States; all the wetlands at the Bayport site should be regulated by the Corps.
- The Galveston District's policy regarding overland sheet flow is an incorrect interpretation of federal law and is also an illegal rule.
- The Bayport Alternative eliminates more habitat than almost any other alternative.
- The FEIS fails to address the issue of introduction of marine non-indigenous species in any meaningful way; nor does it address non-marine non-indigenous species.
- The FEIS is incorrect in its assessment of the value of the habitat at the Bayport site.
- The noise, light, and loss of habitat introduced by the Bayport Container Terminal would disrupt bird populations, patterns and behavior.
- The impacts of the proposed noise wall on wildlife are not examined in the FEIS.
- There is not mitigation proposed for the loss of neo-tropical bird habitat.
- There is no mitigation proposed for the impacts of the estuarine open waters of Galveston Bay; there are significant ecological values that are not being mitigated.
- The FEIS recognizes the ultimate need for a 50-foot channel but does not examine the impacts of this.
- There are no economic benefits to the Bayport site that are not equally associated with any of the other sites.
- The FEIS fails to quantify the costs to the public for funding required transportation improvements, or identify projects that would have to be eliminated to pay for port-generated traffic improvements.
- The conclusion that the cumulative impacts of the proposed project would not be substantial is not supported.
- The FEIS does not recognize the issuance of a permit for the proposed construction of a container terminal at Shoal Point.
- All of the issues raised during scoping were not listed in the DEIS and were not addressed in the EIS, as required by NEPA.
- The periods allowed for review of the DEIS and the FEIS were too short, and comments by groups of people were not properly recognized in the EIS process.

In a letter dated 8 September 2003, the City responds to the 12 August 2003 public notice regarding revised mitigation. The City provided the following comments:

- The City does not believe the proposed mitigation to adhere to federal law or USACE policies regarding onsite and offsite mitigation, nor does it benefit the residents of Shoreacres;
- The City objects to the inadequate time and public dissemination of the 12 August 2003 public notice;
- Practicable alternatives exist that avoid the need for this type of compensatory mitigation;
- The Corps and TCEQ should consider separate locations for the container and cruise terminals;
- The details of the proposed mitigation have not been made available for public review and comment;
- The proposed project impacts would occur in the Coastal Zone, but the mitigation at Katy Prairie is outside the Coastal Zone,
- The requested permit should be denied.

Response

The request for a supplemental EIS is noted. This issue and many of the other general comments in this letter are addressed in Section 7.b.(6) below. The following additional responses regarding specific issues are provided:

Air Quality

With regard to air quality, construction emissions were assumed to be short term since they are highly variable over the total construction schedule. Emissions are variable in terms of the amount with some years having very small emissions in this category to the year 2010, the analysis year with highest construction emissions (and the year for which an air dispersion analysis was completed). The construction emissions are also variable with regard to their location on the site. This leads to short term differences in where air quality impacts might occur.

The FEIS includes an evaluation of the potential ambient air quality levels of air pollutants in the neighborhoods surrounding the proposed terminal. These estimated levels are compared to the EPA's health based ambient air quality standards. Estimated levels of toxic air pollutants were determined and compared against available information from the EPA on health and cancer risk related to potential exposure.

The FEIS provides estimates of air quality levels in future years. In the case of VOC and NOX emissions, the FEIS shows that the projected emissions are within the amount used by the TCEQ in their demonstration that the ozone air quality standard will be met by 2007. Analyses included in the FEIS show that projected levels of particulate matter are close to the federal ambient air quality standard. The FEIS also notes, that the projected levels are higher than would be expected to occur since 1) present background levels were used even though TCEQ will be taking steps to reduce background levels, and 2) the modeling for particulate matter contained several

elements that would cause the estimated results to be higher than would be expected in practice.

The FEIS provides a comparison of NOX and VOC emissions against emissions used by the TCEQ in its planning to show that the ozone standard will be met by 2007. The EPA will require the TCEQ to take any further steps necessary after the standard is attained in order to show that the standard will continue to be attained.

The analyses completed for the FEIS account for 100% of the projected container traffic in the No-Action Alternative as well as in the other alternatives and the proposed site alternative. To the extent that the origin and destination study shows that a portion of the containers are destined for locations outside the study area, the air quality impact of the emissions related to the movement of those containers from the proposed terminal to the border of the area is included in the analyses in the FEIS.

With regard to air quality, construction emissions were assumed to be short term since they are highly variable over the total construction schedule. Emissions are variable in terms of the amount with some years having very small emissions in this category to the year 2010, the analysis year with highest construction emissions (and the year for which an air dispersion analysis was completed). The construction emissions are also variable with regard to their location on the site. This leads to short term differences in where air quality impacts might occur.

The dispersion modeling analysis described in the FEIS projects possible exceedances of the PM2.5 NAAQS in the cruise co-development area. The level described in the FEIS is likely to be higher than what would actually occur due to decreasing background levels. Also, this level could be reduced by further mitigation of fugitive dust impacts from construction activities. Finally, the possible exceedance occurs in an area where there are not residences since it is related to the project area.

An assessment of PM2.5 emissions and ambient levels was not included in the DEIS since the final status of the ambient air quality standard for PM2.5 was in doubt. Further, the DEIS contained an evaluation of PM10 emissions. The results of the PM10 analysis that was included in the DEIS provided an indication of the impacts of particulate matter emissions.

The FEIS concluded that the assumed reduction in fugitive dust emissions is consistent with the available dust control measures. It will be the responsibility of the PHA to include dust control measures as part of their construction activities that represent an emission reduction of at least the magnitude assumed in the FEIS.

Fugitive dust emissions from offsite sources are a part of the background particulate matter levels that were assumed in the FEIS analyses. The Applicant will be responsible to limit conformity-related VOC and NOX emissions to less than 25 tons per year (expressed as less than 25 tons in any 12 month period). The Applicant has

developed a construction emission model that will assist them in meeting this requirement.

Traffic

The assumed offsite improvements were based on a careful evaluation of the latest version of the transportation improvement programs (TIP) for all applicable areas under study. The analysis of traffic congestion was based on widely accepted traffic engineering practices. The methodology for the traffic impact analysis was shared and carefully reviewed with all applicable review agencies such as the TxDOT, the HGAC and local municipalities. The train delay analysis has conservatively analyzed the potential impacts of trains crossing at-grade streets during future year peak hour conditions. The traffic analysis was based on the percentage of truck traffic estimated for SH 146 taking into consideration existing composition of traffic on that road as well as the future truck traffic volumes anticipated as a result of the proposed project. The results of the O/D survey were input into the HGAC emme2 model and the resulting trip distribution was used in the analysis.

Noise

Noise from the cruise terminal was addressed as stated in Section 3.8.3.3 of the FEIS, Cumulative Project Impact. Mitigation measures included the noise from the cruise terminal. Sound levels from vehicular traffic using the flyover ramps would depend on the specific design (geometry) of the ramps. A detailed design of the flyover ramps is currently not available. Since SH 146 is the dominant noise source near the ramps, no significant cumulative increase in noise to the nearby residences would be expected.

The FEIS text does not specifically identify noise impacts by the additional trains in LaPorte or Shoreacres. However, noise from the trains and the intermodal rail yard were addressed in Section 3.8.3.3, Cumulative Project Impact. Figure 3.8-28 of the FEIS graphically depicts the cumulative sound level (including trains) throughout the project area resulting from the Bayport Marine Terminal based on noise modeling. Noise impacts from trains along the mainline are also addressed in Section 3.8.3.3, Rail. Impacts from trains along the mainline are similar to those identified for the Taylor Lake subdivision.

The Shoreacres noise ordinance was not a part of the significance criteria in the FEIS because the project is not located within Shoreacres. However, Shoreacres ordinance No. 96-09, Section 4, 1,a states "No person shall operate or cause to be operated on public or private property any source or sound in such as manner as to create a sound level which exceeds the limits set forth for the receiving land use category in Table 1 of that section when measured at or within the boundary of the receiving land use". Table 1 of that section identifies the sound level limit for residential uses to be 5 dBA above the ambient (baseline) sound level. Therefore, the criterion is the same as used in the FEIS.

The mitigation measures included measures to reduce noise at the source as well as increasing the height of the noise barrier and relocating the noise barrier to optimize the barrier effectiveness. The recommendation to increase the barrier height was based on acoustical calculations using the Cadna A model. The metrics used to evaluate the significance of a noise impact from the project was the Ldn (Average Day-Night Noise level) and the maximum noise level. The Ldn is the noise metric used by U.S. Department of Housing and Urban Development (HUD) and the EPA to evaluate the significance of a noise impact. The maximum noise level is used by the EPA and the City of Pasadena to evaluate the significance of impact noise.

Sound levels generated by the proposed project were evaluated for outdoor and indoor noise impacts based on the criteria identified in the FEIS. Mitigation measures were identified in Section 3.8.3.3, Mitigation, of the FEIS to reduce outdoor noise levels to an acceptable level. As depicted on Figure 3.8-28 of the FEIS and summarized in Table 3.8-20 of the FEIS, significant noise impacts to the residents of Shoreacres would be limited to the areas close to the Bayport Channel

Navigation

The EIS assessment of navigation impacts has recognized the presence of the HYC near the Bayport site, and has recognized the potential for competition between commercial and recreational navigation in the BSC. There are boating activities and marina facilities in the vicinity of other alternatives, such as Pelican Island. Commercial fishermen are expected to be cognizant of applicable navigation regulations and "rules of the road" and are not expected to substantially be affected by the projected change in vessel traffic. The projections for future vessel activity in the BSC were developed after coordination with traffic managers at the facilities presently using the BSC.

Land Use

The EIS analysis of projected offsite land use changes was based on examination of historical trends in the area surrounding the Barbours Cut Terminal and other similar port facilities. While it is recognized that additional offsite commercial land use opportunities might be created by the proposed facilities, local governments will have the ability to constrain such uses though land use regulations. It is recognized that the proposed facilities would be located between the Clear Lake area and both Shoreacres and La Porte, but this would ultimately occur in a similar fashion under the No-Action Alternative land use assumptions. The proposed facilities would not be located between El Jardin and the Clear Lake area.

Alternatives

Combination alternatives that did not include container facilities at Bayport were examined in the development of the EIS, but were found to be not reasonable or did not offer reduced impacts to aquatic resources. For a many of those combination

alternatives the cruise terminals were assumed to be constructed at the Bayport site since comments received during the scoping process did not indicate public concern over the development of cruise terminal facilities alone.

Public Safety

The differences in local populations near each of the alternatives are recognized in the EIS. Since the level of terminal activity has been assumed to be similar for each alternative the potential sources of noise, light, roadway traffic, and possible terrorist activities would be similar. The potential effects of such factors would be related to the number and proximity of residences to each alternative location. Petrochemical terminals exist in the vicinity of all of the alternatives except for Cedar Point. Vessels calling on such terminals would also have to pass the new container terminals at the Shoal Point Alternative. The ship transit distances for each of the alternatives have been recognized and assessed in the EIS.

Socioeconomics

Since the Applicant would fund the proposed project, a local government entity, the issue of public need is appropriately left to local government interests, not the USACE. The socioeconomic analysis reported in the EIS was reviewed by the USACE contractor and found to be consistent with the general principals for such studies. It is recognized that the vessel traffic projections for cruise activities and related economic benefits are likely to be more speculative than those for container movements since there is a more limited historical basis of such activity in Galveston Bay. The issue of changes in local property tax revenues is addressed in the FEIS.

City of Hedwig Village

In a letter dated 16 June 2003, the City of Hedwig Village submitted the following comments. The project would affect all of Harris County. Need, economic benefits, wetlands, air quality, traffic and security are issues that are important to the entire Houston area. Details raised in the letter include approval of the Shoal Point container terminal, Americana Shipping moving to Shoal Point, security, location in a highly residential area, affect on property values, use of diesel fuel creating emissions throughout Houston, and cumulative impacts not being addressed.

Response

These comments have been received from many individuals during the comment period and are addressed in the body of the ROD and in Section 7.b (6) below. These discussions and responses specifically address the issues of noise, $PM_{2.5}$, NO_x emissions, health effects of diesel emissions, jurisdictional wetland areas and updated topographic data, the relationship of cruise terminals to container terminals, new information regarding the practicability of the Spilmans Island Alternative, the cumulative impacts of the Shoal Point and Bayport facilities, the future deepening of the BSC and HSC, and the Applicant's proposed mitigation program.

City of Spring Valley

In a letter dated 30 June 2003, Mayor Tammy Canon of the City of Spring Valley noted that the issues of security, need, economic benefits, health, wetlands, air quality, and traffic are important to the entire greater Houston metropolitan area and asked that these issues be reconsidered in regard to the Bayport site. Many experts believe better alternative sites exist, including one that has been permitted (Shoal Point).

Response

Comment acknowledged. Additional information is presented in Section 7.b.(6) below.

Cities of Shoreacres and Taylor Lake Village

In a letter dated 11 June 2003, James B. Blackburn Jr. of the law firm of Blackburn Carter submitted the following comments on behalf of the Cities of Shoreacres and Taylor Lake Village, as well as on behalf of the GBCPA. The comments were submitted in regard to the FEIS and in regard to the third revised public notice.

- The Shoal Point Container Port Permit
  - ✓ The FEIS includes no discussion of the April 2003 decision by the USACE to issue a permit for the construction of a container terminal at Shoal Point
  - ✓ This is an existing condition that must be evaluated in the FEIS and considered in the decision of whether to issue the Bayport container permit
  - ✓ The cumulative impacts analysis of the FEIS is incorrect because it does not evaluate the existence of the Shoal Point facility
  - ✓ The air pollution conformity for NO_x emissions must consider whether there is sufficient set aside in the SIP to allow both Shoal Point and Bayport to be permitted.
  - ✓ The Shoal Point site was determined to be the least environmentally damaging location for a container port in the Galveston Bay system.
  - ✓ The cumulative impacts of the Bayport and Shoal Point facilities must be considered in the 404(b)(1) analysis
  - ✓ Recognizing this location to be the least damaging location.
- The Harris County study on Spilmans Island
  - ✓ This study represents new information regarding the viability of the Spilmans Island site that must be incorporated with the analysis of alternatives
  - ✓ This study indicates the cost of developing the Spilmans Island site would be lower than earlier estimates by the Applicant
- Functional relationship between the container and cruise terminals
  - ✓ Combining the two terminals biases the analysis of alternatives due to increased land and dredging requirements
  - ✓ The alternatives analysis must be redone
  - ✓ The deletion of the cruise terminal would permit the Spilmans Island site to be laid out in a less environmentally-damaging configuration requiring less dredging
- Change in acreage of jurisdictional wetlands

- ✓ Updated topographic data from Harris County and FEMA as part of LIDAR study should be used to verify elevation and wetlands, and should have been used in the FEIS
- ✓ Use of these data would show that approximately 40 acres of wetlands on the Bayport site are jurisdictional
- ✓ GBCPA and others disagree with the Corps about whether or not overland stormwater flow is sufficient to provide a jurisdictional connection

- Deepening and widening of the Houston and Bayport Ship Channels
  - ✓ The Applicant intends to bring post-Panamax vessel into the proposed Bayport facilities based on the proposed design of the facilities
  - ✓ It is absolutely clear that the BSC will have to be deepened from 40 to 45 feet but this is not analyzed in the FEIS
  - ✓ It is reasonably foreseeable that fully loaded post-Panamax vessels will be coming to the Bayport facility in the future, and it is reasonably foreseeable that the HSC and BSC depth of 56 feet will be requested in the future by the Applicant; the impacts of such deepening should be analyzed in the EIS and the 404(b)(1) analysis
- Air quality analysis
  - ✓ The background concentration for $PM_{2.5}$ was based on a flawed methodology
  - ✓ The FEIS contains now discussion of how the water for the dust-control program to reduce $PM_{2.5}$ emission would be obtained
  - ✓ The analysis of human exposure to air toxics is incomplete because it does not contain a carcinogenicity analysis
  - ✓ The analysis of $PM_{2.5}$ does not include emissions from a diesel dredge
- Impact on real estate values
  - ✓ The FEIS for the first time discloses potential significant impacts on residential property values as a result of noise, air quality, and traffic impacts
  - ✓ Over 3,352 homes are within an approximately one-mile impact zone from the Bayport site; the value of these homes will be dramatically reduced of the Bayport facility is constructed
  - ✓ The USACE has never provided the analysis of property values that was promised
- Mitigation
  - ✓ The mitigation proposed by the Applicant in the third public notice is not acceptable
  - ✓ Additional possible mitigation at Katy Prairie and Banana Bend must be set out in an additional public notice prior to its acceptance by the USACE
- The Bayport container port permit must be denied because it does not conform to the 404(b)(1) Guidelines
- The Cities of Shoreacres and Taylor Lake Village and the GBCPA request that the USACE reconsider and re-evaluate the economic need for and benefit of the proposed project in light of the existing permit for Shoal Point, along with the economic loss that will result from impacts on real estate values.

An additional letter was submitted which repeated the same issues discussed above and responds to the proposed mitigation from the fourth public notice. The proposed mitigation is unacceptable.

Submission of a third letter requested the disqualification as the presiding officer and final decision maker regarding the Bayport proposed project.

Response

These comments have been received from many individuals during the comment period and are addressed in the body of the ROD and in Section 7.b (6) below. These discussions and responses specifically address the issues of noise, $PM_{2.5}$, NO_x emissions, health effects of diesel emissions, jurisdictional wetland areas and updated topographic data, the relationship of cruise terminals to container terminals, new information regarding the practicability of the Spilmans Island Alternative, the cumulative impacts of the Shoal Point and Bayport facilities, the future deepening of the BSC and HSC, and the Applicant's proposed mitigation program. The Comments in the letters are acknowledged.

Alderman J. P. Gomez, City of Shoreacres

The Alderman submitted the following issues:

- Issuance of the Shoal Point permit, not considered.
- Container and cruise terminals do not have to be co-located.
- Harris County report on Spilmans Island.
- New LIDAR data.
- EPA study on diesel emissions,
- Results of air quality, noise and vibration,
- Widening and deepening of ship channel,
- Impact of Bayport to southernmost part of LaPorte,
- Combination of high-risk liquid facility on same channel,
- Change in air circulation patterns from sound barrier on north shore.

Response

The first seven issues listed were contained in numerous public comments and are discussed in Section 7.b.(6) below. The potential impacts of the proposed project on the southernmost portion of the City of LaPorte are discussed in the FEIS, particularly in regard to air quality and noise. The design of the proposed wharf structures incorporates features to reduce potential conflicts between container vessels and other vessels utilizing the BSC. The discussion of noise barriers in Section 3.8 of the FEIS recognizes that walls constructed to reduce noise impacts may have associated impacts such as aesthetics and wind patterns.

Councilman Jonathan Powell, City of Taylor Lake Village

In a letter dated 13 July 2003, Councilman Powell urged the USACE to reject the FEIS for the proposed project, deny the requested permit, and prepare a supplemental draft EIS. The following reasons were given in support of this position:

- Many of the assumptions on which the Applicant based its application have changed but are not incorporated into the FEIS,
- The Applicant has dismissed reasonable alternatives on the basis of false, incomplete, or ignored information,
- The FEIS analysis does not reflect that the permit for the Shoal Point container terminal has been issued, and that the Applicant's claim of a need for immediate construction is false,
- The Applicant states and presents in the FEIS that the container and cruise terminals must be co-located, while there is no functional relationship between the two types of terminal,
- The recent study of Spilmans Island prepared for Harris County is not considered in the FEIS,
- New topographic information for the Bayport site developed using LIDAR is not considered in the FEIS,
- The FEIS failed to consider a recent EPA study regarding cancer risk associated with diesel exhaust,
- The FEIS did not evaluate recent studies regarding noise and vibration impacts in nearby residential areas, and
- The FEIS did not consider the cumulative impacts of deepened ship channels.

Response

These issues were contained within numerous public comments and are responded to in Section 7.b.(6) below.

Port of Houston Authority

In a letter dated 16 July 2003, the Applicant provided comments regarding two possible noise mitigation strategies discussed in the FEIS. The FEIS suggests that the proposed noise wall north of the BSC and around the eastern and southern portions of the proposed project site might be raised to 30 feet to reduce project impacts. The Applicant indicates that landowners north of the BSC do not wish to have any barrier on the north side of the channel, and that the incremental benefits of a 30-foot wall are not likely to justify interferences these homeowners would experience. The Applicant states that the additional height could only be achieved with a 10-foot wall on top of the proposed 20-foot berm in other locations, and that this would have only a marginal benefit. The Applicant suggests that as an alternative it be required to monitor the noise in and around the surrounding communities as development of the proposed project proceeds, and that if such monitoring showed the "worst-case" impacts projected in the FEIS, or violations of applicable noise ordinances, the Applicant be required to undertake effective mitigation measures.

In the same 16 July 2003 letter, the Applicant states that "eliminating impact noise between 10 p.m. and 7 a.m." is unreasonable and impracticable as a permit condition. International maritime transport and terminal operations are conducted at night at all container terminals. Such a condition at Bayport would be a major competitive disadvantage.

In a letter dated 28 August 2003, the Applicant stated that it had not changed the footprint of the proposed project from that shown in the FEIS. This letter was submitted in response to comments dated 16 July 2003 by the City of Seabrook. The Applicant indicated that prior to construction of each phase of the project, the Authority would own or acquire the rights to build on the property. The property cited in the 16 July 2003 comments by the City of Seabrook is for a gate area that would not begin construction until 2009-2010.

Response

Comment acknowledged.

(5) Organized Groups

GBCPA

On 11 June 2003 the GBCPA submitted comments on the FEIS and the third revised public notice. These same comments were also submitted on behalf of the Cities of Shoreacres and Taylor Lake Village and are described in detail in the previous section of this ROD.

The GBCPA provided comments on 15 July 2003 regarding the consistency of the proposed project with the Texas Coastal Zone Management Act and the adequacy of the noise analysis. The GBCPA feels that the Bayport site is not consistent with the Texas coastal management plan because the impact to Texas coastal wetlands has not been fully incorporated into the Applicant's proposal. There are at least 146.4 acres of wetlands on the Bayport site that are Texas coastal wetlands. The current proposal does not specify sufficient compensatory mitigation to replace values and functions lost with the filling of 146.4 acres of Texas coastal wetlands. The analysis of practicable alternatives must include an analysis of the impact of the loss of 146.4 acres of coastal wetlands at Bayport and the inclusion of the impacts of a deepwater channel. Under such an analysis the Shoal Point and Pelican Island Alternatives would be less damaging practicable alternatives.

The 15 July 2003 letter also includes cites a study by GPCPA that indicates that the noise impacts are greater than set out in the FEIS, and includes the following comments:

- The FEIS did not include a determination of compliance with the Cities of Shoreacres and La Porte
- There is no explanation of why noise levels at some locations are higher at night than during the day
- There is a question as to whether the noise analysis in the FEIS used "peak' levels or "maximum" levels
- The FEIS noise analysis does not include all noise sources
- The violation of noise ordinances is more pervasive and significant than presented in the FEIS
- Construction noise was incorrectly analyzed and contributes to cumulative noise sources over the 20-year construction period

The GBCPA submitted a letter on 25 August 2003 on behalf of the City of Shoreacres and the GBCPA requesting the disqualification of Col. Leonard Waterworth as the final decision maker for the Bayport permit.

A letter was submitted on 10 September 2003 in response to the USACE and TCEQ public notice issued 12 August 2003; the GBCPA had the following issues: The USACE conduct during the Bayport permitting process constitutes bias and the proposed Bayport project is inconsistent with the Texas CMP.

Response

The responses to the 11 June 2003 letter are incorporated in the general comment responses in Section 7.b.(6) below. The Applicant has modified the proposed project and application to include additional mitigation for non-jurisdictional aquatic resources and the EPA, TCEQ, FWS, and TPWD have all indicated that the project now appropriately compensates for impacts to such resources. Additional discussion of the noise analyses that have been conducted is provided in Sections 6.b.(7) and 7.b.(6)(f) of this ROD. The comments contained in the letters of 25 August 2003 and 10 September 2003 are acknowledged.

Lowerre & Kelly, Attorneys at Law Representing the National Wildlife Federation, Environmental Defense, and the GBCPA

In a letter dated 12 September 2003, Lowerre & Kelly submitted the following comments on behalf of the National Wildlife Federation, Environmental Defense and the GBCPA stating that during a review of 33.205 (c) (1) TEX Natural Resources Code and 31 Texas Administrative Code 505.32(a), two problems were identified that are important not only for Bayport but also for all projects with significant impacts on the Texas coast. TCEQ's 401 certification process does not provide time needed for consistency review by the CCC, required by federal and state law and the rules of the CCC.

Under CCC and TCEQ rules, TCEQ performs the initial coastal consistency review as part of its 401 certification process. TCEQ's practice has apparently been to assume that any project that meets the test for its 401 certification also is consistent with the state coastal program. TCEQ staff does not make a separate review of the goals and policies of the coastal program as part of the 401 certification. Thus, a project could qualify for 401 certification and not pass the consistency test for the coastal program. A conclusion is presented that both CCC and TCEQ need to address the problems described above. The NWF, Environmental Defense and GBCPA request that they be included in any process for resolution of these matters.

Response

The CCC reviewed the proposed project and, in a letter dated 10 September 2002, determined that the project is above the TCEQ thresholds for referral to the CCC. The TCEQ will be solely responsible for determining the project's consistency with the goals and policies of the CMP.

Houston Yacht Club

In a letter dated 16 July 2003, the HYC expressed that it remains firmly opposed to the Bayport project and believes the FEIS fails to adequately address HYC's previously made comments and concerns, and is dissatisfied with the quality and substance of response. The FEIS response is to simply acknowledge the reality that increased vessel traffic will occur, but then deny the fact that any mishaps may result. Topics that HYC believe need to be more fully addressed are:

- Noise levels on the HYC grounds, including guest accommodations and restaurant,
- Additional air quality studies including health effects and cumulative effects,
- Water quality and water pollution related to increased dredging and deepening of ship channels to a depth of 50 feet,
- Wake and wash damage from passing deep-draft vessels,
- Impacts of increased light levels on the HYC,
- Navigation interference with sailing activities, and
- Increased risk of terrorism.

In addition, the HYC believe further study is needed for the following areas:

- The permit issued for the Shoal Point facility,
- Co-location of container and cruise facilities,
- The Harris County study of Spilmans,
- The LIDAR study of topography at the Bayport site,
- The EPA study of health effects of diesel emissions,
- Light and noise, and
- The dredging of a 50-foot channel.

Response

These issues have been fully addressed in the FEIS. In addition, the request for further study comments has been fully addressed in the General Comments responses.

Scenic Galveston

Scenic Galveston indicated in a letter of 15 July 2003 that it continues to strongly oppose the USACE granting a permit for this project. They have been alarmed, as well, by the strong pressures of another group's earlier and continuing influence on exalting the Shoal Point Container Port as the best alternative to Bayport in their zeal to move the facility away from their area. Scenic Galveston suggests that Shoal Point and Bayport were used by the USACE as alternatives in each of the other EISs, and the cumulative impacts of both of these two Galveston Bay action projects have never been evaluated. Two key issues are the substantial contaminants and pollutants to the air and the deepening and widening of the ship channel.

Response

With the exception of consideration of a 50-foot project depth for the BSC and HSC, all of these issues have been considered in the FEIS and the development of this ROD. See also the responses to general comments in subsection (6) below.

Women's Sailing Association

The WSA submitted a letter on 8 July 2003 requesting a public hearing to inform them and other elected officials of the new information in the FEIS. Key issues of concern identified are: Noise, wetlands and the Texas CZM, particulate matter, Shoal Point permit issued, and co-location of facilities.

Response

Comments acknowledged.

Galveston Bay Foundation

The Galveston Bay Foundation (GBF) requested in a 16 July 2003 letter that the USACE review new information regarding topography, wetlands, and soil improvement costs and reevaluate and supplement these aspects of the EIS using this information. The GBF comments include the following key issues:

- The GBF believes that the wetlands found on the site are of a higher quality than identified by the USACE, and of a type that is not artificially reproducible and are protected under the Texas CMP.
- Information given in the Shoal Point FEIS and Bayport FEIS on wetland acreages does not appear to be based on the same determining criteria. Given that the USACE is responsible for both the documents should be more consistent.
- The GBF believes that the wetland determination should be reviewed using the most up to date information and for consistency with other projects and programs (Texas CZM).
- The cruise portion of the project doesn't appear to have been included in the impact assessment of the EIS.
- The GBF is concerned that Spilmans Island may not have been accurately assessed in the FEIS and the Freeport alternative and cumulative impacts were not considered as thoroughly as it might have been.
- The issuance of the Shoal Point permit was not considered in the FEIS.
- The Shoal Point and Bayport EISs both identify their own sites as the environmentally preferred site.
- The Bayport EIS provides conflicting information on the widening and deepening of the ship channels.

In a second letter dated 12 September 2003 the GBF states that the proposed additional mitigation in the public notice does not address nor alleviate concerns toward the deficiencies of the FEIS, particularly in regard to the legal standard for the FEIS which continues to go unmet. GBF again asserts that the USACE should determine that there are no better alternatives. This point notwithstanding, GBF offers these comments:

- GBF believes that the Applicant's Banana Bend tract is more applicable than the Cypress Creek watershed; however both are out of kind for the impacts.
- GBF believes that the ecology of the proposed project site is of a special subtype and quality and offers habitat and services that could not be supplanted 50 miles inland.

- GBF believes that the impact analysis and mitigation planning for unavoidable impacts should be complete prior to public notice and/or permit approval.

Response

The Applicant has modified the proposed project and application to include additional mitigation for non-jurisdictional aquatic resources, and the EPA, TCEQ, FWS, and TPWD have all indicated that the project now appropriately compensates for impacts to such resources. The differences between the wetland descriptions in the Shoal Point and Bayport EIS documents resulted from differences in whether total wetlands or jurisdictional wetlands were being discussed and the different footprints of the two projects. Wetland determinations for the Bayport site were conducted using the most recent guidance from USACE headquarters and methodologies. Spilmans Island has been fully considered as a possible alternative location throughout the EIS process. The EIS process determined that possible alternatives at Freeport did not represent reasonable alternatives that would have less overall impacts on the environment, and were therefore not carried forward in the EIS. The potential for a container terminal at the Shoal Point location is considered in the EIS, and the issuance of a permit such a facility is considered elsewhere in this ROD.

Girl Scouts of San Jacinto Council

In a letter dated 14 July 2003, the Girl Scouts request that any issuance of a permit to the Applicant contain valid, binding and enforceable commitments for the Applicant to undertake, and to pay for, mitigation measures (whether those mitigation measures are completed by the Applicant or the affected enterprises, including the Girl Scouts). The Girl Scouts would like to see actual, supporting, scientific data on particulate matter, and feel that while the use of diesel-emulsion fuels may reduce particulate emissions it does not reduce potential health effects. A request was made to ensure the entire berm is in place prior to construction and that odor control measures are used for dredging. Navigation issues are of concern in front of Casa del Mar. In addition a request was made for an air quality baseline and ongoing monitoring.

Response

Additional information regarding air quality is provided in Sections 6.b.(11) and 7.b/(6)(e) of this ROD. Mitigation requirements that are made a part of a DA permit are binding on the Applicant. The construction of the proposed berm is closely related to the proposed dredging of the container berths, which would occur in an early phase of the proposed project.

Clean Air Clear Lake

In a letter dated 15 July 2003, Clean Air Clear Lake states that the health studies on the Mega Port facility are not sufficient and not complete. For almost two years this group has participated in an EPA Lab study on air toxics and air sampling devices. Their air samples show high amounts of many toxic chemicals ranging from benzene to acrylonitrile and over 50 chemicals show up in our samples, many of them over ESL standards. The group requests a supplemental DEIS to address the above issues as well as, issuance of the Shoal Point permit, co-location of facilities, Harris County study

on Spilmans Island, LIDAR data, EPA study, air quality and noise and vibration, widening and deepening, truthful analysis of the permit application and a study of the Bayport's projected increases of criteria pollutants related to the formation of ozone and the current ozone levels and levels of ozone forming pollutants.

Response

The comments regarding air quality data are acknowledged. The additional issues mentioned are addressed in Section 7.b.(6) below.

El Jardin Del Mar Community Association

The El Jardin Del Mar Community Association opposes the use of the Bayport site. Issues the Association has with the proposed project expressed in a letter dated 14 July 2003 include:

- Noise impacts in El Jardin,
- The area of wetlands on the site and conflicts with the Texas CZM Plan,
- Air pollution, specifically particulate matter ($PM_{2.5}$),
- The issuance of the Shoal Point permit,
- The need for the Bayport facility with the approval of the Shoal Point facility, and
- Co-location of the container and cruise terminals.

In a letter dated 8 September 2003, the Association offered additional comments.

They commented on and support the City of Shoreacres and the GBCPA 25 August 2003 letter requesting Colonel Leonard Waterworth's disqualification as the final decision maker for the Bayport project. The Association is concerned about the FEIS being accurate and unbiased.

Response

The issues cited in the 14 July 2003 letter are addressed in Section 7.b.(6) below. The comments in the 8 September 2003 letter are acknowledged.

Cypress Creek Flood Control Coalition

The Coalition provided a letter on 10 July 2003 requesting that the permit be denied because the proposed project:

- Fails to provide adequate wetland protection,
- Will violate federal noise and air pollution standards,
- Will cause adverse environmental impacts from dredging of a deeper channel,
- Will inflict immediate and long-term adverse financial ramifications affecting the welfare of Harris County residents.

The letter also cites a failure by the Applicant to adequately disclose information at the time of the bond referendum.

Response

Comment acknowledged.

Clear Lake Forest Community Association

The Association is opposed to the project and believes Spilmans Island is a better choice as stated in their letter of 16 July 2003. They believe there would be the addition of air, noise, and light pollution to the bedroom community. They state that the impacts to wetlands and recreational environment would be devastating. They believe that the impact to property values is certain to be negative. The Association also believes the Applicant is using tax dollars to lobby for the Bayport location when the Shoal Point facility has already received approval.

Response

Comment acknowledged.

Shoreacres Civic Association

The Shoreacres Civic Association submitted a letter on 3 September 2003 to comment on and support the City of Shoreacres and the GBCPA 25 August 2003 letter requesting Colonel Waterworth's disqualification as the final decision maker on the Bayport project.

Response

Comment acknowledged.

Science Press International

In a letter dated 6 July 2003, the Science Press International provided a copy of a report by Drs Blumer and Cranton (MDs) in the *Journal of Advancement in Medicine,* volume 2, numbers 1/2, 1989. This report of research relates to the environmental hazards of the proposed Bayport facility. The Blumer - Cranton study tests the difference in cancer mortality with exposure to lead from auto exhaust, industrial pollution and other carcinogens.

Response

Comment acknowledged. Additional discussion of air quality is presented in Sections 6.b.(11) and 7.b.(6)(e) of this ROD.

Seabrook Community Petition coordinated by Jack Fryday

In a letter dated 2 July 2003, Mr. Jack Fryday provided a petition which states the following: We the undersigned residents of the City of Seabrook, for the reasons listed below do hereby acknowledge and affirm our support for the proposed project. While our Bay Area community is divided on the issue, there are those who, if not supportive, are at least resigned to the project's inevitability and do not want to waste additional time and money by attempting to delay it further.

- The BSC was created in 1970 and the future use of the land for a deepwater port was inexorably and irreversibly charted. A container/cruise ship terminal would be the least objectionable.
- The land, undeveloped, is valued at approximately $40 million - too expensive for any residential or commercial development.
- The most likely alternative would be the addition of more chemical plants.

- A cargo and passenger terminal would be much less likely to experience catastrophic accidents, fires, explosions or to produce obnoxious odors and/or other toxic or polluting discharges than would chemical plants.
- Chemical companies would not be willing to construct a 20' high berm, with another 20' high tree line around the perimeter. Nor would private companies include highway overpasses and other public infrastructure as part of the plan.
- It is the existing chemical complexes that are the impetus for the newly proposed San Jacinto Rail line, not the Port of Houston, and additional chemical complexes would serve only to compound the demand.
- Additional chemical plants would be far more detrimental to adjacent property values and local eco-systems than would a container terminal.
- Forcing development of a major container terminal in Texas City would not be in the best interests of Seabrook due to the inevitability of an increase in truck traffic through the city on SH 146 and possible reopening of the rail line connecting Texas City and Barbour's Cut.
- The floating vessel discharges to the Galveston Bay would be no more harmful at the Bayport location than at the alternate locations of Spilmans Island and Shoal Point.
- The prospect of dirty bombs hidden in a transit cargo container is no more a hazard to Clear Lake area communities than it would be at another location.
- The location of the proposed project is not in the City of Seabrook jurisdiction.
- The theme park/resort facility project currently under study by the City of Seabrook: is unrealistic due to the high cost of land and proximity to numerous chemicals, would destroy more wetlands, and create more noise and light pollution.

Response

Comments acknowledged.

(6) General Comments on the Final EIS and Related Public Notices

Numerous comments in support (103 letters) of and in opposition (1,044 letters) to the proposed project were received in response to the release of the FEIS and concurrent or subsequent public notices. Generally, only comments received during the public notice period must be addressed as part of the Corps' permit review. However, because of the complexity of this project, all comments received were reviewed and addressed as appropriate. A discussion of the most common issues raised by the general public, organized groups, and local municipalities concerning the Final EIS and related public notices is presented in the following paragraphs. These discussions are organized into seven topics:

- The NEPA and Permit Process
- The Comparison of Alternatives
- Jurisdictional Wetlands and Mitigation
- The Shoal Point and Spilmans Island Alternatives
- Air Quality
- Noise

- The Adequacy of Analyses in the FEIS

(a) The NEPA and Permit Process

Issue: A supplemental EIS and an additional public hearing are required due to the following: changes in the permit application, changes in the project footprint, new information regarding jurisdictional wetlands, new information regarding the projected costs of development at Spilmans Island, and the failure of the FEIS to address impacts of property values, cumulative impacts of other heavy industrial projects, unresolved impacts on surface transportation infrastructure, and the failure to insure the safety and security of residential and recreational areas from terrorism threats.

Response: The USACE has determined that a supplemental EIS and additional public hearing are not warranted. The USACE has followed all regulations and guidance in the conduct of the NEPA process for this permit application through the issuance of public notices, the conduct of public meetings, responses to public comments, and the modification of NEPA documentation. The changes in the permit application that have been submitted by the Applicant have been in response to agency and public input during the EIS process and have involved primarily additional or modified features to reduce project impacts, along with modifications required by changes in wetland delineations made by the USACE. These changes have not substantially altered the basic project or the nature of the impacts that have been disclosed in the FEIS. The USACE has received substantial agency and public input during the course of the NEPA and permit processes. It is unlikely that preparation of a supplemental EIS or additional public hearing would provide additional information that would contribute to a different decision than that reported in this ROD.

Issue: A supplemental EIS should include the assessment of the environmental impacts of all connected activities, such as projected future road and rail improvements, in a single EIS document.

Response: The EIS contains an assessment of the direct environmental impacts of the proposed project, as well as the secondary and cumulative impacts of roadway and rail improvements as required by NEPA. While it is recognized that ultimately the proposed project may require some off-site transportation improvements to occur earlier in time, other agencies such as FHWA and TxDOT have primary responsibility for assessing the environmental impacts of those public infrastructure and transportation projects and it would not be appropriate under NEPA to require a Regulatory Permit Applicant to provide an assessment of the direct impacts from these projects for which they are neither the proponent or Applicant. Those roadway improvements that will be funded by the Applicant and improvements that are directly attributable to the proposed project were considered direct and/or secondary impacts in the FEIS. The USACE has required that the EIS evaluate these impacts to the extent appropriate under NEPA, including a cumulative impacts analysis of other reasonably foreseeable projects.

Issue: Comments submitted on the DEIS by groups are listed only under the signing party's name – underestimating the importance and impact of those individuals who pooled their resources.

Response: The comment database developed for the FEIS does identify petitions and comments with multiple signatures, so this information is available to the USACE. Multiple submittals of similar comments are recognized by the USACE, but each comment is responded to only once. This database format has been used successfully with numerous EIS documents. Under NEPA it is not the number of comments that is important – it is the identification and disclosure of the substance of issues that is important

(b) The Comparison of Alternatives

Issue: The comparison of alternatives is incomplete, incorrect, and biased in regard to several environmental considerations because it does not properly consider the differences in population density surrounding each site.

Response: The land use surrounding each alternative has been described in the EIS. This assessment has recognized residential land uses. The USACE recognized that the overall density of residential units is highest in the areas surrounding the Bayport site.

Issue: By submitting a permit application locating both container facilities and cruise facilities at a single site, the Applicant is biasing the analysis of alternatives due to the increased land and dredging requirements necessary to co-locate both facilities. These two types of facilities do not need to be co-located and should be considered separately.

Response: Section 5.b. above and Section 2.3.3 of the FEIS clearly indicate that, during the three-tiered process of identifying reasonable alternatives, a set of evaluation criteria was used that included the following:

- Navigational access,
- Dredging requirements,
- Available backland,
- Land development constraints associated with existing land use,
- Road access,
- Rail access,
- Potential social impacts, and
- Potential environmental impacts.

The navigation and land area criteria called for an ultimate combination of 7000 feet of berth and 700 contiguous acres of backland strictly for container operations. These criteria were based on the Applicant's stated need for 1.4 million TEU of additional annual throughput capacity and container industry standards that call for approximately

100 acres of overall backland for each 1,000-foot berth. No requirement for land to develop cruise facilities was included in this portion of the analysis.

Only after the five alternatives were identified did the USACE's EIS contractor include cruise facilities in the alternative location conceptual layouts so that environmental impacts at the five locations could be compared. The elimination of the cruise facilities would not have altered the number and selection of alternatives. The combination alternatives do not include cruise facilities at both locations, clearly recognizing that container and cruise facilities could be developed at separate locations. Further, it should be noted that the alternatives identified for the EIS independently prepared for the proposed Shoal Point container facilities do not include cruise facilities and are, with one exception, the same as those identified for the Bayport EIS.

Issue: The USACE cannot issue a permit for Bayport under the Clean Water Act. The USEPA § 404(b)(1) Guidelines require the USACE to deny a permit if there are practicable alternatives that require the filling of fewer acres of jurisdictional wetlands. The FEIS contains practicable alternatives, including Shoal Point and Spilmans Island, which require the filling of fewer acres of wetlands.

Response: The 404(b)(1) Guidelines require the consideration of the overall "impacts to aquatic resources" in identifying the least environmentally damaging alternative. This analysis includes both direct and related actions, and the quality and function of wetlands in the watershed, not just the area of fill in jurisdictional wetlands. Alternatives which may be deemed "reasonable" for analysis under NEPA based on function and engineering feasibility may be subsequently found to be "not practicable" under the CWA § 404(b)(1) Guidelines based on factors such as availability to the Applicant, cost, logistics, existing technology and time of implementation.

Issue: The No-Action Alternative used in the EIS is incorrect. It should reflect the status quo or baseline of environmental impacts without any major project.

Response: The guidance of the Council on Environmental Quality ("CEQ - Forty Most Asked Questions," question 3) states that in the instance of Federal decisions on proposals for projects, "Where a choice of "no action" by the agency would result in predictable actions by others, this consequence of the 'No Action' Alternative should be included in the analysis." USACE regulations at 33 CFR Part 325 Appendix B 9.b state that "District Engineers, when evaluating this alternative ("No Action" Alternative), should discuss, when appropriate, the consequences of other likely uses of a site, should the permit be denied."

The role of the Applicant includes the development of new terminal facilities to meet local and regional marine transportation needs. During development of the EIS document the EIS team conducted discussions with a variety of business elements regarding the types of new terminal facilities for which there was the greatest need. These discussions identified additional chemical terminal facilities (similar to those

presently on the Bayport channel) or other industrial uses, as the type of facility for which there was the greatest need.

The Bayport site is part of the Bayport Industrial District, and there are no land-use regulations that would preclude the further development of industrial facilities similar to those already existing at the site east of SR 146 from being developed on the majority of the Applicant's property at this location. While it is recognized that there are constraints on the development of industrial facilities throughout the Houston area due to air quality conditions and regulations, the availability of deep-water access would make the Bayport site a prime candidate for such development that would occur. The Bayport site proposed by the Applicant was used for disposal of dredged material during construction of the Bayport channel, but has never been designated as a long-term dredged material placement site.

Should the USACE deny the current Applicant request for a permit, it is likely that the Applicant would incrementally lease its property on the Bayport Channel for the development by private entities. Similar individual facilities have been developed previously throughout the Port of Houston. Therefore, the USACE has determined that this scenario represents "predictable actions" and "likely uses" that should be assessed in the EIS.

In all cases in the EIS the impacts of the No Action Alternative and all other alternatives are compared to existing conditions. Although the No Action Alternative in the EIS assumes that the Bayport site would incrementally experience industrial development, the EIS also contains the information to evaluate no development on the site should the reader or the decision maker wish to consider that information.

New chemical or industrial facilities that may be constructed at the Bayport site could be permitted under existing TCEQ and EPA regulatory permitting requirements. Similar facilities have and are being constructed in the HGA. Therefore, the EIS assumes these types of facilities could be built at the Bayport Alternative.

(c) Jurisdictional Wetlands and Mitigation

Issue: New information regarding the elevation of the Bayport site based on the LIDAR survey technique must be considered in determining the area of jurisdictional wetlands on the Bayport site. Wetlands within the expanded limits of the 100-year floodplain identified by this new technique must be considered as jurisdictional wetlands. Under this technique approximately 40 acres of wetlands have been found to exist within the 100-year floodplain.

Response: The USACE, Galveston District's established practice for determining wetlands is based on the 1987 Corps Wetland Delineation Manual. One tool used to determine if wetlands are adjacent includes the consideration of the 100-year floodplain as a potential source of hydrological connection. The 1987 Wetland Delineation Manual does not specify that a specific technique, such as LIDAR, be used

in determining the limits of an adjacent wetland and/or hydrologic basins or hydrologic connectivity. LIDAR is a technologically accurate tool to utilize in determining a higher degree of precision of site elevations and can refine tools used, such as those used in the FEMA floodplain maps (FIRM).

The FEIS accounts for all aquatic resources, jurisdictional and non-jurisdictional. Even assuming that all wetlands and other aquatic areas on the Bayport site were jurisdictional, which is not the case, the mitigation provided by the Applicant, involving over 1,130 acres of wetlands and other habitat, adequately compensates for environmental impacts as evidenced by the acceptance of this plan by the resource agencies. As a result, even if the USACE were to conclude that all of the aquatic areas on the site, including all of the wetlands on the site, were subject to CWA jurisdiction, the Applicant has provided ample mitigation to compensate for the loss of all aquatic areas on the site that will be filled in or otherwise degraded by the project. Consequently, the CWA Section 404 permit that the USACE proposes to issue would still be fully justified in this case by the generous mitigation package offered by the Applicant. Therefore, issuance of the proposed permit would still be appropriate under all applicable laws and regulations even if all aquatic areas on the project site were subject to CWA jurisdiction.

Issue: The Galveston District policy regarding the use of overland flow as a determinant of jurisdictional wetlands is an incorrect interpretation of federal law and an illegal rule.

Response: The Galveston District policy statement is field guidance to regulatory personnel, and is not a "rule" subject to rulemaking. In any event, the central issue of the comment is whether the correct number of jurisdictional wetlands have been assessed and whether compensation for those impacts has been offered by the Applicant. Through the NEPA process, the Applicant has been required to avoid and minimize impacts and provide mitigation. The Applicant has proposed mitigation including an additional 956 acres of habitat and other aquatic resources, which would adequately compensate for the impacts to jurisdictional and non-jurisdictional wetlands, waters, and other resources. The resource agencies have accepted the proposed mitigation plan. Please see the full response to this issue provided above.

Issue: The mitigation that is proposed by the Applicant is unacceptable – it does not fairly compensate for the wetlands destroyed by the proposed action. Further, the Applicant is in on-going negotiations with resource agencies regarding possible additional mitigation activities. Such further mitigation must be subject to public review and comments through an additional Public Notice.

Response: The prior proposed mitigation program at the Memorial Tract adequately compensates for jurisdictional wetland functions that would be impacted at the proposed site, at approximately a 3:1 ratio. The Applicant submitted a proposal to include in its application additional compensatory mitigation actions including the preservation of properties containing wetland, coastal prairie and other natural habitats

at Banana Bend and in the Katy Prairie area. These additional actions were described in an additional Public Notice dated 12 August 2003. The total acreage of mitigation is now in excess of 1,130 acres and has satisfied the resource agencies as adequate compensation for all wetland impacts, including those that are not jurisdictional. See the response provided above.

Issue: The proposed project would not impact just 19.7 acres of jurisdictional wetlands, 1.56 acres of intertidal mudflats, and 129.5 acres of open bay bottom. It would directly impact approximately 1,178 acres of habitat, with even more secondary and indirect impacts. The mitigation plan proposed by the Applicant does not compensate for the direct or cumulative impacts to fish and wildlife resources from the proposed project.

Response: The Memorial Tract mitigation is compensation for jurisdictional resources. The Applicant has submitted a proposal to include in its application additional compensatory mitigation actions including the preservation of properties containing wetland, coastal prairie and other natural habitats at Banana Bend and in the Katy Prairie area. These additional actions were described in an additional Public Notice dated 12 August 2003. The total area of mitigation now proposed includes approximately 1,130 acres. The EPA, FWS, and the TPWD have indicated that the Applicant's proposed plan appropriately compensates for projected impacts to fish and wildlife resources, and the TCEQ recognizes that the Memorial Tract marsh creation and the proposed preservation of a new mitigation site at the Banana Bend tract and preservation of 500 acres of coastal prairie habitat within the floodplain or floodway of the Cypress Creek watershed compensates for the lost water quality functions of 126.7 acres of hydrologically isolated wetlands in the US and provides important water quality functions.

(d) The Shoal Point and Spilmans Island Alternatives

Issue: The FEIS does not properly consider the fact that the USACE has issued a permit for the proposed container terminals at Shoal Point – a supplemental EIS is required to consider this new existing condition.

Response: The ROD for Permit 21979 (Shoal Point Container Terminal) was signed on 26 March 2003, after this date the ROD went to the TCEQ and the permit authorization was not finalized until 23 April 2003, at which time the Bayport FEIS was in publication. The FEIS for the proposed Bayport Terminal was released on May 16 2003, and considered the potential impacts that may occur if both terminals were constructed. The issuance of Permit 21979 has been considered in the development of this ROD. The issuance of a USACE permit does not make the proposed Shoal Point facilities an "existing condition". The proposed facilities at Shoal Point are scheduled for groundbreaking in early 2004. The project may not be completely constructed as proposed for a variety of reasons not related to a USACE permit decision, since the initial construction will only involve two container berths and construction is planned in a phased approach. Further, individual applicants with differing needs and political

boundaries have proposed these two projects. For example, the Applicant cannot use condemnation outside of Harris County to acquire land, or purchase property outside of Harris County with bond funds. For land purchases outside of Harris County operating revenue money must be used. Any single location may not be equally available to or practicable for each applicant.

Issue: The USACE should undertake an additional analysis of the economic need for and benefit of the proposed Bayport facility in light of the existing permit for the proposed Shoal Point container terminal.

Response: While the concurrent development of the two facilities may have economic implications for the rates at which each is developed and their ultimate size, it is USACE policy in permit actions to defer to local government Applicants with regard to the issues of land use and the economic need for and justification of proposed facilities. Both the Texas City Shoal Point FEIS/ROD and the Bayport FEIS/ROD consider that both facilities and perhaps additional container terminals will be required in Galveston Bay to satisfy future demand.

Issue: The Shoal Point location was determined to be LEDPA for Permit Application 21979 (City of Texas City). How can Bayport be LEDPA for this application?

Response: The Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230) promulgated pursuant to Section 404(b)(1) of the Clean Water Act require that: "... no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." For Permit Application 21979 (City of Texas City) the location at Spilmans Island was identified as the environmentally-preferred alternative. Due to considerations of land availability and jurisdiction, the Shoal Point location was determined to be the least environmentally damaging practicable alternative for that decision. In fact, the Shoal Point FEIS stated that all of the alternatives (except Cedar Point) were environmentally acceptable. The same considerations of jurisdiction and land availability are applicable in the decision on the permit application by this Applicant, as reflected in Section 5.c. of this ROD.

Issue: The recent study for Harris County shows that the projected soil-stabilization costs for the Spilmans Island site provided by the Applicant are inflated – thus biasing the analysis of practicable alternatives. This new information must be incorporated with the analysis of alternatives.

Response: Lockwood, Andrews & Newnam, Inc. (LAN) have conducted an evaluation of estimated the stabilization costs associated with construction of the proposed project at the Spilmans Island Alternative site for the Applicant. S&ME, Inc. (S&ME) has conducted a similar evaluation for Harris County. These studies have been assessed by the USACE contractor for the EIS, and by USACE engineering staff. Both

studies provide similar cost ranges based on the available subsurface data and differing assumptions regarding the current conditions of the PA and projected costs for soil stabilization. Coarse sediments would be used to the extent practical to raise the elevation of the development areas at Spilmans Island. USACE engineering staff estimates that, assuming a 600-acre site, the additional requirements for soil stabilization at Spilmans Island would raise the cost of the proposed project by $150 million to $300 million. In addition, it is estimated that it would take up to ten years to stabilize the site, and that completion of the first phase of development would be delayed by several years.

In order to develop the Spilmans Island Alternative, it would be necessary to replace approximately 33.3 mcy of dredged material capacity at another site. No available upland area of comparable size (900 acres) is available in the vicinity of the current Spilmans Island PA. Purchasing an area further area further away from the immediate area would result in considerably higher dredged material placement costs. Development of an in-water PA, such as a beneficial use site, would likely require four to five times the current PA area (approximately 4,000 acres). Such a PA would be very costly, and it is unlikely that it would gain environmental approvals based on the availability of a suitable location in the upper portion of Galveston Bay, potential impacts on circulation and biotic resources, and the chemical constituents in the dredged material from the reaches of the HSC that such a PA would serve.

Issue: Without a cruise terminal the Spilmans Island Alternative could be developed so that container berths face north to the Houston Ship Channel – which would substantially minimize negative environmental effects by reducing the amount of required dredging and improve the desirability of the Spilmans Island Alternative.

Response: In the development of the conceptual layout for the Spilmans Island Alternative it was determined by the USACE contractor's port planning staff that, if container berths were developed immediately adjacent to the HSC, the levels of ship wakes and ship surge associated with the high volume of maritime traffic in the Houston Ship Channel (HSC) would have an unacceptable impact on the safety of container loading and unloading activities. Therefore, it was decided to locate the berths for this alternative on a separate ship channel or turning basin similar to that incorporated in the existing Barbours Cut Terminal, the proposed project, and the alternatives at Pelican Island and Cedar Point.

(e) Air Quality

Issue: The USEPA has adopted a NAAQS for $PM_{2.5}$, including both a 24-hour standard ($65_{ug}/m^3$) and an annual standard ($15_{ug}/m^3$). $PM_{2.5}$ will be emitted from construction activities at the proposed Bayport site and from the operation of diesel equipment at the proposed Bayport site. Although comments regarding $PM_{2.5}$ had been submitted at the scoping meeting by some of the plaintiff organizations, the Bayport DEIS did not analyze the emission of $PM_{2.5}$ from the proposed Bayport facility construction or operation and did not determine whether or not the $PM_{2.5}$ standard would

be violated. As a result of comments to the Bayport DEIS, the Galveston District included an analysis of $PM_{2.5}$ (fine particulate) air pollution impacts that was released to the public for the first time when the Bayport FEIS was released on May 16, 2003.

In the Executive Summary of the Bayport FEIS, the Galveston District for the first time states that, in the year 2010, the 24-hour national NAAQS for $PM_{2.5}$ will be violated. The scientific literature contains recent articles linking $PM_{2.5}$ to mortality as well as to sickness and hospital admissions. Over 5,000 people live within a mile of the Bayport site, and well over 50,000 people live within three miles of the site. After five years of evaluating this proposed Bayport Project, people living near this Bayport location have been told, for the first time on May 16, 2003, by the Galveston District that Federal air quality standards for this dangerous pollutant will be violated by the Bayport Project.

Response: This issue has been addressed in Section 6.b. (11) of this Record of Decision.

Issue: Background levels of $PM_{2.5}$ reported in the FEIS used data from the monitoring station at Seabrook. This station utilizes an instrument that underestimates $PM_{2.5}$ concentration as measures by the Federal reference method. A flawed method was used to estimate compliance or non-compliance with the $PM_{2.5}$ standard.

Response: The Seabrook $PM_{2.5}$ data were used to characterize existing levels of this pollutant in the area near the proposed project. There are no $PM_{2.5}$ monitors closer to the proposed project. $PM_{2.5}$ data from the Seabrook monitor were also used as background upon which to add estimated ambient impacts of the project. The monitoring method used at the Seabrook site is TEOM. This monitoring method is not the federal reference method (FRM). It is a method that is recognized by the USEPA and it is used routinely to inform the public of air quality levels. According to a TCEQ representative, this type of $PM_{2.5}$ monitor in general records annual average levels about 2 $\mu gm/m^3$ lower than the FRM; however, the difference is expected to be less at the Seabrook location due to the mix of $PM_{2.5}$ sources in the area. The Houston area will be taking steps to reduce regional $PM_{2.5}$ levels. Consideration of the proximity of the Seabrook monitor to the proposed project site together with factors related to current measured levels at that site led to a conclusion that data from the site were appropriate for estimating future $PM_{2.5}$ background for analyses described in the FEIS.

Issue: The FEIS estimated that $PM_{2.5}$ emissions would be reduced by 50% by the use of water spraying. These estimates are unrealistic. Such a reduction would require 1,000 gallons of water per acre per hour, or millions of gallons per hour for the entire site. No explanation is provided where this water would be obtained. The construction impacts of $PM_{2.5}$ emissions would be much higher that indicated in the FEIS.

Response: In keeping with the Port of Houston Authority's "Environmental Compliance Policy", the potential for dust-related emissions can be reduced in a variety of ways, including use of water, use of wind fences, staging of construction activities,

and attention to the path followed by temporary construction roads. Watering is therefore one of a number of construction dust mitigation methods that are consistent with the emission estimates used in the FEIS.

Issue: There must be sufficient NO_X set aside in the State SIP to allow both Shoal Point and Bayport to be permitted.

Response: This issue has been addressed in Section 6.b. (11) of this Record of Decision.

Issue: The Bayport DEIS failed to address the health effects of diesel emissions associated with the proposed Bayport Project operations. In May 2002, prior to the issuance of the FEIS, the USEPA issued its *Health Assessment Document of Diesel Exhaust.* In this study USEPA determined that long-term exposure to diesel exhaust is likely to pose a lung cancer hazard, as will as other types of lung damage, to humans. Although this USEPA Health Assessment document was delivered to the USACE in 2002 by GBCPA, the Galveston District failed to consider this document or include an analysis of the increase in cancer cases that would be caused in the adjacent population by the operation of diesel sources at the proposed Bayport facility in the FEIS or a Supplemental DEIS.

Response: This issue has been addressed in Section 6.b. (11) of this Record of Decision.

(f) Noise

Issue: The Final EIS contains an analysis regarding potential significant impacts on levels of noise and vibration in nearby residential neighborhoods that were not disclosed in the Draft EIS. This new information includes:

- Sound levels may increase in the El Jardin subdivision by over 5 dbA from 10 p.m. to 7 a.m., and in other nearby areas by over 10 dbA during that same time;
- According to the USEPA, noise increases by more than 10 dbA are potentially startling or sleep disturbing;
- The City of Pasadena municipal code, which applies to El Jardin, prohibits an instantaneous sound level increase at a residential property greater than 5 dbA from 10 p.m. to 7 a.m.;
- The Bayport FEIS states that the City of Pasadena noise ordinance will be violated by the Bayport project as proposed by the PHA unless the port is closed from 10 p.m. to 7 a.m.;
- The Bayport FEIS also concludes that residential property values will decline because of these significant noise impacts;
- For the first time, after five years of controversy, the Galveston District now admits that the Bayport facility will create major noise impacts on adjacent neighborhoods.

There has been no public hearing or discussion about this significant new noise impact.

Response: The listed issues are discussed individually in the following paragraphs.

Issue: Sound levels may increase in the El Jardin subdivision by over 5 dBA from 10 p.m. to 7 a.m., and in other nearby areas by over 10 dBA during that same time.

Response: The City of Pasadena Municipal Code has established a maximum instantaneous sound pressure level limit of 75 dBA at anytime on any receiving property. A maximum instantaneous sound pressure level of 5 dBA above the ambient measured level on a residential property location between the hours of 10 p.m. and 7 a.m. is also prohibited.

The DEIS text does not specifically identify project generated sound levels in the El Jardin subdivision. However, Table 3-8-15 of the DEIS shows that the cumulative sound level was calculated to be 5 dBA above the existing measured ambient sound level at monitoring location ELJ-C. Sounds levels at the more shielded areas of El Jardin were calculated to be –8 dBA (ELJ-A) and –17 dBA (ELJ-B) below the existing measured ambient sound level. The impact was not considered significant since the project would not exceed the ambient sound level by more than 5 dBA receptor within the El Jardin subdivision.

Sound levels from individual impacts were not addressed in the DEIS. The noise analysis was based on average sound levels and none of the analysis looks at maximum sound levels. The DEIS estimates sound levels at only a few points. The DEIS did not predict sound levels use a 3-D model to predict sound levels over the study area.

The FEIS text does not specifically identify project generated sound levels in the El Jardin subdivision. However, Table 3-8-20 of the FEIS shows that cumulative sound levels for the Standard Meteorological conditions was calculated to be 8 dBA above the existing measured ambient sound level at monitoring location ELJ-C. Sounds levels at the more shielded areas of El Jardin were calculated to be –2 dBA (ELJ-A) and –12 dBA (ELJ-B) below the existing measured ambient sound level. The difference is a result of the more refined modeling technique (3-D) performed in the FEIS as a response to public comments to the DEIS. The impact was considered significant in the vicinity of ELJ-C since the project would exceed the ambient sound level by more than 5 dBA.

The FEIS sound levels from single-event impact noise may exceed the measured ambient sound level by 5 dBA during the nighttime hours at the El Jardin subdivision and exceed the City of Pasadena maximum instantaneous sound level requirement. Noise from individual impacts was assessed as a response to public comments to the DEIS.

The FEIS recommends appropriate equipment selection, silencers, increasing height of the barrier to the south and east of the intermodal rail yard, and hydraulic damping devices (Impact Noise Reduction System) on cranes to reduce the continuous and impact noise to less than significant.

Issue: According to the USEPA, noise increases by more than 10 dBA are potentially startling or sleep disturbing.

Response: The USEPA discussion refers to potential effects from single-event impact noise. The EPA discussion was provided to identify single-event impact criteria for communities other than the City of Pasadena. The City of Pasadena Municipal Code has established a maximum instantaneous sound pressure level limit of 75 dBA at anytime on any receiving property. A maximum instantaneous sound pressure level of 5 dBA above the ambient measured level on a residential property location between the hours of 10 p.m. and 7 a.m. is also prohibited. There are no state or Federal thresholds to evaluate the effects of single-event impact noise from a port facility. Single-event impact noise criteria in the vicinity of the project are only available for the City of Pasadena.

Sound levels from single-event impact noise were not addressed in the DEIS. The noise analysis was based on average sound levels and none of the analysis looks at maximum sound levels. Noise from individual impacts was assessed in the FEIS as a response to public comments to the DEIS. The FEIS states "According to the EPA, impacts exceeding the background noise level by more than approximately 10 dBA are potentially startling or sleep disturbing."

Issue: The City of Pasadena municipal code, which applies to El Jardin, prohibits an instantaneous sound level increase at residential property greater than 5 dBA from 10 p.m. to 7 a.m.

Response: The City of Pasadena municipal code was not identified in the DEIS because sound levels from single-event impact noise were not addressed. The noise analysis was based on average sound levels and none of the analysis looks at maximum sound levels. Noise from single-event impacts was assessed in the FEIS as a response to public comments to the DEIS.

Issue: The Bayport FEIS states that the City of Pasadena noise ordinance will be violated by the Bayport project as proposed by the PHA unless the port is closed from 10 p.m. to 7 a.m.

Response: No significant impacts in the City of Pasadena were identified in the DEIS. The noise analysis was based on average sound levels and none of the analysis looks at maximum sound levels. The DEIS estimates sound levels at only a few points. The DEIS did not predict sound levels using a 3-D model to predict sound levels over the study area.

Significant project noise impacts were identified in the FEIS in the City of Pasadena. The FEIS recommends appropriate equipment selection, silencers, increasing height of the barrier to the south and east of the intermodal rail yard, and hydraulic damping devices (Impact Noise Reduction System) on cranes to reduce the continuous and single-event impact noise levels to less than significant.

Issue: The Bayport FEIS also concludes that residential property values will decline because of these significant noise impacts.

Response: The DEIS did not specifically discuss property values and their relationship to noise levels. A discussion of the relation of noise levels to property values was added to Section 3.4 of the FEIS in response to comments on the DEIS.

Issue: For the first time, after five years of controversy, the Galveston District now admits that the Bayport facility will create major noise impacts on adjacent neighborhoods.

Response: Section 3.8.3.3 of the DEIS discussed the projected noise impacts for the Bayport Alternative. In response to comments on the DEIS the results of additional noise modeling, discussion of noise codes of nearby municipalities, and limited additional noise analyses were added to the FEIS. However, Section 3.8.3.3 of the DEIS clearly indicated the potential for noise impacts on lands adjacent to or near the Bayport site.

(g) The Adequacy of Analyses in the FEIS

Issue: The EIS should have analyzed the future impacts of deepening the HSC and BSC to accommodate post-Panamax container vessels with drafts of -52 feet or more. There is no analysis of the dredging of the Bayport Ship Channel to a depth of -45 feet – the current approved depth of the Houston Ship Channel. Further, it is reasonably foreseeable that fully-loaded post-Panamax vessels will be calling on Bayport at some point in the future, and that a channel depth of 56 feet will be requested in the future by the Applicant.

Response: The dredging volumes required to deepen the Bayport Ship Channel from its current authorized depth to a new authorized depth of -45 feet were included in the analysis of future dredging volumes discussed in Section 3.18 of the FEIS. This reasonably foreseeable action is also discussed in Section 4 of the FEIS, Cumulative Impacts. Proposed dredging to -56 feet MLT along the berth area during construction would be undertaken only for construction purposes. After wharf construction is complete that dredged area would be allowed to fill back in naturally to a project depth of -40 feet MLT. Given the 50+ year projected life of this facility, and the fact that the cost to deepen the wharf foundation in the future would be over 70 times the incremental cost of deepening the foundation now, it is entirely appropriate to construct the wharves to the proposed depth. The further dredging of both the Bayport Ship Channel and the Houston Ship Channel to depths greater than 45 feet is not under

consideration at this time. Any such additional dredging must first be authorized for study by the United States Congress – at which time appropriate environmental studies would be conducted and environmental documentation prepared. It is not appropriate to include such speculative actions in the EIS for this permit application.

Issue: The FEIS does not include an adequate analysis of the impact of the proposed facilities on adjacent residential property values.

Response: Section 3.4 of the FEIS includes a discussion of property values in neighborhoods in La Porte over a period of 12 years, 1988 – 2000. Some of these neighborhoods are in the vicinity of the Barbours Cut Terminal. The results of this study indicate that over this period property appreciation in the studied neighborhoods was approximately the same as that throughout Harris County. The USACE recognizes that some properties in the immediate vicinity of the proposed facilities at Bayport are likely to experience a diminution of value appreciation as residential properties. However, a large range of factors may affect future property values in this area, making it impractical for the USACE to develop a quantitative projection of future individual property values.

Issue: The FEIS does not appropriately disclose the increase in the threat of terrorist activities that would result from the proposed Bayport facilities.

Response: Section 3.13 of the FEIS includes a discussion of the threat of terrorist activities as they relate to new container facilities on Galveston Bay. Additional container facilities at any location would have the same potential for use by terrorists as an avenue for the delivery of weapons into the United States. It is unlikely that the container terminal would be the intended target. The choice of the port of entry for such weapons is more likely to be driven by the country from which it is shipped and the final intended destination than by a specific location of the terminal within the estuary. However, as discussed in the FEIS the USACE recognizes that the proximity of residential areas to any specific terminal site increases the potential for loss of life and damages to residential areas in the case of the discharge of such weapons at that site.

Issue: The FEIS has failed to properly consider the cumulative impacts of the concurrent development of the proposed Bayport terminal complex and the proposed Burlington Northern Santa Fe / San Jacinto Rail Limited rail line that will serve the Bayport industrial area. These two projects should have been considered in a common NEPA document.

Response: The proposed Bayport terminal complex and the proposed Burlington Northern Santa Fe / San Jacinto Rail Limited rail line have independent utility and are not dependent on each other to meet their respective purposes. The proposed BNSF/SJRR line would not serve the container movements associated with the proposed Bayport terminal complex. The Surface Transportation Board and the USACE have determined that joint NEPA document is not warranted.

Issue: The EIS fails to address potential alternative dredged material placement sites that might replace those at Spilmans Island, Shoal Point, and Pelican Island – which bias the analysis against those alternatives.

Response: In developing this ROD, the USACE has considered the potential costs and environmental impacts of replacing the dredged material placement capacity of those alternatives serving as PAs generally, and completed an additional analysis of the replacement of the Spilmans Island PA. This consideration is discussed in Section 6 (d) of this document.

Issue: The FEIS does not properly reflect the fact that the proposed project is inconsistent with the land use plans of adjoining municipalities, particularly with regard to residential land uses.

Response: The proposed project is consistent with the designated land use for the proposed site. The differences in land use regulations between adjoining jurisdictions are recognized in the FEIS, but this is not an issue appropriate for resolution by the USACE.

Issue: The text of the FEIS fails to fairly recognize the wide-spread community opposition to the proposed project.

Response: The FEIS includes the comments that have been received in response to the release of the DEIS and various public notices. The public positions of local municipalities are discussed in Section 3.4 of the FEIS.

8. Findings Summary

In summary, the proposed project will have some unavoidable adverse impacts to the existing environment. There will be impacts to area roadways from increased truck traffic and some segments of roadway will require improvements, especially by the time the terminal complexes would be in full buildout operation. There would be an increase in noise from construction and operations at the proposed project and from associated truck traffic. Due to concerns raised by local residents, a noise abatement wall may not be built on the north shore of the Bayport Ship Channel. There would be increased nighttime light and nightglow associated with the proposed facilities. These three areas of impact may have minor adverse effects on residential properties in close proximity to the proposed facilities.

Operation of the proposed facilities would result in increased discharges of gaseous emissions from vessels, trucks, container-handling equipment and other project-related sources. However, levels of air pollutants associated with these increased emissions are expected to be offset by improved control technologies introduced in future years. Further, these impacts are not expected to be significantly adverse, are subject to regulation by the TCEQ and EPA, have been fully coordinated

with those agencies, and are included in the State Implementation Plan for ozone attainment.

The proposed facilities would result in changes in localized stormwater runoff patterns and the types and volumes of contaminants that stormwater runoff might contain. However, control technologies proposed by the Applicant will minimize potential changes to receiving waters.

Operation of the proposed facilities will slightly increase the volume of hazardous materials that are moved through area port facilities and over area roadways. This could result in a small increased potential for spills of hazardous materials and could require expanded and improved hazardous material response programs and capabilities.

Operation of the proposed container facilities may incrementally increase the regional opportunities for the use of containers for transport of terrorist weapons in the region. The potential impact of the presence of such weapons would be exacerbated by the density of residential land use immediately surrounding the proposed project site. However, international trade organizations, Federal, state, and local authorities are implementing numerous new programs to reduce the threat of terrorist activities at Ports throughout the United States and around the world.

Operation of the proposed facilities would result in increased levels of ship traffic in the vicinity of northern Galveston Bay and the BSC. This increase will result in increased competition for the use of these waters between commercial and recreational traffic, and an increased potential for navigation accidents and incidents. However, the proposed facility would not significantly increase the total future projected ship traffic in Galveston Bay as compared to the No-Action Alternative.

Development of the proposed facilities would not result in an overall loss of jurisdictional wetlands, but could result in a decrease in overall wetland acreage in the immediate vicinity of the project. The proposed project would result in unavoidable adverse impacts to aquatic vegetation and wildlife, and the direct loss of several hundred acres of terrestrial habitat. The affected resources are of limited habitat value due to prior disturbance, and the impacts of these losses would be offset by the wetland and habitat creation, restoration, and preservation program proposed by the Applicant, which totals over 1,130 acres of mitigation as compensation for the approximately 146 acres of wetlands impact and 1,153 acres of terrestrial impacts. Some commenters have questioned or disagreed with the Galveston District's determination of the quantity of "waters of the United States", including wetlands, located on the project site. However, even if the Corps were to conclude that all of the aquatic areas on the site, including all of the wetlands on the site, were subject to CWA jurisdiction, the Applicant has provided ample mitigation to compensate for the loss of all aquatic areas on site that will be filled in or otherwise degraded by the project. Consequently, the CWA Section 404 permit that the Corps proposes to issue would still be fully justified in this case by the generous mitigation package offered by the Applicant. Therefore, issuance

of the proposed permit would still be appropriate under all applicable laws and regulations even if all aquatic areas on the project site were subject to CWA jurisdiction.

The proposed dredging associated with new berths and a new turning basin for the Cruise Terminal would result in a loss in the area of shallow bay bottom and an increase in areas of the bay with silt-dominated bottoms and low summertime levels of dissolved oxygen. These impacts would be offset by the Applicant's proposed development of additional marsh in Galveston Bay.

Construction and operation of the proposed facilities would result in additional volumes of dredged material from construction and maintenance dredging, and a corresponding increase in the need to develop future dredged material placement capacity. The location and potential environmental impacts of such additional placement capacity have not at this time been identified, but potential environmental impacts could result. Even without the terminal complexes, the estimated capacity of PA No. 14 would not be sufficient to accommodate the 50-year maintenance volumes from the BSC. The proposed project would increase the need.

Impacts to waters of the United States have been avoided or minimized to the maximum extent practicable. Those impacts considered adverse and unavoidable would be mitigated. Mitigation programs for wetland impacts are described in Section 4 of this document.

Economic benefits of the project to the Houston-Galveston area are expected to be substantial. The facility will create many jobs and increased tax revenues. The project will allow the Houston-Galveston area to continue to be competitive and satisfy the long-term growth in the local and regional demand for container goods.

The following special conditions are added to further satisfy and protect the public interest:

1. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers (CE), to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. All construction of mitigation within the Memorial Tract as shown on Sheet 24 of 30, including planting, must be initiated to coincide with start of construction within jurisdictional areas. The permittee will notify the CE Galveston District, Chief of Compliance, Regulatory Branch, in writing when the work begins in jurisdictional areas. Monitoring and maintenance will proceed according to the mitigation plan.

3. The mitigation success criteria listed below must be achieved for the mitigation requirement to be considered complete:

- A transplant survival survey of the planted mitigation area must be performed within 60 calendar days following the initial planting effort. If at least 50% survival of transplants is not achieved within 60 calendar days of planting, a second planting effort will be completed within 60 calendar days of completing the initial survival survey. If optimal seasonal requirements for re-planting targeted species are not suitable when replanting would be required, approval of re-planting schedule must be obtained from the CE Galveston District.

- Written reports detailing plant survival must be submitted to the CE Galveston District, Chief of Compliance, Regulatory Branch within 30 calendar days of completing the initial survival survey and any subsequent replanting effort.

- If after one year from the initial planting effort (or subsequent planting efforts) the site does not have at least 35% areal coverage of targeted vegetation, those areas that are not vegetated will be replanted using the original planting specifications.

- If after three years from the initial planting effort (or subsequent planting efforts) the site does not have at least 70% areal coverage of targeted vegetation, those areas that do not meet 70% areal coverage of targeted vegetation will be replanted using the original planting specifications.

- In addition to the initial survey report, progress reports will be submitted to the CE Galveston District, Chief of Compliance, Regulatory Branch at 6 months, 1 year, 2 year, and 3-year intervals following the initial transplanting effort or subsequent replanting efforts. Color photos of the mitigation site must be included.

- Should mitigation be determined to be unsuccessful by the CE at the end of the monitoring period, the permittee will be required to take necessary corrective measures. Necessary corrective measures should be determined by submitting a plan to the CE Galveston District, and approved prior to initiation. Once the corrective measures are completed, the permittee will notify the CE Galveston District and a determination will be made regarding success of the mitigation.

4. Turbidity curtains will be utilized during dredging operations to minimize sedimentation and turbidity in accordance with TCEQ regulations.

5. Either an electric dredge or an alternative method that does not exceed 25 tons/year of NO_X and VOC will perform dredging. Should an alternative method be utilized, a plan identifying dredge emissions, dredging schedule and compliance monitoring will be submitted to the TCEQ for approval prior to implementation. Copies of the plan will be furnished to the CE Galveston District immediately after finalizing the plan.

6. Archeological investigations in the form of shovel testing, site recordation, national register eligibility assessment, and mitigation must be conducted in the Project Area proper as shown on Sheet 4 of 30, the Memorial Tract as shown on Sheet 23 of 30, and mitigation areas constructed by the permittee prior to land clearing, grading, fencing, or other subsurface disturbance activities associated with construction. In addition, underwater archeological investigations in the form of side scan sonar and magnotometer surveys must be conducted in open bay areas of the Project Area, in the up to 200-acre beneficial use site as shown on Sheet 25 of 30, and in associated high probability sites for marine historic resources. All cultural resource work conducted must adhere to minimum survey standards as set by the Texas Historical Commission (THC), and prior to the field survey, a scope of work must be submitted to the Corps of Engineers (COE) staff archeologist for approval. Within 30 days after fieldwork has been conducted, the archeologist hired by the applicant must submit a draft report of field investigations for review and approval to both the COE staff archeologist and THC. In the event that the archeologist hired by the applicant does not submit a scope of work or coordinate with the COE staff archeologist and THC, or the work is not adequate, additional work may be required after coordination with the Corps staff archaeologist and as specified by the COE Regulatory Branch. COE staff archeologist and Regulatory Branch approval of the Final Report, and the receipt of a concurrence letter from the THC regarding the investigation, will represent the completion of the cultural resources review. If construction activities begin in conjunction with this permit (i.e. tree clearing, grading etc.) prior to an archeological survey, additional archeological investigations will be required.

7. A plan will be formulated for dust control and to monitor fugitive dust during construction. This plan must include both controls, monitoring, and monitoring locations to ensure that no NAAQS are exceeded as a result of project construction activities. This plan will be submitted to the CE and TCEQ for approval prior to the initiation of construction.

8. Prior to the start of construction, the permittee will retain a qualified acoustical consultant to prepare a construction noise control plan. The plan will evaluate noise levels based on the proposed construction equipment and construction phasing. The plan will require installing fixed monitors at 3 to 6 representative locations in the adjacent communities. The plan will identify specific measures to minimize noise at residential receptors. In addition, the nighttime ambient sound level will be measured and documented at representative receptors.

9. Excessive noise will be prohibited from 10:00 p.m. to 7:00 a.m. during construction. Excessive noise, in this case, is defined as +55 dBA L_{eq} (h) (hourly equivalent sound level) or 5 dBA above the ambient sound level where the ambient sound level is less than 50 dBA L_{eq} (h). This limit will be applied at the property line of the noise receptor. Reports of non-compliance will be referred to the appropriate local authorities for investigation and resolution.

10. The earthen berm near Todville Road will be constructed, as shown on the plan sheets, in phases in conjunction with the Bayport Channel dredging and site construction activities to minimize noise from operations and subsequent construction acitivities to the residences.

11. The permittee must coordinate the use of Dredged Material Placement Area Nos. 14 and 15 with the CE Galveston District's Navigation Branch, Operations Division, and Project Management Branch at least 60 days prior to conducting any work in or affecting the disposal area(s) to assure that the work will not conflict with U. S. Government dredging or placement area management activities.

12. In conjunction with the construction of the cruise terminal/turning basin, the permittee will create up to 200 acres of a "Beneficial Uses" site in Galveston Bay. It will be constructed after coordination with, and approval by, the Beneficial Uses Group.

13. AGREEMENTS BETWEEN THE PORT OF HOUSTON AUTHORITY AND THE RESOURCE AGENCIES:

- Not later than 360 days following issuance of the permit, the Banana Bend tract shall be incorporated in a conservation easement by a certified land trust and have a management plan.
- Not later than 360 days following issuance of the permit, the permittee shall have purchased the 500 acres of contiguous coastal prairie land tract and placed these lands in escrow or trust. Upon release of the tract from escrow or trust, the tract shall be incorporated in a conservation easement and have a management plan. The coastal prairie shall be within the Cypress Creek watershed, San Jacinto River Basin, or within the San Jacinto- Brazos Coastal Basin, which includes Galveston Bay, and approved by the FWS and TPWD. Agreements regarding transfer of lands are between the permittee and the FWS and the TPWD.
- Upon purchasing the specified tracts, as outlined in the mitigation plan, the permittee must provide a copy of the deed to the CE Galveston District, Chief of Compliance, Regulatory Branch within 1 month of closing on the property and a copy of the property's conservation easement within 6 months of purchase.

9. Conclusion

The proposed project is a public infrastructure initiative. The voters of Harris County approved a bond issue for the construction of a container facility by the Applicant, The Port of Houston Authority. The Applicant has proposed the construction of this facility on land which is zoned industrial and much of which the Applicant has owned for many years for the purposes of developing port related facilities. The USACE has determined that the site, industrial property located along a deep-draft navigation channel near Houston, would likely be developed for industrial purposes even if the USACE denied the permit. It is probable that the planned avoidance, minimization, and mitigation incorporated into this proposal may not occur at the same level with the piecemeal development of this site that is likely if the permit is denied.

Further, the proposal has been fully coordinated with the State and Federal resource agencies, who are now generally in agreement that the mitigation adequately compensates for all impacts.

While I recognize that there will be some negative impacts to nearby residents, the USACE has required the Applicant to avoid, minimize and mitigate for impacts and believes that the project, with conditions, represents the least environmentally damaging practicable alternative based on the Applicant's purpose and need for the project.

The USACE has reviewed and evaluated, in light of the overall public interest, the documents and factors concerning this permit application, as well as the stated views of other interested Federal and non-Federal agencies and the concerned public, relative to the proposed work in waters of the United States. This evaluation is in accordance with the guidelines contained in 40 CFR Part 230 pursuant to Section 404(b)(1) of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

Based on our review, I find that the proposed project is not contrary to the Public Interest and that a Department of the Army permit, with conditions, should be issued.

Leonard D. Waterworth

Leonard D. Waterworth
Colonel, Corps of Engineers
District Engineer

19 Dec 2003
Date

ACRONYMS

-A-

APE	Area of Potential Effect

-B-

BCT	Barbours Cut Terminal
BMP	Best Management Practice
BOD/BOD_5	Biological Oxygen Demand
BSC	Bayport Ship Channel
BUG	Beneficial Uses Group
BUS	Beneficial Use of Dredged Material Site

-C-

CAA	Clean Air Act
CAAA	Clean Air Act Amendments of 1990
CAG	Citizen Advisory Group
CBP	County Business Patterns
CCC	Coastal Coordination Council
CD	Compact Disc
CE	Corps of Engineers
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIDH	Cast in Drilled Holes
CIMA	Channel Industries Mutual Aid
CMP	Coastal Management Program
CNRA	Coastal Natural Resource Area
CO	Carbon Monoxide
CWA	Clean Water Act
CZM	Coastal Zone Management
CZMP	Coastal Zone Management Plan

-D-

DA	Department of the Army
dBA	A-weighted sound level
DEIS	Draft Environmental Impact Statement
DO	Dissolved oxygen
DPM	Diesel Particulate Matter

-E-

EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EMS	Emergency Management Service
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESL	Effects Screening Level

-F-

FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration of the Department of Transportation

FIRM	Flood Insurance Rate Map
FM	Farm-to-Market Road
FRM	Federal Reference Method
FWS	US Fish and Wildlife Service
	-G-
GBCPA	Galveston Bay Conservation and Preservation Association
GBF	Galveston Bay Foundation
GCD	General Conformity Determination
GCWDA	Gulf Coast Waste Disposal Authority
	-H-
HCFCD	Harris County Flood Control District
HGA	Houston-Galveston Area
HGONAA	Houston-Galveston Ozone Non-Attainment Area
H-GAC	Houston-Galveston Area Council
hp/ft	horsepower per foot
HSC	Houston Ship Channel
HUD	United States Department of Housing and Urban Development
HYC	Houston Yacht Club
	-I-
I	Interstate
ISCAT3	EPA Approved Air Model
	-K-
	-L-
L_{dn}	Day-night average noise level
L_{eq}	Equivalent sound level
LEDPA	Least Environmentally Damaging Practicable Alternative
LIDAR	Light Detection and Ranging
	-M-
mcy	million cubic yards
MD	Medical Doctor
MLT	Mean Low Tide
MS4	Municipal Separate Stormwater Sewer System
MSGP	Multi Sector General Permit
	-N-
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act of 1966
NMFS	National Marine Fisheries Service
NO_x	Nitrogen Oxides (($NO + NO_2$) + the nitrate radical (NO_3))
NOAA	National Oceanic and Atmospheric Administration
NWF	National Wildlife Federation
NWI	National Wetland Inventory
	-O-
OSHA	Occupational Safety and Health Administration

-P-

PA	Dredged Material Placement Area
PCB	Polychlorinated biphenyl
PHA	Port of Houston Authority
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in diameter
PM_{10}	Particulate Matter less than 10 microns in diameter
POHA	Port of Houston Authority

-Q-

-R-

RfC	Reference Concentration
ROD	Record of Decision

-S-

SEIS	Supplemental Environmental Impact Statement
SE/NE	southeast/northeast
SE/SE	southeast/southeast
SH	State Highway
SIP	State Implementation Plan
SOAH	State Office of Administrative Hearings
SWANCC	Solid Waste Agency of Northern Cook County
SWPPP	Stormwater Pollution Prevention Plan

-T-

TAMUG	Texas A&M University, Galveston
TCEQ	Texas Commission on Environmental Quality
TCMP	Texas Coastal Management Program
TEOM	Tapered Element Oscillating Microbalance
TEU	twenty-foot equivalent units
THC	Texas Historical Commission
TIP	Transportation Improvement Plan
TMDL	Total Maximum Daily Load
TMTA	Texas Motor Transportation Association
TNRCC	Texas Natural Resource Conservation Commission
tpd	tons per day
TPDES	Texas Pollutant Discharge Elimination System
TPH	Total Petroleum Hydrocarbons
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
TSS	Total Suspended Solids
TTI	Texas Transportation Institute
TxDOT	Texas Department of Transportation
TXGLO	Texas General Land Office

-U-

µg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
U.S.	United States
USACE	United States Army Corps of Engineers

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

-V-

VOCs	Volatile Organic Compounds

-W-

WDM	Wetland Delineation Manual
WSA	Women's Sailing Association

-X-

-Y-

-Z-

EVALUATION OF THE EFFECTS OF A DISCHARGE OF FILL MATERIAL INTO WATERS OF THE U.S. USING SECTION 404 (b) (1) GUIDELINES

APPLICANT:

Port of Houston Authority
Attn: H. T. Kornegay, Executive Director
P.O. Box 2562
Houston, Texas 77252-2562

APPLICATION NUMBER: 21520

1. PROJECT DESCRIPTION.

a. Location. The proposed Bayport Channel Container/Cruise Terminal site is a 1,043-acre tract located along the south and north sides of the Bayport Ship Channel (BSC), west of the Houston Ship Channel, and 25 miles southeast of downtown Houston, in Harris County, Texas. The project is on the western shore of Galveston Bay, and is part of the City of Pasadena and of the City of Seabrook. The project can be located on the U.S.G.S. quadrangle map entitled "League City, TEX." Approximate UTM coordinates: Zone 15; Easting: 306000; Northing: 3277000.

b. Project and Site Description. The Port of Houston Authority proposes to construct a container terminal complex and a cruise ship terminal complex, including 756 acres for a container terminal complex, 131 acres for a cruise terminal complex and related co-development areas, 156 acres for buffer area and stormwater management area, a new 1,600-foot-diameter cruise ship turning basin, an access area between the new wharves and the BSC, and a Beneficial Use Site (BUS) with created intertidal marsh. Dredging and filling activities for the container terminal and the cruise terminal would each be accomplished during four phases over 15 to 20 years. Dredged material from the construction of the container terminal complex and the first 1,000 feet of the cruise terminal complex would be placed onsite and used to raise the site elevation and to construct a noise reduction berm. The onsite placement plan calls for mechanical dredging of material for use as fill in the container terminal complex and mechanical or hydraulic dredging of the material to be placed for fill in the berm or the intermodal yard. During construction of the container wharves, runoff from the sediments placed onsite would be discharged to the surrounding waters. The remainder of the medium to stiff clay material from the construction of the cruise terminal and turning basin would be used as either levee raising material for PA Nos. 14 or 15, or as material to construct BUS containment levees. The proposed BUS would be filled incrementally with material removed from the proposed project and maintenance dredging events of the BSC and HSC. Variations in the depth of dredged materials placed in the cell would promote the development of tidal channels and pools that would accrue over time. Unconsolidated fine sediment would be pumped into PA Nos. 14 or 15 depending on the status and availability of either cell. This fine-grained sediment placement would be offset during a later dredging activity by material used to fill the BUS. Dredged material resulting from maintenance of the new facilities would likely be at PA No. 14; a possible beneficial use of some of the dredged material could be as fill for marsh creation.

The areas (in acres) of aquatic resources within the construction boundaries of the proposed project would be affected in the following manner:

Type	Total	Filled	Dredged	Slope[1]
Jurisdictional salt marsh wetland	0.4	0	0	0
Jurisdictional freshwater wetland	19.3	19.3	0	0
Non-jurisdictional freshwater wetland	126.7	126.7	0	0
Open water and mudflat	130.4	2.2	127.3	0.9

[1] Area of concrete slope protection from mean high tide line to bottom of protection.

The Applicant proposes to provide compensatory mitigation for impacts to jurisdictional wetlands and other ecological resources at three tracts, the Memorial Tract, the Banana Bend Tract, and a coastal prairie tract. The Memorial Tract Mitigation Plan includes: 1) the creation of approximately 66.8 acres of freshwater emergent wetlands; 2) the enhancement of approximately 12.0 acres of existing prairie wetland, tallow forest wetland, shallow pond wetland, oak forest wetland, and intertidal freshwater wetlands; 3) the preservation of approximately 23.7 acres of forested and scrub uplands; and 4) the enhancement of approximately 71.0 acres of coastal prairie habitat. The Applicant would permanently preserve the 456-acre Banana Bend Tract and 500 acres of coastal prairie. Further information can be found in the FEIS, dated May 2003.

c. Authority. Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

d. General Description of the Dredged or Fill Material. The material to be dredged and used for fill consists of sandy silt and silty sand surficial sediments, underlain by stiff, dense clays. Creation of the container terminal would produce approximately 2.9 mcy of dredged material sediment, and the combined phases of the cruise terminal and turning basin would produce approximately 4.9 mcy of dredged material sediment. Approximately 3.7 mcy of dredged material sediment would be used onsite, and approximately 2.4 mcy of unconsolidated fine sediment dredged material would be placed within PA Nos. 14 and 15, depending on availability. In addition, 1.7 mcy of new work dredged material composed of medium to stiff clay would be used to reconstruct levees at PA 15 as well as to construct new levees for the BUS.

e. Description of the Fill Site. The Bayport site is vacant property, the majority of which is situated on pasture and prior dredged material PAs. The area has undergone various disturbances, including residential development (1800s and 1900s), cultivation, grazing, channel construction, deposition of excavated materials, airport construction, road construction, pipelines, drainage pattern alterations, oil and gas activities, and other forms of development and land leveling. During construction of the BSC and turning basin in the 1960s, excavated material and dredged material were deposited on the site, and a series of drainage ditches have been excavated. Wetland areas remain scattered throughout the property. Areas subject to the USACE jurisdiction within the Bayport site include freshwater and estuarine marshes and tidal ponds. The approximately 146 acres of onsite wetlands at the Bayport site are primarily isolated, depressional wetlands, occurring both within upland/wetland mosaics and as individual isolated depressions. An additional 0.4 acres north of the BSC are comprised of intertidal salt marsh; that area would not be impacted. At the Bayport project site, in addition to the uplands and wetlands that would be filled for project development, approximately 2.2 acres of open water and intertidal mudflats would be filled, and 0.9 acres of land below the MHT line would be covered by bank stabilization. Placement Areas No. 14 and 15 are existing offsite, confined

PAs. Dredged material from the Bayport Ship Channel is currently placed in PA No. 14. The proposed site of the BUS is open water of Galveston Bay, on the east side of PA No. 14. If the maximum 200 acres of BUS are constructed, the levees would occupy approximately 7.4 acres. The BUS configuration would create a single cell to retain the softer sediments proposed for marsh creation.

Much of the wetland area at the project site has been invaded by Chinese tallow (*Sapium sp.)*. Depressions in open pasture areas are dominated by spikerush, flatsedge, smartweed, and beakrush. Significantly disturbed remnant coastal prairie wetlands on the site typically support soft rush, sugarcane plumegrass, green flatsedge, beakrush, jointed rush, and little bluestem. Upland plant communities consist of Chinese tallow, very small areas of deciduous forest co-mingled with Chinese tallow, grassland/pasture (mixed with some Chinese tallow), and developed/industrial land. Small, isolated areas of deciduous forest are primarily willow oak. Construction of the proposed terminal complexes would result in the loss of approximately 20 acres of hardwood forest, 357 acres of Chinese tallow/deciduous forest habitat, 735 acres of pasture/grassland habitat, and 21 acres of existing industrial land. Total long-term terrestrial habitat loss would be approximately 1,133 acres, but the quality of this habitat is generally low, and similar habitat is available in the area.

2. FACTUAL DETERMINATIONS (230.11).

a. Physical Substrate Determinations.

(1) Substrate Elevation and Slope. The Bayport site has an average land slope of less than 3 feet per mile. Elevations on the site are generally around +15 feet MLT. Within the project boundaries, the Bayport Ship Channel is –40 feet MLT in depth, with a 300-foot bottom width. Open bay areas surrounding the Bayport Ship Channel and the Houston Ship Channel in the project area are generally –3 to –5 ft MLT in depth, with gradual slopes.

(2) Sediment Type. New work dredged material consists of sandy silt and silty sand surface sediments, underlain by stiff, dense clays.

(3) Fill Material Movement. As the dredged material used to construct the new BUS containment levees consolidates and stabilizes, some sloughing of material onto adjacent bay bottom would occur. This would bury infaunal organisms in the fringe area until the levee consolidation is complete. Infaunal organisms would be expected to re-colonize the impacted area as well as the portion of the levee side slope below mean low tide.

(4) Physical Effects on Benthos. The BUS constructed levee area above mean high water would be permanently lost as productive aquatic habitat. The recovery of the shallow water benthic infaunal community following dredging and/or deposition of dredged material would require approximately 18 months.

(5) Actions Taken to Minimize Impacts. The open bay area filled for construction of the bulkhead/wharves for the cruise terminal was reduced from 23.5 acres to 2.2 acres. Appropriate Best Management Practices would be used as necessary to reduce the movement of fill material. BUS levees would be constructed of new work dredged material obtained from new work dredging of the East Turning Basin. The BUS is expected to provide a net benefit to

fisheries species. Turbidity curtains will be utilized during dredging operations to minimize sedimentation and turbidity. If hydraulic dredging is used to place material for fill at the terminal locations, temporary placement area containment levees would be constructed.

b. Water Circulation, Fluctuation, and Salinity Determinations. Dredging activities associated with the turning basin and berths in portions of Galveston Bay and the BSC would create depressions in the existing beds of these water bodies. These depressions may form pockets of relatively low DO near the bottom during summer months due to warmer temperatures and relatively poor flushing similar to that currently found in the BSC. Existing data indicate that the water column in the BSC gets stratified during summer months, and this stratification creates zones of depressed DO and high salinity near the channel bottom and relatively high DO and low salinity near the channel surface.

c. Suspended Particulate/Turbidity Determinations. A temporary increase in turbidity in the BSC area may occur during construction. This may result in a short-term adverse impact to offsite estuarine wetlands and open water habitats in the general area. For the offsite PAs, the primary impact from the placement of the material would be temporary elevated turbidity levels in the bay waters during levee construction and also in the discharge water from the material hydraulically dredged and placed within the completed levees. These impacts should be comparable to the impacts experienced on other similar projects in the Galveston Bay area in which dredged material was used to create marsh habitat. Discharge water from offsite placement operations associated with the construction and maintenance dredging are not anticipated to negatively impact surrounding water quality.

d. Contaminant Determinations. The water quality data collected by the USACE under the Dredged Material Sample Program and the site-specific water quality and elutriate samples collected and analyzed for the EIS include some exceedance of copper both in water and elutriates. Recent elutriate samples from the sediments in the Bayport Ship Channel indicated copper concentrations varying from less than 1.0 to 8.2 micrograms per liter (µg/l). The dredged materials may contain traces of heavy metals, nutrients, and organic matter typical of the sediments in the BSC and the adjacent segment of Galveston Bay. Sediment quality data indicate that the contaminants measured in recent years have not exceeded TCEQ screening levels. The chemical constituents of runoff from the PAs would also be the same. Thus, dredging activities are not expected to have significant impacts on the concentrations of chemical and biological constituents of water in the BSC and the adjacent segment of Galveston Bay. The physical and chemical characteristics of the maintenance-dredged material are expected to be similar to the maintenance material currently dredged from the Bayport Channel.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton, Benthos, and Nekton. During the initial dredging, the benthic infaunal community would be removed from the BSC and turning basing areas. Maintenance dredging of the BSC would impact the benthic community occupying the open-bay bottom and increase suspended solids would temporarily lower phytoplankton productivity in the vicinity. These impacts are expected to be temporary. At the BUS, the constructed levee area above mean high water would be permanently lost as productive aquatic habitat. As the dredged material used to construct the levees consolidates and stabilizes, some sloughing of material onto adjacent bay bottom would occur. This would bury infaunal organisms in the fringe area until the levee consolidation is complete. Infaunal organisms would be expected to re-colonize the impacted area as well as the portion of the levee side slope below mean low tide.

(2) Effects on Aquatic Food Web. Reductions in primary productivity from increased turbidity during dredging activities would be localized and temporary. The decrease in primary productivity may be offset by increased nutrient content. Creation of the BUS would increase productivity in the long-term by providing feeding and nursery habitat for a variety of aquatic organisms.

(3) Effects on Special Aquatic Sites.

(a) Sanctuaries and Refuges. The project would have no effect on refuges or sanctuaries.

(b) Wetlands. Development of the proposed terminal complex would result in the fill or excavation of approximately 146 acres of freshwater wetlands within the project site.

(c) Mud Flats. Approximately 1.56 acres of intertidal mud flats would be permanently lost to filling activities associated with the construction of the berthing areas, reducing resting and foraging habitat for pelicans, shorebirds, and other species that utilize these areas.

(d) Vegetated Shallows. The project would have no effect on submerged, vegetated shallows (seagrasses).

(4) Effects on Threatened and Endangered Species. Kemp's Ridley and juvenile loggerhead sea turtles, both Federally and state-listed species, are known to feed in numerous areas within Galveston Bay but neither species has been recorded near the Bayport site. Any potential impacts on these species, such as avoidance of the area, particularly during construction, would be limited. Several protected bird species potentially occur as transient visitors to the Bayport area, including the brown pelican (Federally and state-listed endangered), American peregrine falcon (state-listed threatened), reddish egret (state-listed threatened), white-faced ibis (state-listed threatened), wood stork (state-listed threatened), interior least tern (Federally and state-listed endangered), mountain plover (proposed Federally threatened), piping plover (Federally and state-listed threatened), swallow-tailed kite (state-listed threatened), and white-tailed hawk (state-listed threatened). Habitat on the Bayport site is poor for all of these species; however, they may occasionally use the location for resting or, for some species, for foraging during the migration season. Brown pelicans are known to rest on shorelines throughout the entire region and to forage over the entire bay. However, most of the shoreline on the Bayport site is a steep bluff, so this species is not expected to occur in significant numbers. All of these protected or rare birds are highly mobile and easily avoid construction activities. Therefore, accidental takings during construction would not be expected. None of these species is known to nest on the Bayport site, so reduction in habitat required for breeding is not expected. A long-term reduction in foraging habitat would occur due to terminal complexes development. Potential impacts on these species during construction would be considered a short-term adverse impact.

(5) Effects on Other Wildlife. Although upland plant communities currently present on the Bayport site do not represent historic riparian forests and coastal prairie, the area nonetheless provides habitat for a variety of animal species. As part of the preparation of the EIS, a qualitative upland wildlife habitat assessment was developed. This assessment found that while the site is fairly large, it is fairly isolated within the context of regional development,

which degrades the potential habitat quality of the site. Further, the site has been subject to considerable disturbance by human activities such as cultivation, grading, drainage and grazing. In addition, in recent years Chinese Tallow has heavily invaded the site. Available habitat for existing species, as well as habitat for recruitment of new species would be lost, and incidental taking of non-mobile species would be expected to occur. Species potentially affected are common to the Galveston Bay area. Fish, shellfish, and estuarine reptiles and birds that utilize the open-bay waters and open-bay bottoms in the BSC would be temporarily displaced during project construction. Increased turbidity during the construction period may temporarily affect the foraging capability of some species.

(6) Actions Taken to Minimize Impacts. The Applicant proposes to provide compensatory mitigation at three tracts, the Memorial Tract, the Banana Bend Tract, and a coastal prairie tract, for impacts to jurisdictional wetlands and other ecological resources. This would adequately mitigate for wetland and habitat impacts. The EPA, FWS, and the TPWD have indicated that the Applicant's proposed plan appropriately compensates for projected impacts to fish and wildlife resources, and TCEQ recognizes that the Memorial Tract marsh creation and the proposed preservation of a new mitigation site at the Banana Bend tract and preservation of 500 acres of coastal prairie habitat within the floodplain or floodway of the Cypress Creek watershed compensates for the lost water quality functions of 126.7 acres of hydrologically isolated wetlands in the US and provides important water quality functions. Up to 200 acres of BUS would be constructed from new work material from dredging of the East Turning Basin and finer-grained material, and the resulting inter-tidal marsh is expected to produce net benefits to fish habitat. Turbidity curtains will be utilized during dredging operations to minimize sedimentation and turbidity.

f. Proposed Disposal Site Determinations.

(1) Mixing Zone Determinations. Increases in turbidity associated with dredging activities during construction and maintenance of the facility would be short-term and localized. Increases are expected during dredging and placement operations of new work and maintenance material and during creation of the BUS. The severity of the impact would be related to the duration of the dredging activities and the volume of the dredged material. Increased turbidity levels would have temporary adverse effects on photosynthesis, suspension/filter feeders, and sight feeders in the immediate vicinity of dredging and placement activities.

(2) Determination of Compliance with Applicable Water Quality Standards. The Texas Commission on Environmental Quality (TCEQ) evaluated the project to ensure that it would not violate established Texas Water Quality Standards pursuant to the provisions of the Section 401 of the Clean Water Act. The TCEQ, by letter dated 16 December 2003, certified that the project would not violate established Texas Water Quality Standards pursuant to the provisions of Section 401 of the Clean Water Act, provided that standard provisions in Attachment 1 of the certificiation are followed.

In addition, the following measure has been agreed to between the TCEQ and the Applicant (The Port of Houston Authority) to assist in satisfying State water quality requirements: the Applicant revised permit plan sheet 25 of 30 to include a note stating "Agreement between PHA and TCEQ: The PHA commits to meeting the TCEQ 300 mg/L TSS requirement at outfalls as applicable."

(3) Potential Effects on Human Use Characteristics.

(a) Municipal and Private Water Supplies. It is anticipated that the City of Pasadena would provide potable water service. There are three state-registered water wells located within a 2-mile radius of the project. The threat of groundwater contamination caused by the release of petroleum products or other hazardous materials during construction and operation of the facility would be minimized by the use of Best Management Practices and compliance with Federal, State, and local regulations.

(b.) Recreational and Commercial Fisheries. Cumulative effects may include a general reduction in the local population sizes of some aquatic animal species. Galveston Bay to the east of the proposed project supports fishing and other water-related recreational activities. The most likely indirect impact is the potential for conflicts between commercial vessels and recreational boats. Use of the BUS by managed species would be delayed until completion of the construction and stabilization of the cells and dependent on development of the tidal features. Managed species would garner limited benefits from the created marsh until construction and stabilization are completed.

(c) Water Related Recreation. No direct impacts to designated recreational sites are projected to occur due to development of the proposed facilities at the Bayport site. The Seabrook Fairgrounds formerly located on the site have been relocated to a site at the intersection of SH 146 and Red Bluff Road. The most likely indirect impact is the potential for conflicts between commercial vessels and recreational boats. This potential is increased where the boater needs to cross the Bayport or Houston ship channel to reach a destination. Another likely indirect impact is the potential for increased wave intensity at piers and beaches that may interfere with small boat operations.

(d.) Aesthetics. The proposed facilities at the Bayport site would change the visual character of this site from an undeveloped, vegetated area to a lighted continuously operated industrial facility. Changes in the visual character of the Bayport site and subsequent changes in viewsheds from offsite residential and industrial locations would occur. There would be a buffer zone on the south and east boundaries of the proposed terminal complexes. The buffer zone would be at least 100 feet wide and vegetated so that the view of the terminal complexes may be obscured. On the north side of the Bayport Channel, the viewshed from Shady Oaks, the HYC, Bay Colony, and Shoreacres subdivisions is currently obstructed due to the proximity of other houses, heavy vegetation, and large trees. Most of the vegetation on the north shore of the BSC is deciduous, meaning that the vegetation would be less of a shield during the fall and winter seasons when trees are bare.

(e.) Effects on Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. Deed records and structural features indicate Site 41HR831 is a 20th century house site and possible homestead; however, no associated artifacts were recovered from the site. Site 41HR832 is identified as a single component historic occupation consisting of the ruins or foundations of 20 structure groups, which reflect no significant pattern of history. Site 41HR833B was identified as a historic farmstead without associated artifacts. The high probability areas around the Bayport site appear to be confined to the coastal margins of Galveston Bay. The Applicant has agreed that prior to beginning construction areas of

the project (i.e. Memorial tract, cruise berth areas, and offshore areas) the Applicant would obtain the appropriate surveys/studies and approval. SHPO has provided concurrence that assessment prior to construction is acceptable, and a special condition will be added to the permit to require the surveys.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. The loss of open water habitat and wetlands in the area would continue to affect natural resources. The development of the compensatory mitigation areas and BUS, however, should create, enhance, and preserve habitat to ensure the ecosystem's sustainability. Although dredging activities would affect water quality in the Galveston Bay area, impacts would be temporary and localized, and the use of Best Management Practices and a special condition requiring turbidity curtains should result in minimal adverse impacts to water quality and aquatic resources in the area.

h. Determination of Secondary Effects on the Aquatic Ecosystem. The addition of the facility to the area may lead to the potential development of secondary, or ancillary growth effects in the general vicinity. The potential addition of these secondary facilities would represent a small portion of the overall land use changes likely to occur in the area over the next several years with or without the project. Any development that would potentially impact jurisdictional areas including navigable waters and wetlands would require a Department of the Army permit and would go through the required review process.

3. DETERMINATIONS ON DISCHARGE (230.10 (a) – (d)).

a. The discharge does represent the least environmentally damaging practicable alternative as discussed in the Record of Decision. The applicant has minimized the amount of fill to the maximum extent practicable. In addition, an alternatives analysis and mitigation plan has been submitted.

b. The activity does not appear to:

(1) Jeopardize the existence of federally listed endangered species or their habitat; or

(2) Violate requirements of any Federally designed marine sanctuary.

c. The TCEQ certified by letter dated 16 December 2003 that the project would not violate established Texas Water Quality Standards pursuant to the provisions of Section 401 of the Clean Water Act, and that the action is consistent with the applicable Coastal Management Program goals and policies.

d. Appropriate and practicable steps were taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem. Compensation for lost wetland values has been proposed.

4. FINDINGS OF COMPLIANCE OR NONCOMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE (230.12 (A)–(B)). On the basis of these Guidelines (subparts c through g), the proposed disposal sites for the discharge of fill material does comply with the Section 404 (b) (1) Guidelines.

L D Waterworth

Leonard D. Waterworth
Colonel, Corps of Engineers
District Engineer

19 Dec 2003

Date