

MEMORANDUM FOR CEMP-SWD (ATTN: Yvonne Haberer)

SUBJECT: Freeport Harbor Channel Improvement Project (FHCIP) Final Feasibility Report and EIS (September 2012) – Documentation of Review Findings

1. This memorandum forwards the documentation of policy compliance review findings for the subject project. In the opinion of the policy compliance review team, all policy review concerns have been adequately addressed for this phase of project formulation and development.
2. Office of Water Project Review consideration of subject Final Feasibility Report and Environmental Impact Statement is complete. Questions concerning the HQUSACE policy compliance review of this project proposal may be discussed with the review manager, Lee Ware, at 202-761-0523.

Encl



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DOCUMENTATION OF REVIEW FINDINGS

HQUSACE, Office of Water Project Review

FREEPORT HARBOR CHANNEL IMPROVEMENT PROJECT

Brazoria County, TX

**Final Feasibility Report and
Environmental Impact Statement**

(September 2012)

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DOCUMENTATION OF REVIEW FINDINGS

FREERPORT HARBOR, TEXAS- CHANNEL IMPROVEMENT PROJECT FINAL FEASIBILITY REPORT AND FEIS DATED SEPTEMBER 2012

1. REVIEW HISTORY

The HQUSACE Policy Review Team conducted a policy review of the Freeport Harbor Channel Improvement Project Alternative Formulation Briefing (AFB) submittal of January 2009. The AFB was held via video teleconference on 3 April 2009. A Policy Guidance Memorandum (PGM) was issued on 17 June 2009. The PGM documented the review comments, district responses, discussion and required actions to be addressed as the feasibility study progressed. Per the AFB discussions, additional analysis was necessary to identify the NED plan and the LPP.

On 19 March 2010, Galveston District submitted a draft Feasibility Report and draft Environmental Impact Statement (dated March 2010), as the read-ahead documentation for the Feasibility Review Conference. HQUSACE provided a memorandum to the SWD dated 27 May 2010, which documented unresolved comments, as well as new comments generated from the review of the March 2010 draft report. The most significant concerns at that time included accounting of associated project costs, compensatory mitigation, conflicting information in the report regarding the NED plan, development of the future container fleet, and proposed cost sharing for non-Federal sponsor work in the Lower Stauffer Channel prior to authorization. The Galveston District prepared responses, and submitted the responses to HQUSACE in preparation of the FRC. The FRC was held via teleconference on 11 August 2010. The FRC discussion was documented under each policy review comment, along with the required action to be taken.

In memorandum dated 1 November 2010 to CESWD-PDS-P, the SWD-RIT approved concurrent public release and HQUSACE policy review of the revised draft Feasibility Report, pending approval of the locally preferred plan (LPP) by the ASA (CW). HQUSACE processed the LPP waiver request, and received ASA (CW) approval of the LPP on 30 Nov 2010.

Galveston District released the draft Feasibility Report and EIS (dated December 2010) for public review in December 2010, and at the same time provided HQUSACE copies for policy review. A policy review was conducted and documented in a Policy Compliance Memorandum from CEMP-SWD to CESWD-PDS-P dated March 10, 2011.

The final Feasibility Report and EIS dated April 2011 was submitted to HQUSACE for policy review. The policy review was conducted in preparation for the Civil Works Review Board that was scheduled for 12 May 2011. A two week "fatal flaw" review was conducted, and several significant policy issues were identified. This resulted in an exchange of preliminary HQ assessment comments and District responses, which are included in the record below for

clarification of the concerns. A vertical team meeting was held between HQ/Division/District on 4 May 2011 to decide whether to go forward with the CWRB on May 12 with outstanding issues, or delay the CWRB and work outstanding issues. Division/District Commanders decided to reschedule the CWRB and work outstanding issues prior to consideration by the board.

Policy review was completed after the decision to reschedule the CWRB and comments were provided to the field on 19 May 2011. A revised final report was submitted on 14 June 2011 as a basis for holding the CWRB meeting which was rescheduled to 28 June 2011. At the CWRB the board took no action on the report given concerns about issues raised by Independent External Peer Review on the vessel fleet and commodity projections, container and service vessel benefits, and the need for review and approval of the economic model. The revised final report and EIS dated June 2012 were submitted for HQ policy review in July 2012. Review of the revised final report identified no significant new policy concerns and minor new concerns were addressed in the final report. A second CWRB was held on 23 August 2012 to review outstanding issues from the one held in June 2011. Based on the revised analyses in response to IEPR comments and the economic model review/approval the Board voted unanimously to release the report for State and Agency Review,

Section 3 below summarizes the new comments and responses on the August 2012 final report that were coordinated informally and incorporated into the report prior to State and Agency review. Section 4 discusses the resolution of policy review comments identified during review of the June 2011 draft final report. Section 5 discusses the resolution of comments identified during the review of the April 2011 draft final report. Section 6 discusses resolution of concerns from concurrent review of the Draft Feasibility Report and EIS in December 2010. Section 7 presents the resolution of comments on the March 2010 FRC draft report prior to its public release. Section 8 discusses the resolution of comments from review of the materials in advance of the Alternative Formulation Briefing in April 2009.

2. PROJECT BACKGROUND

2.A. STUDY AREA. Freeport Harbor is located immediately south of the city of Freeport in Brazoria County, Texas, on the middle Texas coast approximately 140 miles southwest of the Houston-Galveston area.

2.B. PROBLEM. The existing Federal project includes a 47-foot (MLT)-x-400-foot offshore Outer Bar Channel, a 45-foot (MLT)-x-400-foot Main Channel, and 36-foot (MLT) depth to its general cargo docks. A 45-foot (MLT) project depth extends from the offshore jetty Channel through the Upper Turning Basin just below the Stauffer Channel. The 36-foot (MLT) depth Brazos Harbor Turning Basin and its associated access channel, intersect the 45-foot (MLT) channel just below the Stauffer Channel. Pilot rules stipulate maximum lengths and beams of 820 feet or 145 feet. Daylight-only operation is enforced for vessels greater than 750 feet long or 107 feet wide. Beam constraints exacerbate traffic delays.

The largest general cargo vessels at Freeport range from 40,000 to 46,000 DWT. Freeport's existing LNG facility includes two 160,000 m³ storage tanks and one marine terminal capable of handling LNG vessels in excess of 200,000 m³. The tanker sizes associated with lightening on Texas Gulf Coast range from 120,000 to 175,000 DWT. Tankers larger than 175,000 are totally

lightered offshore onto shuttles. Direct shipments use tankers between 90,000 DWT and 120,000 DWT. Examination of the per ton transportation cost for shipments from Mexico and South America to Freeport shows that 110,000 to 120,000 DWT is the most –cost effective choice given channel depths between 45 and 48 feet (MLT). For depths between 50 and 53 feet (MLT), the most cost-effective size for direct shipment is between 150,000 and 175,000 DWT. The maximum-sized vessels used for Nigerian crude oil are principally in the 110,000 to 175,000 DWT range. Vessels over 200,000 DWT are used for some Northern Europe transits associated with offshore lightering operations. Vessels in the 200,000 to 375,000 DWT range are used for Persian Gulf crude.

2.C. STUDY AUTHORIZATION. Authority for the study is contained in Section 216 of the 1970 Flood Control Act.

Section 216. The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due to significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest.

2.D. SELECTED PLAN. There are three components to both the NED and LPP plans. These include the Freeport Channel, Lower Stauffer Channel and Upper Stauffer Channel. For Freeport Channel the NED plan is 50/60 feet (MLT) while the LPP is smaller at 50/55 feet (MLT). The Outer Bar channel from the end of the jetties to deep water in the Gulf would have depths of 62 feet and 57 feet (MLT), respectively for the NED and LPP. Depths referenced in MLT datum would be one foot lower in MLLW datum (ie.50/60 MLT = 51/61 MLLW). The NED plan depth for the 3,100-foot long Lower Reach of Stauffer Channel is at 50 feet (MLT) and the Lower Stauffer would also be widened to 300 feet. The NED plan for the Upper Reach of Stauffer Channel is at 25 feet (MLT).

2.E. ECONOMICS. The final report shows the total cost of the recommended LPP as \$297.35M million with an estimated Federal share of \$122.51 million, a non-Federal share of \$173.84 million including LERR and associated costs, and Federal costs for navigation aids of \$1.38 million. With average annual benefits of \$48,042,000 and average annual costs of \$25,449,000, the overall benefit to cost ratio for the LPP is 1.9 as shown in Table 55. The average annual costs include O&M costs of \$11.37M which will be cost shared \$6.25M Federal and \$5.12M non-Federal. The NED plan was deeper than the LPP and had a benefit to cost ratio of 2.3.

2.F. STATE AND AGENCY REVIEW. The Final Feasibility Report and Environmental Impact Statement was approved for State and Agency Review on 23 August 2012. The review period began on 29 August 2012 and ended on 9 October 2012 as a result of an extension. The final NEPA review began 7 September 2012 and also ended on 7 October 2012. State and agency comments received during review of the final report/environmental assessment were generally supportive of the project. Substantive comments were received from the U.S. Coast Guard and the United States Environmental Protection Agency. The USCG requested Corps assistance in obtaining funds for the necessary navigation aid modifications and the Corps' response stated

that the District would coordinate further on the required USCG funding in conjunction with project construction funds. The USEPA expressed concerns on a variety of topics in a letter dated October 5, 2012. The Corps' response stated that expanded explanations were provided in the report and FEIS on the rationale for plan formulation and selection, planned air pollution prevention/reduction measures during construction, dredged material placement procedures at ocean sites, and analyses of socio-economic/health and safety effects based on additional modeling and analyses. The Corps also committed to further USEPA review of sediment data collected during the pre-construction engineering and design phase and continued coordination as needed, depending upon the testing results.

3. RESOLUTION OF COMMENTS FROM REVIEW OF THE AUGUST 2012 FINAL REPORT.

The following concerns were identified during initial review of the final report prior to the CWRB in August 2012. These were coordinated informally and revisions to the report were made prior to its release.

3.A. BASE YEAR. Page xix, shows the implementation as 2021 in one sentence whereas the base year is shown as 2017 elsewhere. The inconsistency should be resolved.

SWG Response. The 2021 implementation date is correct. Construction begins in 2015 and due to the way the work progresses a majority of the benefits begin to accrue in 2017, so that was used to start the period of analysis.

HQUSACE Assessment. The concern is resolved by the response.

3.B. SECTION 204 REFERENCE. Page 9-23, should clarify that it is referencing Section 204 of WRDA 86 regarding assumption of maintenance, since a Section 204 appears in each WRDA. .

SWG Response. Concur. The change has been incorporated into the report prior to printing.

HQUSACE Assessment. The concern is resolved by the response.

3.C. OMRR&R COSTS. Page 9-62, Table 56 shows that OMRR&R costs are projected to be less using a 7% discount rate than analysis using a 4% discount rate. It is not clear why that would be the case, since OMRR&R costs are average annual values.

SWG Response. An error was found in the spreadsheet. See the revised information in Table 56 below. Table 8-6 in the Economics Appendix was changed similarly.

**Adjusted for O&M at 7% Discount
Rate**

Table 56 in Main Report, Table 8-6 in Economic Appendix

Table Name <i>Summary of NED and LPP Using New NED Depths (1000s)</i>				
Purpose <i>Summarize Economic Data by Reach</i>				
Data Source <i>N/A</i>				
Application <i>Display Results of Project</i>				
	Reach 1 & 2	Reach 3	Reach 4	
	Oil, PP, Chemicals	Containers (Velasco)	Upper Stauffer	
NED	60/50	50	25	Totals
First Cost of Construction	\$374,522	\$12,664	\$4,090	\$391,276
Interest During Construction	\$51,788	\$262	\$11	\$52,060
Total Investment	\$426,310	\$12,926	\$4,101	\$443,336
Avg Annual Cost	\$30,890	\$937	\$297	\$32,124
Avg Annual O&M	\$11,303	\$1,015	\$35	\$12,353
Total Annual Cost	\$42,193	\$1,952	\$332	\$44,477
Avg Annual Benefits	\$58,797	\$7,734	\$1,312	\$67,842
Net Excess Benefits	\$16,604	\$5,782	\$980	\$23,365
B/C Ratios	1.4	4.0	3.9	1.5
LPP	55/50	50	25	Totals
First Cost of Construction	\$274,988	\$11,840	\$3,823	\$290,651

Interest During Construction	\$34,733	\$245	\$11	\$34,989
Total Investment	\$309,721	\$12,085	\$3,834	\$325,640
Avg Annual Cost	\$22,442	\$876	\$278	\$23,596
Avg Annual O&M	\$9,648	\$1,015	\$35	\$10,699
Total Annual Cost	\$32,091	\$1,891	\$313	\$34,295
Avg Annual Benefits	\$34,564	\$7,734	\$1,312	\$43,610
Net Excess Benefits	\$2,474	\$5,843	\$999	\$9,315
B/C Ratios	1.1	4.1	4.2	1.3

HQUSACE Assessment. The concern is resolved by the response and text changes reflecting the revised spreadsheet analysis.

3.D. OMRR&R COSTS ON UPPER STAUFFER. Page 9-60, OMRR&R costs are shown to decrease for the Upper Stauffer depth alternatives as the depth increases. This looks counterintuitive in comparison to the trend in OMRR&R costs for other reaches. Please review and revise as needed, since annual OMRR&R quantities and costs could have implications for depth optimization and should be presented accurately.

SWG Response. Concur. The cost for the NED depth is correct but the other depths need to be modified. This change is being incorporated into the report prior to printing.

HQUSACE Assessment. The concern is resolved by the response and text changes incorporated in the report.

3.E. OMRR&R COST SHARES. Page 14-1, OMRR&R cost shares appear to be different from values for depths in Tables 52-54 and prior percentages. In addition, the wording is confusing since it indicates a percentage of OMRR&R that will be a 100% Federal expense and a percentage that will be cost shared. It appears that the values shown should reflect the Federal and non-Federal shares, since the majority of the OMRR&R is in the depth range over 45 feet that is cost shared 50%/50%. The Chief’s report should also show the cost sharing values for OMRR&R rather than percentages.

SWG Response. The new dollar amounts included are based on a more accurate cost share percentage calculated from a spreadsheet that takes into consideration costs for all contracts. The

previous numbers (55%/45%) were estimates that have since been refined as shown below. Page 14-1 on OMRR&R costs has been revised as follows.

For the purpose of calculating the Section 902 limit, the total estimated first cost of the project is \$232.1 million including an estimated Federal share of \$118.4 million and an estimated non-Federal share of \$113.7 million. The Project Cost of all project components, minus inflation and interest during construction, totals \$290,652,000. The LPP Investment Cost of all components totals \$309,952,000 and includes \$19,305,000 in interest during construction for project components. Total average annual costs for the project are \$25,068,000 which includes \$14,434,000 in average annual costs for construction and \$10,635,000 incremental annual O&M costs. ~~After comparison of with and without project conditions it was determined that 55 percent of the annual O&M cost would be paid 100% by the Government and 45 percent would be cost shared accordingly.~~ The Federal government would be responsible for \$5,466,000 of the incremental operations and maintenance costs and the non-Federal sponsor would be responsible for the remaining \$5,169,000. Fully Funded Cost of the project, which includes Project Costs and expected escalation totals, is \$314,788,000.

HQUSACE Assessment. The concern is resolved by the response and text changes included in the report.

3.F. LPP DESCRIPTION ON PAGE XVIII EXEC SUMMARY- The Recommended Plan description in the Executive Summary has not been revised to reflect that the revised analyses now show that the NED plan depth for the Lower Stauffer is the same as the LPP depth. Please delete the following sentences in the Executive Summary to avoid any confusion. ~~“The Recommended Plan portion for the lower Stauffer Channel is the LPP, which is more costly than the NED Plan. The increased incremental difference between the LPP and the NED Plan for the lower Stauffer Channel requires the local Sponsor to pay the differential cost.”~~

SWG-Response. The text has been deleted in the report.

HQUSACE Assessment. The concern is resolved by deletion of the text as noted.

3.G. FORMULATION DISCUSSION ON PAGE XIX EXECUTIVE SUMMARY- The text indicates that the benefits in the upper turning basin area would continue to increase, but the sponsor did not consider the additional depth beyond 51 feet to be needed. This is confusing in that the NED depth is being recommended in that reach. Please delete the following text shown in strikethrough to avoid any confusion. ~~“(although the benefits would continue to increase, Port Freeport did not consider that the depth over 50 feet was needed).”~~ Section 12-4 has a similar statement that should also be deleted.

SWG Response. The text has been deleted from the Executive Summary. Section 12.4, page 12-9: Same deletion as in the Executive Summary as shown below.

12.4 DESCRIPTION OF RECOMMENDED PLAN

Based on the economic, engineering, and environmental factors considered, the Recommended Plan (LPP) includes deepening of the Outer Bar Channel from the jetties into the Gulf of Mexico

to -57 feet MLT (-58 feet MLLW); deepening from the end of the jetties in the Gulf of Mexico to the Lower Turning Basin to -55 feet MLT (-56 feet MLLW); deepening the Main Channel from the Lower Turning Basin to Sta. 132+66 (ConocoPhillips dock area, above 1,200-foot Brazosport Turning Basin) to -55 feet MLT (-56 feet MLLW); deepening of Freeport Harbor from Sta. 132+66 through the Upper Turning Basin to -50 feet MLT (-51 feet MLLW) (although the benefits would continue to increase, Port Freeport did not consider that the depth over -50 (-51) feet was needed); deepening and widening the lower 3,700 feet of the Stauffer Channel at a depth of -50 feet MLT (-51 feet MLLW) and 300 feet wide; and dredging the remainder of the Stauffer Channel to a depth of -25 feet MLT (-26 feet MLLW), in lieu of restoring it to its previously authorized dimensions of 30 feet by 200 feet. Depths shown exclude advance maintenance and allowable over-depth. It is estimated that the approximately 14.3 mcg of new work material (including advance maintenance and allowable over-depth) would require eight separate dredging contracts to complete. The work is estimated to begin in 2015 and be complete by 2021. Dredged material management will be performed according to the DMMP. The

HQUSACE Assessment. The concern is resolved by the text change included in the report.

3.H. PROJECT COST, PAGE XIX EXECUTIVE SUMMARY. The text states that the project total cost for the Recommended Plan is \$290,652,000, as shown in Table ES-1. The cost of \$290,652,000 reflects the total cost including the sponsor’s associated project costs for local service facilities as well as the associated Federal costs for navigation aids which are funded by the U.S. Coast Guard. To avoid any confusion with the total project costs recommended for authorization, it is suggested that the term “project” be deleted in the text. The associated costs are included in the economic analysis of the plan in order to fully account for all NED costs.

SWG Response. The suggested deletion has been included in the report. Table ES-1 has been revised as shown below.

Table ES-1
 Recommended Plan Cost
 Comparison of Costs (rounded) Oct 11

Cost Account	Item Description	First Cost (Oct 11 Price Level)	Fully Funded Cost (Oct11 Price Level)
Federal Construction Cost			
01	Lands & Damages	-0-	-0-
06	Fish & Wildlife Facilities	\$161,000	\$180,000
12	Navigation Ports & Harbors	\$203,389,000	\$219,370,000

30	Planning, Engineering & Design	\$17,726,000	\$19,606,000
31	Construction Management	\$9,192,000	\$10,595,000
Federal Construction		\$ 230,468,000	\$249,751,000
Non-Federal (LERRs/ Associated) Cost			
01	Lands & Damages	\$1,653,000	\$1,753,000
02	Relocations	-0-	-0-
12	Navigation Ports & Harbors (1)	\$57,179,000	\$61,829,000
Non-Federal Construction		\$58,832,000	\$63,582,000
Aids to Navigation		\$1,352,000	\$1,456,000
Total Navigation Costs		290,652,000	\$314,788,000

(1) Costs include \$38,800,000 in non-Federal bulkhead modifications and 18,379,000 in dredging costs for berthing areas adjacent to the Federal channel.

HQUSACE Assessment. The concern is resolved by the response and text changes incorporated in the report.

3.I. TABLE ES-2 MITIGATION COSTS. Table ES-2 shows that the mitigation costs are cost shared \$134,000 Federal and \$127,000 non-Federal for a total cost of \$261,000. In comparison the mitigation cost shown in Table ES-1 is \$161,000. The mitigation costs shown in Table ES-2 appears to include the applicable costs for Preconstruction Engineering and Design and Construction Management whereas Table ES-1 displays those costs separately. To avoid any

confusion please add a footnote to table ES-2 which shows that the PED costs for Engineering and Design and Construction Management have been distributed to the items listed. Table 74 on page 12-15 should be changed similarly.

SWG Response. Tables ES-2 has been revised as follows. Table 74 on page 12-15 was modified similarly.

Table ES-2
Cost Apportionment

Cost Apportionment Navigation*	First Cost	Fully Funded Cost
Federal Navigation:		
Freeport Channel	\$108,029,000	\$115,262,000
Lower Stauffer Channel	\$7,520,000	\$7,958,000
Upper Stauffer Channel	\$2,719,000	\$2,876,000
Lands & Damages	-0-	-0-
Mitigation	\$134,000	\$142,000
Total Federal Navigation	\$118,402,000	\$126,238,000
Non-Federal Navigation:		
Freeport Channel	\$108,029,000	\$115,262,000
Lower Stauffer Channel	\$3,104,000	\$3,284,000
Upper Stauffer Channel	\$806,000	\$852,000
Land & Damages	\$1,653,000	\$1,713,000
Mitigation	\$127,000	\$136,000
Total non-Federal Navigation	\$113,719,000	\$121,247,000
Total Navigation	\$232,121,000	\$247,485,000

*** Costs include Preconstruction Engineering & Design and Construction Management totals**

HQUSACE Assessment. The concern is resolved by the text changes as noted in the response.

3.J. COST APPORTIONMENT, TABLE 73, PAGE 12-14. The non-Federal costs require some clarification. Please label as non-Federal the costs for LERR and associated costs for Local Service Facilities. Please move the costs for navigation aids to a separate line since that is a Federal cost for the U.S. Coast Guard and should not roll up into the non-Federal expenses. Similar changes should be made to Table ES-1.

SWG Response. Tables ES-1 and 73 have been modified as follows.

Table 73

Recommended Plan Cost

Comparison of Costs (rounded)

Cost Account	Item Description	First Cost (Oct 11 Price Level)	Fully Funded Cost (Oct11 Price Level)
Federal Construction Cost			
01	Lands & Damages	-0-	-0-
06	Fish & Wildlife Facilities	\$161,000	\$180,000
12	Navigation Ports & Harbors	\$203,389,000	\$219,370,000
30	Planning, Engineering & Design	\$17,726,000	\$19,606,000
31	Construction Management	\$9,192,000	\$10,595,000
Federal Construction		\$ 230,468,000	\$249,751,000
Non-Federal (LERRs/ Associated) Cost			
01	Lands & Damages	\$1,653,000	\$1,753,000

02	Relocations	-0-	-0-
12	Navigation Ports & Harbors (1)	\$57,179,000	\$61,829,000
Non-Federal Construction		\$58,832,000	\$63,582,000
Aids to Navigation		\$1,352,000	\$1,456,000
Total Navigation Costs		290,652,000	\$314,788,000

(1) Costs include \$38,800,000 in non-Federal bulkhead modifications and 18,379,000 in dredging costs for berthing areas adjacent to the Federal channel.

HQUSACE Assessment. The concern is resolved based on the changes to Tables ES-1 and 73 shown above. Edits still need to be reflected in Table 73 of the reproduced report to delete the line for navigation aids under non-Federal costs.

3.K. ITEMS OF LOCAL COOPERATION. The items of local cooperation in the Feasibility Report, pages 14-1 to 14-4, should reflect recent edits to the draft Chief's Report as shown below.

a. Provide 10 percent of the total cost of construction of the general navigation features (GNF) attributable to dredging to a depth not in excess of 20 feet; plus 25 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 20 feet but not in excess of 45 feet; plus 50 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 45 feet as further specified below:

(1) Provide 25 percent of design costs allocated by the Government to commercial navigation in accordance with the terms of a design agreement entered into prior to commencement of design work for the project;

(2) Provide, during the first year of construction, any additional funds necessary to pay the full non-Federal share of design costs allocated by the Government to commercial navigation;

(3) Provide, during construction, any additional funds necessary to make its total contribution for commercial navigation equal to 10 percent of the total cost of construction of the GNFs attributable to dredging to a depth not in excess of 20 feet; plus 25 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 20 feet but not in excess of 45 feet; plus 50 percent of the total cost of construction of the GNFs attributable to dredging to a depth in excess of 45 feet;

b. Provide all lands, easement, and rights-of-way (LER), including those necessary for the borrowing of material and disposal of dredged or excavated material, and perform or assure the performance of all relocations, including utility relocations, all as determined by the Government to be necessary for the construction or operation and maintenance of the GNFs;

c. Pay with interest, over a period not to exceed 30 years following completion of the period of construction of the GNFs, an additional amount equal to 10 percent of the total cost of construction of GNFs less the amount of credit afforded by the Government for the value of the LER and relocations, including utility relocations, provided by the non-Federal sponsor for the GNFs. If the amount of credit afforded by the Government for the value of LER, and relocations, including utility relocations, provided by the non-Federal sponsor equals or exceeds 10 percent of the total cost of construction of the GNFs, the non-Federal sponsor shall not be required to make any contribution under this paragraph, nor shall it be entitled to any refund for the value of LER and relocations, including utility relocations, in excess of 10 percent of the total costs of construction of the GNFs;

d. Provide, operate, and maintain, at no cost to the Government, the local service facilities in a manner compatible with the project's authorized purposes and in accordance with applicable Federal and State laws and regulations and any specific directions prescribed by the Government;

e. Provide 50 percent of the excess cost of operation and maintenance of the project over that cost which the Government determines would be incurred for operation and maintenance if the project had a depth of 45 feet;

f. Give the Government a right to enter, at reasonable times and in a reasonable manner, upon property that the non-Federal sponsor owns or controls for access to the project for the purpose of completing, inspecting, operating and maintaining the GNFs;

g. Hold and save the United States free from all damages arising from the construction or operation and maintenance of the project, any betterments, and the local service facilities, except for damages due to the fault or negligence of the United States or its contractors;

h. Keep and maintain books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to the project, for a minimum of 3 years after completion of the accounting for which such books, records, documents, and other evidence is required, to the extent and in such detail as will properly reflect total cost of construction of the project, and in accordance with the standards for financial management systems set forth in the Uniform Administrative Requirements for Grants and Cooperative Agreements to State and local governments at 32 CFR, Section 33.20;

i. Perform, or ensure performance of, any investigations for hazardous substances as are determined necessary to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 USC 9601–9675, that may exist in, on, or under LER that the Government determines to be necessary for the construction or operation and maintenance of the GNFs. However, for lands, easements, or rights-of-way that the Government determines to be subject to the navigation servitude, only the Government shall perform such investigation unless the Government provides the non-Federal sponsor with prior specific written direction, in which case the non-Federal sponsor shall perform such investigations in accordance with such written direction;

j. Assume complete financial responsibility, as between the Government and the non-Federal sponsor, for all necessary cleanup and response costs of any hazardous substances regulated under CERCLA that are located in, on, or under LER that the Government determines to be necessary for the construction or operation and maintenance of the project;

k. To the maximum extent practicable, perform its obligations in a manner that will not cause liability to arise under CERCLA;

l. Comply with Section 221 of PL 91-611, Flood Control Act of 1970, as amended, (42 U.S.C. 1962d-5b) and Section 101(e) of the WRDA 86, Public Law 99-662, as amended, (33 U.S.C. 2211(e)) which provides that the Secretary of the Army shall not commence the construction of any water resources project or separable element thereof, until the non-Federal sponsor has entered into a written agreement to furnish its required cooperation for the project or separable element;

m. Comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, PL 91-646, as amended, (42 U.S.C. 4601-4655) and the Uniform Regulations contained in 49 CFR 24, in acquiring lands, easements, and rights-of-way, necessary for construction, operation and maintenance of the project including those necessary for relocations, the borrowing of material, or the

disposal of dredged or excavated material; and inform all affected persons of applicable benefits, policies, and procedures in connection with said act;

n. Comply with all applicable Federal and State laws and regulations, including, but not limited to, Section 601 of the Civil Rights Act of 1964, PL 88-352 (42 USC 2000d), and Department of Defense Directive 5500.11 issued pursuant thereto; Army Regulation 600-7, entitled “Nondiscrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army”; and all applicable Federal labor standards requirements including, but not limited to, 40 U.S.C. 3141-3148 and 40 U.S.C. 3701-3708 (revising, codifying and enacting without substantive changes the provision of the Davis-Bacon Act (formerly 40 U.S.C. 276a et seq.), the Contract Work Hours and Safety Standards Act (formerly 40 U.S.C. 327 et seq.), and the Copeland Anti-Kickback Act (formerly 40 U.S.C. 276c);

o. Provide the non-Federal share of that portion of the costs of mitigation and data recovery activities associated with historic preservation that are in excess of 1 percent of the total amount authorized to be appropriated for the project;

p. Not use funds from other Federal programs, including any non-Federal contribution required as a matching share therefore, to meet any of the non-Federal sponsor’s obligations for the project costs unless the Federal agency providing the Federal portion of such funds verifies in writing that such funds are authorized to be used to carry out the project; and

q. Substantially complete the first phase of the Velasco Container Terminal (800-foot berth and 35 acres of supporting backland) on the Stauffer Channel prior to the initiation of construction of the Stauffer Channel portion of the project.

SWG Response. The items of local cooperation on pages 14-1 to 14-4 have been modified as indicated above.

HQUSACE Assessment. The concern is resolved based on the text changes incorporated into the final report.

4.RESOLUTION OF CONCERNS FROM REVIEW OF THE JUNE 2011 REPORT AND EIS

This section discusses resolution of the new comments identified during the review of the Draft Final Feasibility Report and EIS dated June 2011 in advance of the first CWRB.

4.A. APPROVAL OF ECONOMIC MODEL. Comparison of the ATR response to comment #2757290 regarding approval of the economic model and the Report Summary indicated an inconsistency regarding the characterization of its approval for use. In checking further into the situation it has been

determined that the PCX did not complete the process for approving the economic spreadsheet for use in December 2009. This is critical in that it assures the technical and theoretical correctness of the model as a basis for plan evaluation, formulation, and selection. In accordance with EC1105-2-412, the PCX should complete the process by finalizing a model review package and forwarding it to HQ Planning for approval in coordination with the Model Certification Panel.

District Compliance/Response-2: In the fall of 2011, the economic model was revised and model documentation was developed. The model certification by the PCX model certification team was completed in February and the approval recommendation was sent to the model certification panel at HQ on 24 February 2012. Model Certification was approved on 14 March 2012.

HQUSACE Assessment: The concern is resolved by the revised model which was approved for use by HQ in March 2012.

4.B. MITIGATION COSTS. The mitigation costs are not displayed consistently in Tables 94 and 95. The 06 account for F&W first costs is \$124,000 in Table 94 and the Mitigation first cost is shown as \$192,000 in Table 95. The team should clarify the differences in these numbers for consistency of the presentation in order to avoid any confusion.

District Compliance/Response-2: Table 73 shows Fish and Wildlife Facilities as \$161,000. Table 74 shows total mitigation apportionment as \$261,000, which includes an estimated \$100,000 of Engineering and Design and Construction Management. Section 12.7, page 12-13 has been revised.

HQUSACE Assessment: The concern is resolved by changes to the report which indicate that the mitigation costs in Table 74 include the applicable Engineering and Design and Construction Management.

4.C. PRICE LEVEL. The report uses an October 2009 price level for the final economic analysis, which is somewhat dated. For the final Chief's Report an economic update should be developed to provide costs and benefits at an October 2010 price level. The report will need to be updated with an addendum/errata section to provide similar information. Further updates may also be needed to support authorization.

District Compliance/Response-2: Price level has been updated to October 2010 (REP) and 2011 level. All documents have been modified to incorporate the new price level.

HQUSACE Assessment: The concern is resolved by the updated economics in the report.

4.D. OIL DEMAND THROUGH FREEPORT. The report needs to provide a better discussion of the process by which crude oil demand and is met by the supply. HQ believes it has a general idea of the potential supply of crude oil by the import projections, although concerns have been raised in the IEPR about the validity of the projections used. Another question that needs to be answered is whether there are bottle necks in the system that could reduce the demand. What is the storage capacity at the port? How is the oil moved? Where is it moved to? Assuming the oil goes through a

refining process, how do the refining process and capacity affect the overall demand for oil through Freeport? Although HQ agrees with the report that the Global Insight projections should be used for the “Likely Future Without-Project Conditions” a sensitivity analysis using the Department of Energy projections needs to be completed to include a BCR. The response to this comment could also be used in the response to the IEPR comment on the oil projections.

District Compliance/Response-2: A site visit is planned prior to the August 23rd CWRB, to obtain additional information about the supply chain and bottlenecks in the current system, how they would be alleviated in the future if demand warrants it, refining capacities, etc. It is difficult to obtain this information since it is proprietary and companies don't readily release it, though SWG has tried in the past. SWG will attempt to get a better understanding of the supply chain through our visit.

SWG's assumption is that if demand warrants it, changes will be made to accommodate supplies if it is in the control of the companies. This was added to page 6-4 of the Economic Appendix. For example, Conoco has told SWG that one limitation to the current setup would only require a minor modification (like a larger valve) for one of the pipelines, but so far they haven't needed it. If it is beyond their control, such as EPA approving/denying an additional pipeline for instance, those factors cannot be predicted. The Economic Appendix discusses the infrastructure in Section 1.2. Existing storage capacity is 260,000 BPD at Seaway. There is also storage at the Upper Turning Basin and Sweeny, and room for expansion. Oil is moved primarily via pipeline to Sweeny refinery, then via pipeline to Cushing, OK. Refined products are also distributed by pipelines to western terminals in Colorado and northeast through Kansas, Missouri, and Illinois (PADD II and PADD III). Oil is also transported to Bryan Mound Strategic Petroleum Reserve Storage Site.

A sensitivity using the low estimate of the DOE forecast is included in the Economic Appendix in Section 7.2.2.

HQUSACE Assessment: The concern is resolved by the response and the text changes made in the report.

5.RESOLUTION OF COMMENTS FROM REVIEW OF THE APRIL 2011 REPORT AND EIS.

This section discusses the resolution of comments identified during initial review of the draft final report and EIS. As a result of this review the CWRB was rescheduled.

5.A. ITEMS OF LOCAL COOPERATION. The district should update the items of local cooperation found in Section 14.1 (pages 14-1 thru 4) as some items are incorrect. It appears that these items may have been pasted in from a previous report since there are items that go into detail about deep-draft utility relocations, and it has been determined by the district that no deep-draft utility relocations are necessary for this project. The local cooperation items for the Sabine-Neches Waterway final report and Chief's Report had extensive HQ and MSC review and input, and should be used as a starting point for revisions to Section 14.1. It is important that these items be corrected because they will also be included in the proposed Chief's Report that will be released for State and

Agency review. Note also that the local service facilities cited in parentheses in item g. do not appear to be consistent with the local service facilities for which associated costs are identified in the Engineering Appendix.

District Response: Concur. Section 14 of the main report has been modified to address the comment. The items of local cooperation from the Sabine Neches Waterway Project were consulted/utilized to modify and update the items for the Freeport report. These new items have also been coordinated with HQ legal and modified accordingly.

HQUSACE Assessment: The concern is resolved by the response and changes to Section 14 of the report.

5.B. REAL ESTATE PLAN, PAGE 3, PARAGRAPH 6 REAL ESTATE REQUIREMENTS.

Eliminate the nonstandard estate at the end of the paragraph starting with, “A permanent disposal area easement and perpetual...”

District Action: Section 6. of the REP has been revised. Non-standard estate has been eliminated. Permanent Disposal Area Easement has been substituted.

HQUSACE Assessment: The concern is resolved by the revision to Section 6 that replaced non-standard estate language with a permanent disposal area easement.

5.C. AGENCY TECHNICAL REVIEW (ATR). The final feasibility report and EIS were submitted to HQUSACE for policy review without review and certification by the ATR team, relying on the ATR from December 2009 completed prior to public coordination of the draft report. This is not in accordance with the district’s Review Plan nor is it in conformance with Appendix C of EC 1165-2-209 on Civil Works Review Policy. Note also that the March 2011 HQ Assessment-2 under comment 3.g. below on Economic Beneficiaries (and associated costs for bulkhead modifications) had indicated that the ATR team should review the information which was provided by others. The district should arrange for the ATR team to perform a review and certification of the final report and make any revisions accordingly, prior to resubmitting the final feasibility report and EIS to HQUSACE in advance of the rescheduled CWRB. Also, note that the District Commander should sign and date the recommendations page in the revised report.

District Action: The final feasibility report was submitted to the Deep-Draft Navigation PCX for evaluation and that review has been completed. ATR Certification was received from the Cost PCX on 2 June 2011 and the DDNPCX on 3 June 2011.

HQUSACE Assessment: The concern is resolved based on the updated ATR review and recent certification by the PCX. However, the ATR appears to have been closed out prematurely since the approval process for use of the economics model had not been completed as noted in comment 2.a.

District Compliance/Response-2: In the fall of 2011, the economic model was revised and model documentation was developed. The model certification by the PCX model certification team was completed in February and the approval recommendation was sent to the model certification panel at HQ on 24 February 2012. Model Certification was approved on 14 March.

The Economic Appendix was reviewed in a final Back-Check ATR by the PCX, completed and certified in June 2012.

HQUSACE Assessment: The concern is resolved by the ATR review of the model and revised final report.

5.D. MITIGATION AND MONITORING. The team needs to ensure that the mitigation and monitoring plan complies with the current guidance from WRDA 2007 Section 2036(a). The team should also clarify how the mitigation and monitoring plan will be cost shared. For navigation projects the mitigation and monitoring would be cost shared similar to the General Navigation Features, which in the case of Freeport, entails blended cost sharing due to the varying project depths in different channel reaches and 50%/50% cost sharing of the incremental OMRR&R costs for depths greater than 45 feet (MLLW).

District Action: The team has evaluated the mitigation proposed for the project and has determined that it is compliant with current guidance. Current cost share for mitigation construction has been modified to be consistent with different depths proposed. Mitigation is required for impacts associated with new PAs. The material going into these new PAs is from the land locked portion of the channel. None of the offshore material will be going into these sites. Based on this consideration the costs of the mitigation have been appropriately apportioned to the amount of material from each of the different cost share reaches. The local sponsor is responsible for the costs of mitigation monitoring.

HQUSACE Assessment: The concern is resolved by the District actions.

6. RESOLUTION OF COMMENTS FROM CONCURRENT REVIEW OF THE COORDINATION DRAFT REPORT AND DEIS.

This section discusses the resolution of new concerns identified during concurrent review of the draft report in December 2010.

6.A. BASE YEAR AND PERIOD OF ANALYSIS. The Executive Summary page xvii indicates the project benefits were calculated over a period of analysis from 2014 (base year) to 2064. Page xvi states that the work is estimated to begin in 2012 and be completed by 2018. Pages 12-9 and 14-5 also mention this 5-year construction period. Given the current status it does not appear that

2012 is feasible as the date for initiation of construction since the feasibility report must be completed, PED accomplished, and the project authorized and funded. The project completion in 2018 extends four years past the 2014 base year used to begin the period of analysis. The district should reevaluate the schedule and adjust the base year as necessary to reflect a realistic timeframe for the completion of construction and the period of analysis per paragraph 2-4.j of ER 1105-2-100.

Action Taken: Period of analysis is 2017-2067

HQUSACE Assessment: The later period of analysis **has resolved the concern.**

6.B. DISCOUNT RATE. The report states on Executive Summary page xvii and report page 12-1 that the discount rate of 4.375% was used. The current rate for FY 2011 is 4-1/8% in accordance with Economics Guidance Memorandum #11-01. For the final report the economic analysis should be updated using the appropriate discount rate for the fiscal year in which it is submitted.

Action Taken: Discount rate corrected

HQUSACE Assessment: The correction of the discount rate **has resolved the concern.**

6.C. TOTAL PROJECT COST FOR AUTHORIZATION. It is not clear from the report that the appropriate project cost has been identified as a basis for authorization and the Section 902 limit calculation. Section 14.1 cites a project cost of \$308,700,000, which appears to include costs for navigation aids based on information provided in the Total Project Cost Summary. It appears that the associated berth dredging costs for local service facilities (LSF) may also be included in this number, but they should not be. The TCPS includes non-Federal costs under WBS item 12 Navigation Ports & Harbors for contracts 3, 5 and 6 which appear to be in the range of the berth upgrade costs shown in Table 5 of the Engineering Appendix B. The costs for navigation aids and associated costs for LSF should be included in the NED economic analysis, but are separate from the project costs.

Beginning in WRDA 2007, LSF and other cost components have not been included in the project costs for Section 902 purposes. To avoid confusion regarding what cost should be cited as the basis for Section 902, it is suggested that an introductory sentence be included in the second paragraph of Section 14.1 in the following form.

For the purpose of calculating the Section 902 limit, the total estimated first cost of the project is \$__(a)__ including an estimated Federal share of \$__(b)__ and an estimated non-Federal share of \$__(c)__.

- (a) Includes only GNF costs plus LERR value, (and for deep draft harbors) plus the 50% of deep draft utility relocation (DDUR) costs borne by the NFS (ie. (a) = (b) + (c) below).
- (b) Includes only the Government's percentage share of GNF costs.
- (c) Includes only the NFSs initial percentage share of GNF costs (ie. not the extra 10% payment amount) plus LERR value, (and for deep draft harbors) plus the 50% of DDUR costs borne by the NFS.

Action Taken (12 April 2011): Subject paragraph inserted into Section 14.1

HQUSACE Preliminary Assessment (21 April 2011): The changes to Section 14.1 have not resolved the concern. Note that the text includes language from notes (a), (b), (c) but doesn't show what they apply to in the added sentence. It is not evident to a reader what cost values the notes are referring to. The notes should either be deleted from the text to avoid confusion or the note letters in parentheses can be shown at the respective cost values in the added sentence. The values shown in the text do not follow the directions in the notes based on further explanations by the field. The value of \$281.9M on page 14-1 appears to be incorrect since it was to include only the project costs for GNF and LERR. However, clarifying explanations on associated costs provided by email on 4/26 indicate the value of \$281.9M includes the associated costs for bulkhead modifications and berth dredging as well as the USCG costs for navigation aids. This value should be revised to show only the Federal project costs (GNF plus LERR) without the associated Federal and non-Federal costs. The values of \$225.6M for the Federal share and \$56.3M for the non-Federal share are also incorrect and should be revised to show the respective GNF cost share values and LERR costs by the sponsor as indicated by the directions in notes (b) and (c).

SWG Preliminary Response (2 May 2011): Concur. Current cost detailed in this section incorrectly includes associated costs totaling \$54,587. The section will be modified to remove these costs from the total. The cost share totals will also be modified to insure that the Governments share includes only GNF and the non-Fed share includes their percentage of GNF as well as LERR. There are no DDUR necessary for this project as there are only two pipelines in the study area and both are already at sufficient depth so the project does not impact them. Also, the bullets explaining the costs will be removed from the report. Also, the values for the Federal share have been updated and corrected.

Total project cost has been updated to \$227,356,000 with a Federal share of \$114,910,000 and a non-Fed share of \$112,446,000

HQUSACE Assessment (May 2011): The concern is not resolved. HQ believes that the total project cost of \$227,356,000 shown in the above preliminary response has included the aids to navigation, which are not GNF. The value of \$54,587,000 for associated costs was explained by the district in 3.b below as including the non-Federal costs for bulkhead modifications (\$50,330,000) and berth dredging (\$4,257,000) including contingencies associated with the LPP as shown in Table 94. (\$281,943,000 - \$54,587,000 = \$227,356,000). The MCACES estimate shows navigation aid costs with contingencies of \$113,000 under Contract #1 and \$1,260,000 under Contract #2 which are included in the total cost of \$281,943,000. Therefore, it appears that the cost of \$227,356,000 may include \$1,373,000 in navigation aid costs that are not part of the GNF or LERR. Note that Section

12.7 describes the aids to navigation as a cost of \$113,000 and needs to be revised per the MCACES estimate.

Action Required: The project costs should be verified and revised in order to include only GNF and LERR per the instruction note (a). Using the revised project cost sharing in Table 96 and Section 12.8 in response to comment 3.b below (give consideration to the changed prorating for blended cost sharing of the Stauffer channel costs relative to 20 ft and 45 ft. depths in MLLW), the cost shares in this text should be revised per notes (b) and (c). The notes should be deleted from the text. Please note that these cost share values are based on the initial percentage of GNF costs (not considering the additional 10% of GNF against which LERR is credited). Correct the project cost information in Section 12.7 as well as the navigation aids costs.

District Action: Section 14.1 has been modified to address the comment. Section 12.7 has been corrected to show the revised project costs. The cost share breakdown for the project, as detailed in Table 95, has also been modified and updated. These changes include modification to properly apportion associated costs, mitigation and aids to navigation. The following information has been modified and included in the current report:

Section 14.1

For the purpose of calculating the Section 902 limit, the total estimated first cost of the project is \$227.8 million including an estimated Federal share of \$114.9 million and an estimated non-Federal share of \$112.9 million.

The Project Cost of all project components, minus inflation and interest during construction, totals \$284,713,000. The LPP Investment Cost of all components totals \$304,295,000 and includes \$19,582,000 in interest during construction for project components. Total average annual costs for the project are \$20,515,600 which includes \$14,469,500 in average annual costs for construction and \$6,046,100 annual O&M costs. After comparison of with and without project conditions it was determined that 55 percent of the annual O&M cost would be paid 100% by the Government and 45 percent would be cost shared accordingly. Fully Funded Cost of the project, which includes Project Costs and expected escalation totals, is \$324,478,000.

Section 12.7 has been corrected with the following table:

Table 95
Cost Apportionment

Cost Apportionment Navigation	First Cost	Fully Funded Cost
Federal Navigation:		
Freeport Channel	\$106,690,000	\$119,368,000
Lower Stauffer Channel	\$5,776,000	\$6,410,000

Upper Stauffer Channel	\$2,232,000	\$2,476,000
Lands & Damages	\$77,000	\$82,000
Mitigation	\$102,000	\$113,000
Total Federal Navigation	\$114,877,000	\$128,449,000
non-Federal Navigation:		
Freeport Channel	\$106,767,000	\$119,473,000
Lower Stauffer Channel	\$3,630,000	\$4,027,000
Upper Stauffer Channel	\$663,000	\$735,000
Land & Damages	\$1,751,000	\$1,904,000
Mitigation	\$90,000	\$100,000
Total non-Federal Navigation	\$112,901,000	\$126,239,000
Total Navigation	\$227,778,000	\$254,688,000

HQUSACE Assessment: The concern is not yet fully resolved. The total navigation cost of \$227,778,000 shown above in Table 95 and in the text as a basis for authorization still appears to incorrectly include the costs for aids to navigation (\$1,373,000) based on the information in Table 94. The Federal construction costs of \$224,654,000 plus \$1,751,000 for LERR results in a cost of \$226,405,000. In addition, the cost share values need to be adjusted based on actions required to resolve comment 4.b. below.

District Compliance/Response-2: Tables 73 and 74 have replaced Tables 94 and 95. Sections 12.7, 12.8, and 12.9 have been revised. Table 75 has been added to show Total General Navigation Features Costs and Credits.

HQUSACE Assessment: The concern is resolved by text changes made to the revised final report.

6.D. COST SHARING.

(1) GNF. The cost apportionment shown in Table 94 does not clearly identify the costs of General Navigation Features versus other costs for local service facilities (LSF) and navigation aids. In addition the information in Table 94 does not appear to be consistent with that shown in Tables 93 and 95. For instance, Table 93 shows non-Federal costs of \$62,833,000 for LERR and LSF and Federal project costs of \$271,519,000. Table 94 is showing costs of \$159,863,000 under

the Federal and non-Federal shares for the Freeport channel. This should reflect blended cost sharing for the Brazosport channel and turning basin going from 36' to 50' and any LSF costs should be shown separately from the GNF costs. Costs for Lower Stauffer in Table 94 are shown as \$6,832,900 Federal/\$2,874,100 NF plus an additional adjustment of \$459,500 for a total of \$10,166,500, compared to a total of \$9,511,100 in Table 95. Costs for Lands and Damages are also shown under the Federal and non-Federal break out. Please explain the rationale for that breakdown. Section 12.8 correctly notes that the non-Federal costs should include 100% of the costs for berth/dock, pipeline relocations and LERR and the USCG is responsible for 100% of the navigation aid costs. However, these costs are not broken out in the table from GNF and it is therefore not possible to verify the accuracy of the cost sharing shown. Clarification is needed to assure that the appropriate cost sharing is identified for the project. In addition, the cost-sharing needs to be shown based on project costs without inflation. Section 12.8 indicates that fully funded costs are used for cost sharing, however that is used only for the sponsor's financial planning purposes. The cost sharing based on constant dollars is needed for the recommendations and authorization.

Action Taken (12 April 2011): First cost used, not fully funded.

HQUSACE Preliminary Assessment (21 April 2011): The concern is only partially resolved by using first costs. The action taken statement only responds to the last sentence in the comment above and the additional concerns need to be addressed. The cost apportionment shown in Table 95 does not clearly identify the costs of General Navigation Features versus other costs for local service facilities (LSF) and navigation aids. It appears to be treating associated costs the same as GNF for cost apportionment. In addition the information in Table 94 does not appear to be consistent with that shown in Tables 93 and 95. Different Federal and non-Federal shares are shown for the Lower Stauffer between Tables 95 and 96. Since the non-Federal associated costs are not broken out in table 95 from GNF, it is not possible to verify the accuracy of the cost sharing shown. Clarification is needed to assure that the appropriate cost sharing is identified for the project.

SWG Preliminary Response (2 May 2011): Note that table numbers have changed based on past modifications to the report. SWG will address the tables as they are numbered in the report submitted for the CWRB. Table 94 will be modified to include a footnote on the non-Federal Navigation Ports & Harbors cost detailing that of the \$54,587,000, \$50,330,000 is for bulkhead modifications and \$4,257,000 is for dredging of non-Federal berthing areas.

Table 95 will be modified to show the proper cost apportionment not including associated costs (\$227,356,000). Total cost is now consistent with other tables.

Table 96 will also be modified to detail accurate cost apportionment for the Lower Stauffer Channel.

HQUSACE Assessment (May 2011): The concern is not resolved. The preliminary response indicates total project cost will be revised to show proper cost sharing based on the cost of \$227,356,000. As noted above HQ believes this value includes the navigation aid costs, which are 100% Federal associated costs borne by the U.S. Coast Guard. The prorating of project costs for the Lower Stauffer needs to be adjusted for the conversion from MLT to MLLW datum since the cost sharing changes at 20 feet and 45 feet are relative to channel depths in MLLW. Cost apportionment should be the same between Tables 94 and 95 for the Lower Stauffer. It is not clear what the basis is for cost sharing the Upper Stauffer in Table 95, since the costs in the table appear to be 79.3%

Federal ((\$1,877,500) and 20.7 NF (\$490,600). This may also reflect banded cost sharing that should be explained. Table 94 shows Federal and non-Federal project expenditures under the 30 account for the fully funded cost, where there are no first costs. It is not evident why these costs would be in the fully funded cost. The MCACES indicates they are costs spent through September 09. If that is the case they would appear to be sunk feasibility costs that should not be part of the project cost inflated through the mid-point of construction.

Action Required: Once the appropriate project cost is verified based on the above concerns, the project cost and cost sharing tables and text in Sections 12.7 and 12.8 should be revised in order to give the reader a clear explanation of the cost sharing for each element of the project (Freeport Channel, Lower Stauffer, and Upper Stauffer). This should explain the costs for GNF and LERR with consideration of the blended cost sharing as applicable relative to MLLW depths. The report also needs to clearly explain the LPP versus NED cost sharing since the various elements of the recommended project involve recommendation of the NED plan as well as LPPs that are larger and smaller than the NED. The navigation aids and associated costs can be shown as additional information but do not figure into the GNF cost sharing. The initial cost sharing should be shown as a basis for the authorization and recommendations, as well as the ultimate cost sharing as adjusted in consideration of the additional 10% of GNF less LERR credit. In addition, the cost sharing for OMRR&R responsibilities needs to be shown with the costs expected to be borne by the sponsor cited in addition to explaining the cost sharing rules. The 50%/50% cost sharing for incremental OMRR&R costs for channel depths over 45 feet need to be calculated using the depths in MLLW. The format of tables should be adjusted as needed to respond to the concerns. The Sabine report may be helpful regarding table revisions.

District Compliance/Response-2: Sections 12.7 through 12.9 of the Feasibility Report have been revised and Tables 73 and 74 have replaced Tables 94 and 95. Additional explanation of cost share requirements has been added to these sections. Table 75 has also been added to clarify the expected 10% payback for GNF.

(2) **Datum.** The report uses mean low tide (MLT) as the datum for channel depth and mean lower low water (MLLW) should be used. Reference is made to EM 1110-2-6056 31 Dec 2010 Chapter 4. Note that, 45-foot mean low tide (MLT) equals 46-foot (MLLW), which crosses into the deep draft cost sharing rules for construction and OMRR&R. So the prorating of volumes for blended cost sharing when crossing the 20-ft and 45-ft depths has to consider the MLLW basis in order to get the proportions right.

Action Taken (12 April 2011): Documents have been corrected to use MLLW.

HQUSACE Preliminary Assessment (21 April 2011): The concern has not been resolved. It is not clear that the appropriate blended cost sharing is being done based on the cost sharing change at a 20 and 45 foot depth MLLW. Based on the SWD emails from 4/26 this may result in a minor change to cost sharing for the Lower Stauffer as shown in Table 96. The Freeport channel cost sharing would not be affected since the depths are above 45 feet MLLW. However, Table 95 is showing 50%/50% cost sharing (\$134,181,500 each) for the Freeport channel. It appears these numbers are incorrectly including the associated costs for GNF cost sharing since the costs total \$281,943,000 at the bottom. The difference in total Federal and non-Federal cost shares as

shown appears to be predominantly due to the adjustment for an additional 10% non-Federal contribution required over time. This type calculation relates only with GNF and LERR costs and associated costs should not be included. Also, the text in Section 14.1 still indicates that the conversion to MLLW is being deferred to PED. Depths in the recommended plan description are still shown relative to MLT and need to be shown in MLLW.

SWG Preliminary Response (2 May 2011): This concern was previously raised and evaluated by the vertical team. After sharing of information with the entire team a teleconference was held in February 2011. The Galveston District detailed three alternative means to address the issue. These ranged from no changes in the report to full reformulation based on a changed datum. After discussion the team agreed to include information on how the change in datum impacts the information in the report but the specific information in the report would remain as is. Galveston detailed the datum information in several places throughout the report as specified by HQ. The draft Chief's Report will be submitted with all numbers in MLLW. It was our understanding that no additional changes were necessary. The bridge between the Feasibility Report and the Chief's Report was noted in the teleconference to be the discussion about the relationship between MLT and MLLW in the Feasibility Report. All references in the Feasibility Report to conversion to MLLW in PED will be removed.

HQUSACE Assessment (May 2011): The concern is not yet resolved. The explanation of the conversion between MLT and MLLW datum has been included in the text at appropriate locations. However, the text in the project description/recommendations, Executive Summary, Introduction and Engineering Appendix need to show the recommended plan depths in MLLW as will be cited in the Chief's Report. Blended cost sharing needs to be shown relative to the project depths in MLLW. It is acceptable to reference the project depths in MLT followed by MLLW depths in parentheses. All references to datum conversion during PED should be removed as noted in the preliminary response above.

Action Required: Revise the text of the final report to show the recommended project depths at key locations in MLLW in addition the MLT including Executive Summary, Introduction, cost sharing section, Table 93, and Engineering Appendix. Delete references to datum conversion during PED. Adjust prorating for blended cost sharing to account for the project costs at MLLW depths.

District Action: The main report has been modified to address the comment. The Executive Summary, Introduction, Engineering Studies (Section 8, Main Report), and Plan Selection portions of the main report have been modified. Table 93 has been modified to include MLLW and cost shares detailed in Section 12 have been modified so that they are apportioned to depths in MLLW. Section 14.1 has been revised to delete conversion to MLLW being deferred to PED. The following information has been modified/included in the report.

Executive Summary/Introduction/Engineering Studies/cost sharing section/Plan Selection/Engineering Appendix

All elevations referred to in this report, unless specifically noted otherwise, are based on USACE Galveston District's local Mean Low Tide (MLT) datum. This project is a compilation of National Geodetic Vertical Datum of 1929 (NGVD 29) and the newer North American Vertical Datum of 1988 (NAVD 88). Existing after-dredged hydro surveys in the local vertical datum of Mean Low

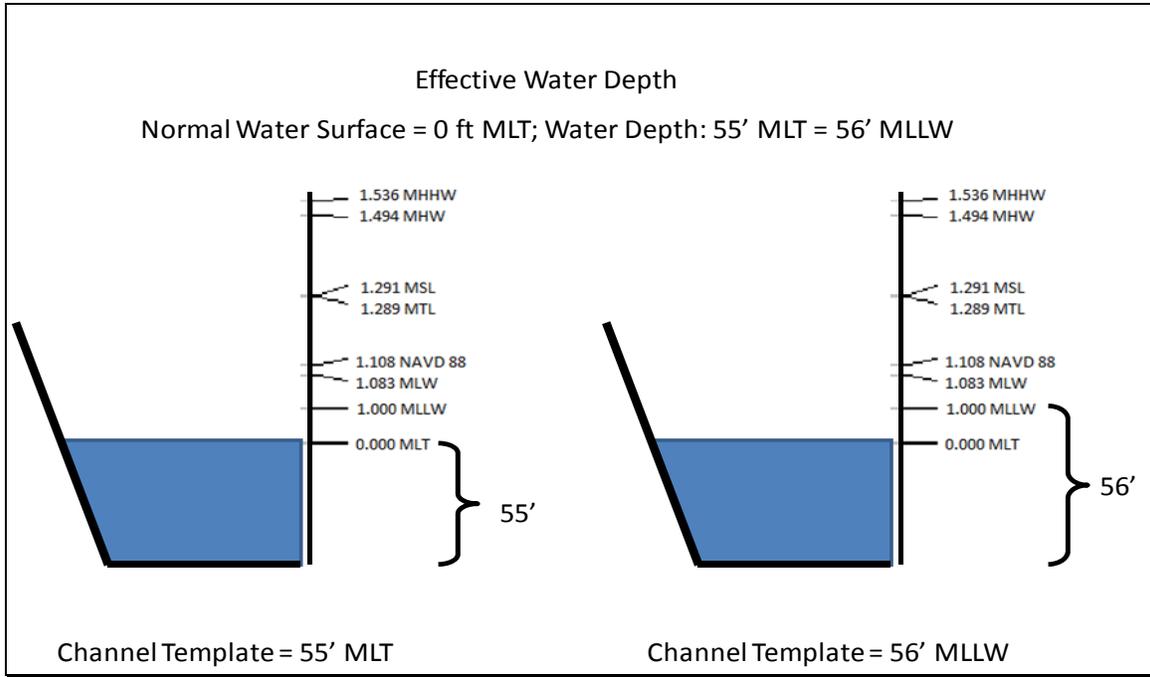
Tide (MLT) were used in calculating new work volumes. These vertical datum are presented in the studies performed by the Engineer Research and Development Center, and can be referenced for more clarification.

The North American Datum of 1927 (NAD 27) was used during the Initial and Plan Formulation phase. During Final Plan, the study was converted to the newer North American Datum of 1983 (NAD 83). Final Plates are shown in NAD 83, Texas State Plane Coordinate System, South Central Zone.

Army regulations and USACE Headquarters guidance on tidal datum, provided in ETL 1110-2-349 *REQUIREMENTS AND PROCEDURES FOR REFERENCING COASTAL NAVIGATION PROJECTS TO MEAN LOWER LOW WATER DATUM*, dated April 1, 1993, and EM 1110-2-1003, April 1, 2002, stress the necessity of converting local datum, such as MLT to Mean Lower Low Water (MLLW). EM 1110-2-1003 further states that MLLW should be tied to the NAVD 88. The predominate reasons for conversion to MLLW is the need for consistency throughout the ports of the U.S., to enhance the continuity of National Oceanic and Atmospheric Administration and U.S. Coast Guard navigation charts and to avoid misconceptions within the shipping and dredging industries with regard to channel depths.

The USACE Galveston District has an established survey control network along the Freeport Harbor Channel. To comply with the above referenced guidance on referencing tidal datums using MLLW, the Galveston District took vertical survey measurements at tide gauges and benchmarks to estimate the relative difference between MLT and MLLW datums along the Freeport Channel. The objective was to maintain an effective water depth of 55 feet while correctly referencing resulting water surface level in MLLW as shown in the following Figure 1-a.

Figure 1a
 Effective Water Depth
 Freeport Harbor Channel
 Mean Low Tide – Mean Low Low Water



At Freeport Channel, datum values for MLLW are +1 foot above MLT. However, this does not result in increased water depth, as the additional +1 foot of nominal depth is actually +1 foot above the normal surface water level. Therefore, the actual water depths are equivalent between a 55 feet MLT channel template and a 56 feet MLLW channel template.

As the study and its documentation were completed using MLT, references to MLT have been maintained throughout this document, though numbers are also referenced in MLLW depths at some locations in the report. These references will be in parentheses and the datum will be referenced at each reference point.

The Recommended Plan addresses the problems and opportunities identified during the study and satisfies the planning objectives of increasing navigation efficiency and safety along the Freeport Harbor Channel while maintaining the coastal and estuarine resources within the project area. This Recommended Plan is the Locally Preferred Plan (LPP), the plan preferred by the Sponsor. The LPP is recommended in lieu of the National Economic Development (NED) Plan. The NED Plan and the LPP were fully developed. The LPP is less costly than the NED Plan for the Entrance and Main channels and the net excess benefits are less. The Recommended Plan portion for the lower Stauffer Channel is the LPP, which is more costly than the NED Plan. The increased incremental difference between the LPP and the NED Plan for the lower Stauffer Channel requires the local Sponsor to pay the differential cost.

Section 12.5 has been corrected with the following table:

Table 93
Proposed Freeport Channel Dimensions for Recommended Plan

Channel Section	Required Depth MLT¹ (MLLW)	Width (feet)	New Work Quantity (cy)²
Future Channel Extension (Sta -300+00 to Stat -370+00)	59(60)	600	795,000
Outer Bar Channel (Sta 0+00 to Sta -300+00)	59(60)	600	8,290,000
Jetty Channel (Sta 0+00 to Sta 71+52.58)	57(58)	600	3,648,000
Lower Turning Basin (Sta 71+52 to Sta 78+52)	57(58)	existing	208,000
Channel to Brazosport and New 1,200-foot Turning Basin (Sta 78+52 to Sta 115+00)	57(58)	existing	2,916,000
Channel to Upper Turning Basin (Sta 115+00 to Sta 132+66)	57(58)	existing	391,000
Channel to Upper Turning Basin and Turning Basin (Sta 132+66 to Sta 184+20)	52(53)	existing	490,000
Stauffer Channel – Lower Reach (Sta 184+20 to Sta 222+00)	52(53)	300	1,387,000
Stauffer Channel – Upper Reach (Sta 222+00 to Sta 260+00)	27(28)	200	427,000

¹ Includes Advance Maintenance (2 feet)

² Includes Allowable Over-depth

Section 12.7 has been corrected with the following tables:

Table 94

Recommended Plan Cost
Comparison of Costs (rounded)

Cost Account	Item Description	First Cost (Oct 09 Price Level)	Fully Funded Cost (Oct 09 Price Level)
Federal Construction Cost			
01	Lands & Damages	\$77,000	\$84,000
06	Fish & Wildlife Facilities	\$124,000	\$140,000
12	Navigation Ports & Harbors	\$181,261,000	\$203,420,000
30	Project Expenditures		\$2,891,000
30	Planning, Engineering & Design	\$26,404,000	\$28,567,000
31	Construction Management	\$16,788,000	\$19,025,000
Federal Construction		\$ 224,654,000	\$ 254,127,000
Non-Federal (LERs/ Facilities) Cost			
01	Lands & Damages	\$1,751,000	\$1,911,000
02	Relocations	-0-	-0-
12	Navigation Ports & Harbors(1)	\$56,935,000	\$63,847,000
12	Aids to Navigation	\$1,373,000	\$1,541,000
30	Project Expenditures	-0-	\$3,053,000
Non-Federal Construction		\$60,059,000	\$70,352,000
Total Navigation Costs		284,713,000	\$324,478,000

Table 95
 Cost Apportionment

Cost Apportionment Navigation	First Cost	Fully Funded Cost
Federal Navigation:		
Freeport Channel	\$106,690,000	\$113,833,000
Lower Stauffer Channel	\$5,776,000	\$6,113,000
Upper Stauffer Channel	\$2,232,000	\$2,361,000
Lands & Damages	\$77,000	\$78,000
Mitigation	\$102,000	\$108,000
Total Federal Navigation	\$114,877,000	\$122,493,000
non-Federal Navigation:		
Freeport Channel	\$106,767,000	\$113,914,000
Lower Stauffer Channel	\$3,630,000	\$3,840,000
Upper Stauffer Channel	\$663,000	\$701,000
Land & Damages	\$1,751,000	\$1,815,000
Mitigation	\$90,000	\$95,000
Total non-Federal Navigation	\$112,901,000	\$120,365,000
Total Navigation	\$227,778,000	\$242,858,000

HQUSACE Assessment: The concern is not yet resolved. Table 94 incorrectly shows the Aids to Navigation as a non-Federal cost. These are associated costs which are the responsibility of the U.S. Coast Guard and should not be included in the total navigation costs. The total navigation project costs for authorization appear to be \$226,405,000 when the aids to navigation costs are removed. Table 95 and other locations throughout the text which show the \$227,778,000 value should also be revised. In addition, the table shows Fully Funded costs under Account 30, Project Expenditures of \$2,891,000 Federal and \$3,053,000 non-Federal. These are feasibility study costs which are not part of the project costs and should be removed from the estimate. Also, the cost sharing for the Lower Stauffer channel shown in Table 96 shows different information for the LPP and NED plans at the 18'-20' and 20'-45' depth ranges. The LPP Federal cost share should be limited to the NED share of \$5,726,000 rather than the \$5,776,000 shown.

District Response-2: Sections 12.7 and 12.8 of the Feasibility Report have been revised and Tables 73 and 74 have replaced Tables 94 and 95. The tables have been revised to address the removal of aids to navigation from the total navigation project costs. Project expenditures have been removed from the totals in the tables. Tables detailing the Lower Stauffer Channel have been removed because the NED depth changed during model certification and the LPP matches the NED.

HQUSACE Assessment: The concern is resolved by text changes made to the revised final report.

6.E. SPONSOR'S SELF CERTIFICATION OF FINANCIAL CAPABILITY. The final report submission should include the sponsor's self-certification of financial capability, which replaces the previous requirement for a preliminary financial plan and District Engineer's assessment which had been required per ER 1105-2-100. The feasibility phase form should be provided by the sponsor and referenced in the text once the cost shares are finalized. The form for decision documents can be found at the following website: <http://www.usace.army.mil/CECW/PPA/Pages/forms.aspx>

Action Taken (12 April 2011): Concur.

HQUSACE Preliminary Assessment (21 April 2011): The inclusion of item i of the submittal; package (Non-Federal Sponsor Self-Certification of Financial Capability) has resolved the concern. Note that the certification provided in the submittal was the version of the form for agreements rather than the one for decision documents as indicated in the comment. The sponsor should be advised of the difference in the language and that the Government's acceptance of this self-certification shall not be construed as obligating either the Government or the Non-Federal Sponsor to implement a project.

SWG Preliminary Response (2 May 2011): Concur. The sponsor will be notified of the difference and the fact that this self-certification shall not be construed as obligating either the Government or the non-Federal sponsor to implement a project.

HQUSACE Assessment (May 2011): The concern is not yet resolved but the preliminary response appears appropriate. The district should also confirm that the financial certification is applicable to the non-Federal cost sharing as revised.

Action Required: Coordinate with the sponsor to assure their understanding of the final cost sharing requirements as well as clarify that acceptance of the self-certification does not constitute an obligation by either party to project implementation.

District Action: Sponsor has been furnished the Self-Certification for Decision Documents for their Board approval and for submission with the final documents.

HQUSACE Assessment: The concern is resolved by the revised sponsor self-certification which uses the decision document format.

6.F. DISPOSAL FACILITY MAINTENANCE. Page 12-14 indicates that costs for disposal facility maintenance associated with the project will be allocated 50%/50% for depths over 45 feet and 75% non-Federal/25% Federal for depths less than 45 feet. Maintenance costs for project depths of 45 feet and less are 100% Federal. The text should be revised to reflect the appropriate cost sharing for maintenance of GNF in accordance with WRDA 86. See Table E-12 of ER 1105-2-100.

Action Taken (12 April 2011): Cost allocation has been corrected.

HQUSACE Preliminary Assessment (21 April 2011): The concern is not resolved. The text on page 12-14 still reads the same and was not corrected as shown in the Action Taken.

SWG Preliminary Response (2 May 2011): Concur. The sentence will be modified to read as follows: Costs for disposal facility maintenance associated with the project will be allocated as 50 percent non-Federal and 50 percent Federal for the incremental cost associated with depths over 45 feet and 100 Federal for depths less than 45 feet.

HQUSACE Assessment (May 2011): The concern is not yet resolved however the action proposed in the preliminary response appears adequate to resolve the concern.

Action Required: Revise the text as noted in the preliminary response.

District Action: Section 12.7 of the report has been modified to address the correct cost share for maintenance and now currently reads:

The maintenance of project features will be funded through annual appropriations of the O&M program. The actual amounts will vary on a year-to-year basis because of variability in the

volume of material removed during each dredging cycle and the variability of the cycles. Costs for maintenance of the Freeport Harbor Project will be in accordance with Section 101(b) of WRDA 86 (Planning Guidance Letter [PGL] 47, Cost Sharing for Dredged Material Disposal Facilities and Dredged Material Disposal Facility Partnerships), which allocates the increment of costs for maintenance of channel depths less than 45 feet as 100 percent Federal and the increment of costs for channel depths greater than 45 feet as 50 percent non-Federal and 50 percent Federal.

HQUSACE Assessment: The concern s resolved by the text change in Section 12.7.

6.G. TIMING OF TOPS. Reference is made to Volume 1 page 9-84. The Texas Offshore Oil Port System (TOPS) is a proposed offshore terminal project that would provide feedstock to Texas City, Houston, and Port Arthur. Freeport’s Seaway dock also serves Texas City and Houston. If 60 percent of Middle East and Africa crude oil imports used the offshore terminal, the BCR for the NED and LPP are above unity (Table 72). The text is not correct. Table 72 shows NED Plan BCR for Freeport Channel 50/60 feet at 0.8 to 1. And BCR for the LPP is 0.9 to 1. The text needs to be corrected. Also, provide the optimum net benefit depth for Freeport Channel, if 100 percent of Middle East and Africa crude oil imports used the offshore terminal. What is the timing and likelihood of TOPS being implemented?

Action Taken: Revisions have been made to the main report and the appendix to address the comment. Tables 72 and 71 had previously shown exactly the same data. The labeling for Table 72 had indicated that the benefits were based on 60 percent of Middle East and Africa crude oil imports used the offshore terminal when, in fact, the benefits shown in the table reflected 100 percent of Middle East and Africa crude oil imports using an offshore terminal. In response to the comment and the error, Table 72 has been revised to show the correct numbers for a 60 percent diversion. If 60 percent of Middle East and Africa crude uses an offshore terminal, the BCR remains above unity. The effect of 100 percent of Freeport's Middle East and Africa crude oil imports used the offshore terminal results in a BCRs well below unity for all channel depths (i.e. 50, 52, 55, 58, and 60 ft). The likelihood of TOPs being constructed is unlikely as the permit was withdrawn in 2010.

HQUSACE Assessment: The changes to Tables 72 and 71 and the information in the response on the TOP permit being withdrawn **have resolved the concern.**

6.H. REMOVALS OR RELOCATIONS. Reference is made to page 12-11 of Volume I Draft Feasibility Report. "During the feasibility study, one pipeline was identified for further consideration. However, surveys were conducted on the pipeline and it was found to have adequate coverage for the project. Therefore, no removals or relocations are required." Since removals and relocations are a significant economic cost and the magnitude of net benefits between alternatives is not large, confirmation is needed that there are no utilities that would be impacted in the navigation channel.

Action Taken: Removals and/or relocations were checked and statement that one pipeline crosses the project area and has adequate coverage is correct.

HQUSACE Assessment: The action taken above **has resolved** the concern.

6.I. DATUM (MLT TO MLLW). The report uses mean low tide as the datum for channel depth and mean lower low water should be used. Reference is made to EM 1110-2-6056 31 Dec 2010 Chapter 4 Procedures for Referencing Datums and Dredging Grades on Coastal Navigation Projects, Paragraph 4-1.General. This chapter provides guidance on evaluating and establishing vertical reference grades on coastal navigation projects in tidal waters. It also covers the tidal gaging and modeling methods used to define the varying MLLW datum plane at a project site, including NOAA's recently developed "VDatum" software tool that transforms vertical navigation datums throughout CONUS coastal regions. Also see Engineer Technical Letter No. 1110-2-349 1 April 1993.

Action Taken: Documents have been corrected to use MLLW.

HQUSACE Assessment: The change to MLLW **has resolved the concern**.

6.J. IMPACTS TO SPECIAL AQUATIC SITES. Reference is made to the two volume DEIS. In the 404(b)(1) analysis it states that there are no impacts to special aquatic sites when we are actually impacting almost 40 acres of wetlands.

Action Taken: Concur. Section II.e (5) Effects on Special Aquatic Sites (FEIS Appendix G, Clean Water Act Section 404(b)(1), page 9) has been revised to acknowledge that 39 acres of wetlands would be impacted by construction of PAs 8 and 9, and that these impacts would be fully compensated by the mitigation plan presented in FEIS Appendix H.

HQUSACE Assessment: The changes to Appendix G and Appendix F **have resolved the concern**.

6.K. CHANNEL WIDENING AND PERMIT. Reference is made to Volume I pages 4-7 and 7-1. The Port of Freeport is requesting the Federal Assumption of Maintenance of the widened channel increment. The permit for widening was granted in March 2009 and construction is dependent upon ASA(CW) approval. Provide information on the status of widening and the permit.

Action Taken: Final Report has being submitted for Washington level review and processing to ASA(CW) for approval. Appropriate verbiage has been added to documents.

HQUSACE Assessment: The above action taken **has resolved the concern.**

6.L. LNG VESSEL BU SAMRA DRAFTS 41- FEET. Reference is made to Volume 1 page 9-22. “All vessels modeled at a 40-foot operating draft.” The LNG vessel BU SAMRA IMO # 9388833 (266,000 bcm) has a draft of 41-feet or 12.5 meters. This vessel was built in April 2008 and represents large cost effective LNG ships. More of these vessels of even larger sizes can be expected in the future. The assumption in the draft feasibility report that LNG vessels all draft at 40-feet needs to be revised.

Action Taken: The text in Volumes I and II has been changed to recognize that the maximum design drafts for LNG vessels is 42 feet.

HQUSACE Assessment: The text revisions to Volumes I and II **have resolved the concern.**

6.M. DIMENSIONS OF LNG VESSELS. Reference is made to Volume I page 9-82 and the U.S. Department of Energy LNG report. Deployment of larger LNG vessels of the Q-Flex and Q-Max class are expected to serve the terminal with a 600-foot channel. For the 600-foot channel, a Q-Max vessel is deployed in the simulation studies. This vessel has a capacity of 264,000 m³ and dimensions of 1,131 feet LOA with a 177-foot beam. Provide the loaded and design drafts of the Q-Flex and Q-Max vessels. As well as the length and beam.

Action Taken: The length, beam, and design draft of Q-Flex vessels are 1,033 feet by 164 feet by 39 feet respectively. Q-Max vessels are 1,131 feet by 180 feet by 39 feet respectively.

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

6.N. LATEST AEO FORECAST. Reference is made to Volume I page 9-23. The draft report uses the AEO reference case from the Annual Energy Outlook 2008 that was published in December 2007. Note the AEO 2011 Early Release Overview with the base case is available on line and the full Annual Energy Outlook will be available in March.2011. The latest AEO data needs to be examined to determine if there is a material impact on the recommended plan.

Action Taken: The share of crude petroleum imports into Freeport has doubled from 1990 to 2007 compared to total U.S. crude petroleum imports. Also, Freeport has a higher concentration of refineries than the national average. The AEO latest data is based on national averages and is therefore more conservative and not as accurate of an estimate as Global Insight.

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

6.O. POTENTIAL CONTAINERS AT FREEPORT. Reference is made to Volume I page 6-8. It was pointed out that the Houston present container facilities are near capacity. Later on the text pointed out that there are planned phases of building facilities at Bayport (Houston) and Shoal Point in Texas City. Discuss if the expansion at Bayport and Shoal Point would decrease the container handling potential at Freeport.

Action Taken: Shoal Point is no longer applicable. A permit has been approved but no action has been taken. Freeport's NED benefit calculations are based a TEU volume of 217,000 in 2017 and a maximum volume of 234,000 TEUs in 2067. Expansion of Bayport or another facility is unlikely to decrease the container handling potential at Freeport. Freeport's expected volume of 217,000 TEUs in 2017 to 234,000 TEUs in 2067 TEU represents less than 20 percent of Houston's 2009 loaded TEU volume. Freeport's market share also is supported by mileage advantages over Houston for several fast growing population locations in counties adjacent to Freeport and Houston (Economic Appendix, Section 8.2).

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

6.P. SUSAN MAERSK & BIG BEND AREA. Reference is made to Volume I pages 9-56 and 9-50. The design vessel for Phase I of Freeport's container terminal expansion is 965 feet long by 106 feet wide. Widening would be needed around the Big Bend area inbound from the Seaway Dock at the lower end of the channel to accommodate the Susan Maersk. The Susan Maersk could not navigate past Station 180+00. The Susan Maersk is 1,138 feet long, 140 feet wide, with a design draft of 47.6 feet and an 8,200 TEU capacity. Discuss the potential economic feasibility of a future widening that would permit the Susan Maersk to use the Big Bend area.

Action Taken: The costs of the structural modifications to the Freeport Channel include dock replacements and movement of portions of Dow Chemical refinery structure and pipelines. These modifications would mean that widening the Freeport Channel is not economically feasible. Text in Section 9.16.4 has been revised.

HQUSACE Assessment: The revision of the text in Section 9.16 and the information in the above action taken **have resolved the concern.**

6.Q. TEU CAPACITY & LOADED DRAFT. Reference is made to Volume I page 9-59. As noted in the report, a fully loaded 65,000 DWT vessel carrying approximately 6,500 TEU'S and loaded to approximately 49 feet will be able to transit the expanded Panama Canal. The TEU capacity of this ship is more than 25% higher than the representative ships. On page 9-51 Table 42 there is a list of 27 representative containerships expected to use Freeport. These vessels have DWT's ranging from 61,000 to 68,000 and the design draft is either 44-feet or 45 feet. Also the highest

TEU capacity was 5,100 TEU's. Also the statement on vessel loaded depth at 49 feet needs to be modified. Verify that a 49-foot loaded draft was not used for 65,000 DWT vessels in the benefit analysis.

Action Taken: The largest vessel used in the benefit analysis was a 68,000 DWT containership with a design draft of 45 feet. The maximum loaded draft used for this vessel was 42 feet. Text in Section 9.16.6 has been revised.

HQUSACE Assessment: The information in the above action taken and the text revision in Section 9.16.6 **have resolved the concern.**

6.R. AVERAGE COSTS VS LOWER 25 PERCENTILE. Reference is made to Volume II page 101. The direct shipment costs used for the transportation savings calculations are based on the lower 25 percentile costs given the array of vessel sizes and costs shown in Table 65. Lightering and lightening costs summarized in Table 66 were calculated using average costs for shuttles in the 90,000 DWT to 175,000 DWT range. Explain why the lower 25 percentile costs were used instead of the average costs.

Action Taken: The lower 25 percentile costs were used instead of average costs as vessel choices are expected to continue to reflect construction and utilization of vessel sizes that minimize vessel operating costs given channel dimensions. Historically, the vessel sizes used for Freeport and other Texas ports for crude petroleum are concentrated among the most optimal choices given existing constraints.

HQUSACE Assessment: The information in the above action taken **has resolved the concern**

6.S. PRE DOWNTURN GDP FORECAST. Reference is made to Volume II page 128 Table 83. The U.S. Gross Domestic Product (GDP) Forecast as well as the consumption and imports and exports were all at an annual growth rate of 4.8% for the period 2006 to 2039. In light of current events this forecast is on the high side. Any economic benefits directly or indirectly derived from this forecast needs to be scaled back.

Action Taken: A growth rate of 4.8% is a reasonable figure based on historical trends. The analysis assumes full employment for the 50-year study period.

HQUSACE Assessment: The information in the above action taken has not resolved the concern. Reference is made to ER 1105-2-100 page E-46 paragraphs (e) and (g). "(e) Sensitivity analysis of several levels of projections is used for the economic analysis. There may be high-level projection embodying optimistic assumptions and a low-level projection based on assumptions of reduced expectations. The high and low projections should bracket the

foreseeable conditions. The third and fourth levels of projections can reflect the with- and without-project conditions based on the most likely estimates of the future. If a proposed plan would not induce commodity growth, one level of projection may be shown for both the with and without project conditions.

(g) Most projections of waterborne commerce are static estimates of dynamic events; therefore, the projections should be sufficiently current to support the report conclusions.”

Note, the economic basis for a sustained growth rate of 4.8% over the 33-year period from 2006 to 2039 has not been provided and also the recent economic downturn has not been incorporated into the analysis. The use of 4.8% over 33-years results in an increase in traffic of 4.7 time the base year $((1.048)^{33} = 4.7)$.

SWG Preliminary Response (2 May 2011): SWG’s comment was made stating that an annual 4.8% growth rate for GDP is reasonable based on historical trends. However, a growth rate of 4.8% for imports and exports was not used in the analysis. SWG used a base of 200,000 TEUs for year one of the project life (2017). The 200,000 TEUs includes loaded and empty TEUs. The tonnage volume associated with the 200,000 TEUs is 1.5 million short tons. The analysis projects 2017 tonnage increasing from 1.5 million short tons in 2017 to 1.8 million short tons in 2067, an annual average growth of .3%. The report will be modified to clarify that the 4.8% rate was not used in the analysis.

HQUSACE Assessment (May 2011): The concern is not yet fully resolved, but the information in the SWG Preliminary Response appears adequate to address the concern.

Action Required: When the final report text is modified as noted in the SWG preliminary response to clarify that 4.8% growth was not used in the analysis, HQ also suggests that the annual average growth should be shown as 0.3% instead of .3%.

District Action: Text has been added to the last paragraph of Section 8.1 to clarify that 0.3% growth rate for tonnage was used in the analysis rather than a growth rate of 4.8%. The following text has been added to the Economic Appendix:

Although Global Insight projects a 4.8% annual increase in container value until the year 2039, this analysis uses an average annual increase in tonnage of 0.3% for container vessels, increasing from 1.5 million short tons in 2017 to 1.8 million short tons in 2067.

HQUSACE Assessment: The concern is resolved by the clarification in Section 8.1.

6.T. FLOODING FROM HIGH INTENSITY HURRICANES. REFERENCE is made to Volume 1 page 12-4. “A cursory-level numerical study was conducted to determine whether the planned improvements to the channel will make Freeport Harbor and adjacent, low-lying areas more

susceptible to inundation due to hurricane-induced storm surge. Hurricanes selected for simulation were based on the September 1941 hurricane and hurricane Fern, which impacted the Texas coast in September 1971. These hurricanes were selected because both came within close proximity to the study area and produced relatively high surges. The model found little change in peak water-surface elevations within the harbor resulting from the planned improvements. Estimated increases were about 0.16-foot. Consequently, the planned harbor improvements do not appear to make the harbor and adjacent low-lying areas more susceptible to storm surge from less-intense hurricanes.” Port Freeport is one of the Nation’s most important ports for the petrochemical industry. Also, in August 2006, as a result of lessons learned from hurricanes Katrina and Rita, the USACE Chief of Engineers initiated the “Actions for Change” in an effort to transform the USACE planning, design, construction, and maintenance principles and decision-making process. Goal 3 calls for delivery of effective, resilient sustainable solutions. The cursory-level numerical study utilizing less intense storms may have understated the risk of damage to the critical Port of Freeport petrochemical complex. Determine if project features tested in a more robust model with high intensity hurricanes have the potential to raise water surface elevations at a damaging level.

Action Taken: These hurricanes were selected for simulation because both came within close proximity of the study area and produced relatively high surges. Stronger hurricanes, such as the 1900 Hurricane, were omitted from the analysis because they would have generated significantly greater overland flooding; this, in turn, hampers determining whether the planned improvements make the Harbor more susceptible to storm surge. Text in Section 12.2.1.1 has been revised.

HQUSACE Assessment: The information in the above action taken and the text revision in Section 12.2.1.1 **have resolved the concern.**

6.U. WATERBORNE COMMERCE DEPTH DATA. Reference is made to Volume 1 page 1-1. “The existing authorized depth for the Freeport Harbor Channel is 45 feet mean low tide (MLT). Brazos Harbor Channel and Turning Basin are 36 feet MLT. The deauthorized Stauffer Channel has a depth of approximately 18 feet (MLT). The tidal range for Freeport Harbor is typically 2 feet.” The Waterborne Commerce of the U.S. Part 2 has depth information that is different. “Maintained Depth: Bar Channel, 44 feet; thru upper turning basin, 37 feet;” However, the depth through Stauffer turning basin is the same from both sources at 18 feet. The Waterborne Commerce information on Freeport Harbor pointed out that, “Tidal range to 3 feet at higher high water. Explain if the economic benefits are affected by depth difference at the harbor channel - 1-foot and upper turning basin +1-foot. Also, clarify if the correct tidal information is in the draft report.

Action Taken: While not specifically discussed in reference to tidal effects, the effect of reductions in underkeel clearance is already addressed in the report. The effect of decreasing the

underkeel clearance for the Upper Stauffer Channel is included in Table 64. The table shows that BCR remains above unity given the base traffic forecast. Table 63 presents the BCR and economic summary data for the base forecast. The effect of increasing the underkeel clearance for Upper Stauffer vessel transit would increase the transportation savings beyond the base plan shown in Table 63. The effect reduced underkeel clearance for crude oil and product traffic is addressed in Table 73. Again, the effect of increasing the underkeel clearance for crude and product traffic was not evaluated; however, greater underkeel clearance would increase the transportation savings. The effect of reducing the underkeel clearance for container vessels from 3 feet to 1 foot does not push the BCR below unity; however, the BCR remains above unity if the underkeel clearance is 2 feet.

Tidal data: Neap tide range is 0.8 to 1.8 feet and spring tidal range is 2.5 to 3.0 feet.

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

6.V. UPDATE AEO FORECAST. Reference is made to Volume I page 9-71. “The AEO forecast was published in April 2009 and reflects Provisions of the American Recovery and Reinvestment Act.” In April 2010 the deepwater Horizon oil spill in the Gulf of Mexico changed the outlook for deep water drilling as the current domestic turmoil in the Middle East makes forecasting a difficult science and art. Discuss the implication of these two events on the feasibility of the NED and LPP plans.

Action Taken: Current events have an impact on the forecasts published by AEO. The deepwater Horizon oil spill in the Gulf of Mexico caused increased imports of crude petroleum to continue to meet the domestic demand. Also, the unrest in the Middle East causes the sources of the imports to shift which can also influence the quantities and prices of imported crude petroleum. Situational events can influence the accuracy of figures and creates uncertainty in the forecasts. Unfortunately, many of such events cannot be predicted, but the sensitivity analyses presented in the report pose alternative scenarios to help alleviate the magnitudes of error.

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

6.W. EDITORIAL.

(1) Correct Text on BCR. Reference is made to Volume II pages 108 & 109. “The results of the analysis show that the 52 to 60 foot alternatives have benefit-to-cost-ratios (BCR’s) over unity.” Note the BCR for the plan at 50 feet is at 0.8 to 1. Change the text, as 0.8 is not over 1.0 unity BCR.

Action Taken: Text in Section 7.0 of the Economics Appendix and Section 9.15 of the Feasibility Report has been revised.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(2) Correct Upper Stauffer Channel Depth. Reference is made to Volume I page 9-80. The text provides an incorrect depth for the Upper Stauffer Channel. “The LPP includes a 30-foot project depth for the Upper Stauffer Channel.” The following Table 67 shows the LPP Stauffer Modification Upper Reach at 25 feet. The text needs to be changed to agree with the table, which has the accurate information.

Action Taken: Text in Section 9.19 has been corrected.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(3) Correct Headings. Reference is made to Volume I page 6-3, Table 9. The design draft and the beam headings were transposed. Correct the headings on Table 9

Action Taken: Table column headings have been corrected

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(4) Note EGM. Reference is made to Volume I page 9-28. Refer to the EGM 08-04 in a footnote.

Action Taken: Corrections have been made to Section 9.14 of the report.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(5) New Canal Ship Sizes. Reference is made to Volume I page 9-46. The Panama Canal Authority (ACP) used a post –Panamax vessel of 366 meters long, 49 meters wide, and 15 meters deep as the reference for establishing the ideal lock chamber sizes. Provide the corresponding English equivalents 1,200 feet long, 161feet wide and 49.2 feet deep.

Action Taken: Metric converted to English feet/

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(6) Clarify Ship Flag. Reference is made to Volume I page 9-53. Provide footnotes on Tables 43 and 44 pointing out these tables are for U.S. Flag container ships.

Action Taken: The labeling for Tables 43-44 has been revised to say "Total Container Vessel Trips by U.S. Region" and "Total Containership Trips by Loaded Draft to U.S. Ports". The calculations are based on foreign flag vessels.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(7) Draft Real Estate Plan. Pg 3 Non standard estate Permanent Disposal Area Easement – Typo, line 2 should read "PL8EE and PL9E), for the location, construction" Right now it reads "PL8EE and PL9E), for the location, construct...."

Action Taken: Typo corrected.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(8) Draft Real Estate Plan. Pg 13, 0113 references utility relocations administration - Typo, line 0113 mentions 20 pipelines \$80,000 dollars? Pg 14 # 19 states 2 known pipelines but no relocations needed.

Action Taken: Typo corrected.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(9) Contrast Ships New & Old Canal. Reference is made to Volume I page 9-59. The text needs to cover the container ship sizes permitted in the new and old Panama Canal.

Action Taken: The fleets for the base condition and the sensitivities do not include post-Panamax vessels. A key premise of the analysis is that the vessels used for the NED calculations

are based exclusively on Panamax vessels. Given this premise, the Panama Canal depth expansion from approximately 39 to 42 feet will allow the upper end of the DWT using Freeport to be more fully loaded. The width from approximately 106 to 161 feet is not reflected in vessel fleet used for Freeport's benefit calculations. The basis for this application is that Freeport's NED benefits are comprised of spill-over traffic from Houston.

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

(10) Table 95 Footnote. The footnote at the bottom of Tables 95 on page 12-16 (also shown in the cost summary in Appendix D) discusses the costs for the feasibility and reconnaissance phases. It is not clear why that information is provided since the feasibility and reconnaissance costs are not part of the project costs. It is suggested that the footnote be deleted since it is confusing.

Action Taken: Correction has been made to the Report.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(11) Duplicate Text. The report repeats the text for Sections 12.6 through 12.11 on pages 12-19 to 12-25. The duplicate text should be deleted for the final report.

Action Taken: Duplicate pages deleted/

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(12) Duplicate Tables. The information in Tables 71 and 72 appears to be identical although the text in Section 9.19.2 describes them as leading to different results. It appears that Table 71 was repeated and the results intended for Table 72 need to be shown in the report.

Action Taken: Corrections have been made to the Report

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(13) Tables 69 and 70. On pages 9-85 and 9-86 identical information is shown on these tables for the NED and LPP plans on the Lower Stauffer although the NED depth is 45 feet and the LPP is 50 feet. Please verify the correct information and revise as needed.

Action Taken: Tables corrected.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(14) Table 93. The costs table for the Tentatively Recommended Plan on page 12-13 shows Non-Federal PED costs under item 30 for the Fully Funded Cost but none under the First Cost. It is not evident why that would be the case. Please clarify.

Action Taken: Cost Table has been revised.

HQUSACE Assessment: The information in the above action taken and the text revision in the Feasibility Report **have resolved the concern.**

(15) Latest Tonnage Statistics.

Reference is made to Volume I pages 9-7 and 2-2 and Tables 18 and 2 respectively. Table 18 has incorporated the 2008 tonnage statistics. Table 2 should be updated with these latest tonnage statistics.

Action Taken: Table 2 is part of preliminary feasibility analysis and contains the data at that time; Table 18 is part of detailed plan formulation analysis and contains current data at that time.

HQUSACE Assessment: The information in the above action taken **has resolved the concern.**

(16) Summary Table. The report lacks a summary table in which all benefiting commodities are shown together. See attached example table.

**Freeport Harbor, Texas Draft Feasibility Report Example Table
Transportation Savings (\$1,000)**

Year	2000-04	2014	2024	2044	2064	Av. Ann.
		Crude Petroleum Imports				Table 67
50-foot	\$9,198	\$9,675	\$10,579	\$13,327	\$16,243	
55-foot	\$18,396	\$19,154	\$20,879	\$26,231	\$31,969	
		Petroleum Product Imports				Table 71
50-foot		\$854	\$1,106	\$1,388	\$1,388	
55-foot		\$854	\$1,106	\$1,388	\$1,388	
		Chemical Product Exports				Table 71
50-foot		\$576	\$1,457	\$3,481	\$3,516	
55-foot		\$576	\$1,457	\$3,481	\$3,516	

	Total as shown on Table 74				
50-foot	\$11,104	\$13,142	\$18,197	\$21,147	\$14,800
55-foot	\$19,825	\$22,618	\$30,068	\$35,615	\$25,146
	Sum of Tables 67 & 71				
50-foot	\$11,104	\$13,142	\$18,196	\$21,147	
55-foot	\$20,583	\$23,442	\$31,100	\$36,873	
	2007-11	Container Vessel	Table 99		
50-foot	\$1,979	\$2,350	\$2,749	\$2,749	\$2,749
	2008	Upper Stauffer Channel	Table 132		
27-foot	\$239	\$228	\$329	\$395	\$407 \$347

Action Taken: Summary Table has been added to Economic Appendix.

HQUSACE Assessment: The Economic Appendix revision in the Feasibility Report **has resolved the concern.**

7. RESOLUTION OF COMMENTS FROM REVIEW OF THE MARCH 2010 FRC DRAFT REPORT AND DEIS

7.A. OPERATION AND MAINTENANCE COSTS, ENGINEERING APPENDIX: Table 1 of the Engineering Appendix indicates that 2 feet of advance maintenance will be performed on all reaches. No justification for advance maintenance is included in the report. Corps guidance (ER 1130-2-520, Section 8-2.a.(7)) requires written justification for advance maintenance. The report should include justification for advance maintenance to ensure that the most efficient O&M plan has been identified.

Response: A sensitivity analysis has been performed to determine the effect of no advance maintenance. The analysis shows that average annual O&M costs increase over the 50-year period of analysis without the advance maintenance because, although less material would be dredged per dredging cycle, the frequency of O&M dredging would increase to maintain the project's authorized depth. This increase in average annual O&M costs results in a decrease in the net excess benefits and a decrease in the BCRs for each of the channel depths. The NED plan of 49-foot depth has a decrease in the BCR from 1.3 to 1.2. A new Table has been added to the Report showing the summary of economic data without advance maintenance.

FRC Discussion: Response is adequate.

Required Action: Implement Response. Document in Report and include a new Table in the Engineering Appendix and indicate the location of the Table.

Action Taken: The comment regards economic sensitivity. The analysis and Table were inadvertently left out of the draft Report for public review. The following write-up and Table will be included in the Final Report.

9.19.6 Advance Maintenance Sensitivity Analysis

A sensitivity analysis was performed to determine the effect of no advance maintenance. The analysis shows that average annual O&M costs increase over the 50-year period of analysis without the advance maintenance. Although less material would be dredged per dredging cycle, the frequency of O&M dredging would increase to maintain the project’s authorized depth. This increase in average annual O&M costs results in a decrease in the net excess benefits and a decrease in the BCRs for each of the channel depths. The NED Plan has a decrease in the BCR from 1.5 to 1.3. The LPP has a decrease in the BCR from 1.3 to 1.2. These results are shown in Table 76.

Table 76
Freeport Channel and Stauffer Modification
NED and LPP Economic Summary and Comparison of BCRs With and Without Advance O&M
Average Annual Values at 4.375% and \$1,000s

	With Advance Maintenance		Without Advance Maintenance	
	NED	LPP	NED	LPP
First Cost of Construction	\$383,441.0	\$308,722.0	\$383,441.0	\$308,722.0
Interest During Construction	\$31,309.1	\$22,978.9	\$31,309.1	\$22,978.9
Total Investment	\$414,750.1	\$331,700.9	\$414,750.1	\$331,700.9
Average Annual Cost	\$20,562.1	\$16,444.8	\$20,562.1	\$16,444.8
Average Annual O&M	\$7,687.0	\$5,552.7	\$8,167.7	\$5,973.0
Total Annual Cost	\$28,249.1	\$21,997.5	\$28,729.8	\$22,417.7
Average Annual Benefits	\$40,962.7	\$27,997.8	\$40,962.7	\$27,997.8
Net Excess Benefits	\$12,713.6	\$6,000.3	\$12,232.9	\$5,580.1
B/C Ratios	1.5	1.3	1.4	1.2

Note: Totals may not add due to rounding.

The write-up and Table will be Section 11.6 and Table 146 in the final Economic Appendix.

HQUSACE Assessment: The concern is not resolved. Table 146 of the draft Economic Appendix covers the NED and LPP Construction Cost by Contract and, as noted in the Action Taken, the draft report inadvertently omitted Section 11.6 in Volume 2 of the Economic Appendix and Section 9,19.6 in Volume I of the Feasibility Study. These changes should be included in the final report to resolve this concern.

Action Taken: The comment regards economic sensitivity. The analysis and Table were inadvertently left out of the draft Report for public review. The following write-up and Table will be included in the Final Report.

9.19.6 Advance Maintenance Sensitivity Analysis

A sensitivity analysis was performed to determine the effect of no advance maintenance. The analysis shows that average annual O&M costs increase over the 50-year period of analysis without the advance maintenance. Although less material would be dredged per dredging cycle, the frequency of O&M dredging would increase to maintain the project’s authorized depth. This increase in average annual O&M costs results in a decrease in the net excess benefits and a decrease in the BCRs for each of the channel depths. The NED Plan has a decrease in the BCR from 1.5 to 1.3. The LPP has a decrease in the BCR from 1.3 to 1.2. These results are shown in Table 76.

Table 76
Freeport Channel and Stauffer Modification
NED and LPP Economic Summary and Comparison of BCRs With and Without Advance
O&M
Average Annual Values at 4.375% and \$1,000s

	With Advance Maintenance		Without Advance Maintenance	
	NED	LPP	NED	LPP
First Cost of Construction	\$383,441.0	\$308,722.0	\$383,441.0	\$308,722.0
Interest During Construction	\$31,309.1	\$22,978.9	\$31,309.1	\$22,978.9
Total Investment	\$414,750.1	\$331,700.9	\$414,750.1	\$331,700.9
Average Annual Cost	\$20,562.1	\$16,444.8	\$20,562.1	\$16,444.8
Average Annual O&M	\$7,687.0	\$5,552.7	\$8,167.7	\$5,973.0
Total Annual Cost	\$28,249.1	\$21,997.5	\$28,729.8	\$22,417.7
Average Annual	\$40,962.7	\$27,997.8	\$40,962.7	\$27,997.8

Benefits				
Net Excess Benefits	\$12,713.6	\$6,000.3	\$12,232.9	\$5,580.1
B/C Ratios	1.5	1.3	1.4	1.2

Note: Totals may not add due to rounding.

The write-up and Table will be Section 11.6 and Table 146 in the final Economic Appendix.

Action-3 Taken: Analysis and Table have been added to FR and Economic Appendix.

HQUSACE Assessment: The above action taken and Economic Appendix revision **have resolved the concern.**

7.B. LOWER STAUFFER CHANNEL LENGTH, ECONOMIC APPENDIX, SECTION 8.0: The Economic Appendix states that water access to the Velasco container terminal requires a 3,400 foot channel extension and further that the non-Federal sponsor will construct a 3,000 foot long channel in the “without” project condition. However, Table 3 of the Engineering Appendix indicates that the channel length is 3,780 feet. It is not clear what these various numbers represent. The report needs to use consistent numbers, and where there are differences, explain why. Also, the report needs to explain why the NED plan is for a 3,780 foot long channel, if access to the container terminal only requires a 3,000 foot long channel.

Response: Sta. 184+20 is center of Upper Turning Basin. Lower Stauffer (from top of cut for Upper Turning Basin) is approximately 3,100 feet. Report is revised to consistently use 3,100 feet for Lower Stauffer Channel length. The 3,780-foot is from the center of the Upper Turning Basin to end of proposed Lower Stauffer Channel

Local sponsor is constructing a berth area/“channel” for Phase 1 of the Velasco Container Terminal. This Phase 1 “channel” is adjacent to the new proposed Federally constructed Lower Stauffer Channel. See Response h. Economic Appendix.(2) and (4).

These issues are clarified in the revised Report and Appendices.

FRC Discussion: Response is adequate.

Required Action: Implement Response. Present additional discussion/rationale regarding the length of the channel for berthing/vessel length and operational need in the draft Report.

Action Taken: See first paragraph of Section 8.0.

HQUSACE Assessment: The concern on channel length is not resolved. Volume 2 Economics Appendix Section 8.0, first paragraph mentions 800 feet of dock/1,200 feet of berth for Phase I. Phase II includes 1,200 feet of berth. Table 8 and Section 5 of the Engineering Appendix discuss Lower Stauffer channel as 3,780 feet without clarification (between Sta. 222+00 and Sta.184+20). The channel length discrepancy has not been corrected.

Action-3 Taken: Section 8.0, paragraph 1 has been revised to say the without project condition associated with Phase I is based on an off-channel berth area being constructed by the local sponsor. This berth area is being constructed in two phases and may eventually be as deep as 45 feet; this construction is not part of the federal project. The transportation savings benefits were calculated based on Phase I of the construction. As part of Phase I, the local sponsor is constructing a berth area/channel adjacent to the proposed Federally constructed Lower Stauffer Channel. Lower Stauffer (from top of cut for Upper Turning Basin) is approximately 3,100 feet. Report is revised to consistently use 3,100 feet for Lower Stauffer Channel length.

HQUSACE Assessment: The above action taken and Economic Appendix revision **have resolved the concern.**

7.C. LOGGERHEAD TURTLE LISTING. There is currently a proposal to uplist the Loggerhead turtle populations as endangered vs. threatened. This may eventually go through and may place take limits at a lower level for this type of project. The District should remain aware of that process as it matures and culminates and factor this risk to project execution into their project schedule once the report is approved and authorized.

Response: SWG will stay apprised of this proposal for uplisting the Loggerhead turtle from a threatened to an endangered status. The District will remain proactive in planning and preparing for potentially more stringent species conservation requirements (e.g., potential additional equipment and/or procedures and best practices) from the USFWS and the NMFS), and the associated impacts on the project schedule and cost of project implementation.

FRC Discussion: Response is adequate.

Required Action: Implement Response. Monitor policy and include any new information as appropriate in the draft report.

Action Taken: No change to Report.

HQUSACE Assessment: **The concern on the draft report is resolved.** However, the District is required to monitor the proposal for uplisting the Loggerhead turtle.

7.D. UPPER STAUFFER ECONOMIC DATA. The information on average annual benefits, net benefits, and BCR for the Upper Stauffer is substantially different between Tables 63 and 65. Please review and revise as needed or explain why the data presented differs.

Response: The difference between Tables 63 and 65 is a missing table. The missing table included the average of the benefits shown in Tables 63 and 64. A new table following Table 64, showing the average of the benefits presented in Table 63 (as presented in the Report reviewed by HQ) and Table 64 (with minor revisions), will be added to the revised Report.

FRC Discussion: Response is adequate.

Required Action: Implement Response. Include new Table in the draft Report.

Action Taken: See Tables 63, 64 and 65.

HQUSACE Assessment: The inclusion of Tables 63, 64 and 65 on pages 9-77 and 9-78 of Volume I of the Feasibility Report has resolved the concern.

7.E. SENSITIVITY ANALYSIS. Table 66 shows a sensitivity analysis for the 7% discount rate; however there are some odd values in the table. It is not clear why the O&M values for the Freeport 55/50 channel and Lower Stauffer are different from those shown in Table 65. In addition, the values for annual costs are identical on the Upper Stauffer in Table 66 at 7% to those shown in Table 65 for the 4.325 discount rate. The tables should be reviewed and revised as needed.

Response: Table is corrected and revised.

FRC Discussion: Response is adequate.

Required Action: Implement Response for the draft Report.

Action Taken: See revised Table 67.

HQUSACE Assessment: The revised Table 67 on page 9-81 of Volume I of the Feasibility Report has resolved the concern.

7.F. LERR COSTS. Table 90 shows costs for the Lands and Damages under both Federal and non-Federal costs. However, Section 12.9 indicates that there are no LERR costs for the project. Please clarify and make the text consistent regarding LERR requirements.

Response: Section 12.9 has been revised to correct that there are LERR costs.

FRC Discussion: Response is adequate.

Required Action: Implement Response for the draft Report.

Action Taken: See Sections 12.8 and 12.9.

HQUSACE Assessment: The revised text on page 12-15 of Volume I of the Feasibility Report has resolved the concern.

7.G. ITEMS OF LOCAL COOPERATION. Chapter 12 should contain the list of “Items of Local Cooperation and the DE's recommendation.

Response: Section 14 Recommendations contains local sponsor requirements and Recommendations.

FRC Discussion: Response is adequate.

Required Action: Implement Response for the draft Report.

Action Taken: See Section 14.1.

HQUSACE Assessment: The concern is resolved. Section 14.1 includes a list of local sponsor requirements on page 14-1 of Volume I of the Feasibility Report.

8. RESOLUTION OF POLICY CONCERNS FROM REVIEW OF THE AFB MATERIALS.

This section discusses the resolution of comments identified prior to the Alternative Formulation Briefing in April 2009.

8.A. WITHOUT-PROJECT CONDITIONS.

(1) Planning Objectives, page 31. The planning objectives are very general. Objectives should be clearly defined and quantified to the extent possible to provide information on the desired effects, including the location, timing, and duration of the effects. In addition, the second objective includes enhancement of ecological and cultural resources. Federal interest is generally limited to restoration and protection, not enhancement. The objectives should be revisited and clarified as appropriate to provide a basis for measuring fulfillment. See ER1105-2-100, paragraph 2-3.a.(4).

District Response: Concur. Objectives are being revisited and clarified. Navigation objective will address the Freeport Harbor location and current vessel usage improvements and safety. Environmental objective will emphasize the maintenance and protection of environmental resources; enhancement will be removed as an objective.

Discussion: The response is adequate.

Required Action: Navigation objective in Report will address the Freeport Harbor location and current vessel usage improvements and safety. Environmental objective in Report will emphasize the maintenance and protection of environmental resources. Enhancement will be removed as an objective.

Compliance: Planning Objectives have been revised on page 31 of FR

HQUSACE Assessment: The concern is resolved by the text changes on page 3-2.

(2) Planning Constraints, page 41. The report mentions constraints to widening in the jetty channel and reach between the Brazosport and Upper Turning Basins. However, there is no mention of these constraints in the Planning Constraints section on page 31. The constraints should be reviewed and revised as needed to address any resource, legal, or policy constraints that would impact on the plan formulation. See ER 1105-2-100, paragraph 2-3.a.(5).

District Response: Concur. Constraints are being reviewed and revised as needed. The constraints or restrictions based on jetty width and docking along the channel will be added.

Discussion: The response is adequate.

Required Action: Constraints will be revised as needed. Constraints or restrictions based on jetty width and docking along the channel will be added.

Compliance: Planning Constraints have been revised on page 31 of FR. Physical Constraint based on channel widths has been added on page 32 of FR.

HQUSACE Assessment: The concern is resolved by the text changes on pages 3-2 and 3.3.

(3) Section 204(f) Study, page 37. The text states that a decision on the permit for channel widening is anticipated in early 2009 and construction would begin soon thereafter. This is a key assumption affecting the without project condition. Updated information on the widening permit and construction status should be included in the report to assure the basis for formulation is correct. See ER 1105-2-100, paragraph 2-3.b. In addition, because of the uncertainty related to

the Section 204(f) study, this report should provide a scenario analysis that assumes the channel widening project has not been constructed in the future without project condition, to assess the impact on the proposed project if this is the situation that ultimately transpires. This scenario analysis should incorporate the use of waivers in a manner consistent with existing practices.

District Response: Permit was issued on 2 March 2009. Text will be revised. Construction of the permit action will begin as soon as the Section 204(f) Report is approved by the ASA(CW). Coordination with HQ is ongoing to finalize the Report. The District does not concur with the scenario analysis that assumes the widening action will not occur; widening will occur. Port Freeport is awaiting the Section 204(f) approval so that the channel will be federally maintained.

Discussion: Participants discussed the status and likelihood of the sponsor's widening project. It was determined that future study documentation should demonstrate (at a minimum): 1) Q-Max vessel traffic usage for the project; 2) evidence that large vessels will deploy to Freeport; and 3) that waivers are contingent on widening vs. non-widening. Participants recognized that the economy is weak now and few of these vessels have been constructed. To comply with the Actions for Change, risk and uncertainty should be addressed in the documentation. A without non-Federal sponsor project scenario needs to be prepared and risk and uncertainty analysis performed. HQUSACE concurs with the current FWOP condition.

Required Action: Prepare scenario analyses addressing the risk (and uncertainty) that the channel widening is not constructed.

Compliance: The No Action/Future Without-Project Condition section on pages 36-38 has been revised and a FWOP-2 scenario (assumes that the local sponsor widening (Section 304(f)) project will not be built as anticipated) has been added. Cost and benefits were developed for this scenario.

HQUSACE Assessment: The concern is resolved by the text changes, however it seems awkward to refer to FWOP-1 as the No Action and then not use it as a basis for comparison per NEPA. It would seem cleaner to refer to the FWOP-2 as the No Action and most likely FWOP conditions because the widening is anticipated to be completed prior to the base year.

Response: At the beginning plan formulation, it was assumed that the Outer Bar and Jetty Channels would be widened by the local sponsor and that was designated as the Future Without Project (FWOP) condition. At the request of HQUSACE, a second scenario was prepared to assume that the local sponsor did not build the permit action (widening). The first FWOP (with widening) was then designated as FWOP-1 and the second FWOP (without widening) was designated as FWOP-2.

FRC Discussion: Response is adequate.

Required Action-2: No further changes to the Report are required. Comment is resolved.

Action-2 Taken: No Change.

HQUSACE Assessment-2: – Comment resolved. See Volume II Economic Appendix Sensitivity Analysis Channel Widening pages 187 to 191.

(4) No Action and Future Without Project (FWOP) Alternatives. The reports indicate that for planning purposes it is assumed that the channel will be widened by a non-Federal entity in the FWOP condition. A distinction is made in the reports between No Action and FWOP and they are carried forward as two different alternatives. The No Action condition is synonymous with the FWOP condition. The No Action alternative under NEPA is specific to the Federal action being proposed, not other actions. The No Action needs to consider other actions that may affect the planning area in the future regardless of whether the proposed Federal action occurs. It is understood that the district is separating No Action from FWOP to show that there will be changes in the future even without the non-Federal widening project, even though that widening project is assumed to be implemented in the future. In actuality it appears that the report is looking at two alternate FWOP conditions (or two No Action conditions) and this is acceptable for comparison purposes, as long as the report makes clear which FWOP condition is being used for plan formulation (and the report does so). HQUSACE recommends that what is presently the No Action alternative be identified as a second FWOP alternative for comparison purposes. The two FWOP alternatives can be easily distinguished as with or without the non-Federal widening project.

District Response: Concur. Both the Feasibility Report and the EIS will be revised to include the use of two FWOP project alternatives, for comparison purposes. Descriptions of the FWOP alternatives will be included.

Discussion: Include a general discussion of the FWOP without widening and clarify that the FWOP with widening was used for plan formulation. No Action equals FWOP without widening.

Required Action: Prepare general descriptions for each FWOP condition. Indicate clearly up front which FWOP scenario is used for plan formulation.

Compliance: The No Action/Future Without-Project Condition section on pages 36-38 has been revised and a FWOP-2 scenario (assumes that the local sponsor widening (Section 304(f))

project will not be built as anticipated) has been added. The Detailed Plan Formulation, General section on page 63 of the FR states that the FWOP-1 condition was assumed for plan formulation.

HQUSACE Assessment: This comment is resolved.

(5) Sea-Level Rise. The report discusses local relative sea level rise (subsidence added to sea level rise rates) that has exceeds 0.47 in/yr, but concludes that impacts of this to the project area and navigable vessels are predicted to be insignificant. A much more through discussion of this issue, and how the conclusions were drawn, needs to be provided. Sea-level rise specifically, and climate change in general, are important issues for the Federal interest and in such an area as the project site, where sea level rise is exacerbated by subsidence issues, a thorough analysis is needed.

District Response: Concur. A more thorough analysis of relative sea level rise/subsidence will be performed and documented in the report.

The proposed new Placement Areas 8 and 9 and the associated mitigation are at elevations ranging from five to ten feet and RSLR is not expected to impact design or utilization. RSLR does not impact the offshore placement area or its utilization.

Discussion: Impacts are only at Placement Areas and are not influenced by sea level rise.

Required Action: Thorough analysis of relative sea level rise/subsidence will be performed and documented in the Report. Furthermore, the report will fully describe the relationships.

Compliance: Relative sea-level rise is described under Other Consideration on page 230-233.

HQUSACE Assessment: This comment is resolved.

8.B. ECONOMICS

(1) Discount Rate, Executive Summary, page iv.

The Executive Summary indicates the project benefits were calculated using the vessel operating costs in Economic Guidance Memo for 2008 and the discount rate for FY2008 of 4.625 %. The rate of 4.625% is for FY2009 per Economic Guidance Memo #09-01. The discount rate for FY2008 was 4.875%. Later on page 173 the text regarding plan selection states that the current discount rate of 4.875% was used. The text should be corrected in the draft report to avoid confusion and for the final report the applicable discount rate should be used for the fiscal year in which the report is submitted.

District Response: Concur. The benefits and costs were calculated at 4.625% and Economic Guidance Memorandum 08-04 (dated 27 November 2007) vessel operating costs were used. The “Economic Guidance Memo #09-01” cited by HQ is not presently posted at the Corps Economic Guidance website. SWG was provided a spreadsheet in December 2008 which may contain what will be posted in EGM 09-01. In any case, the December 2008 data was provided to SWG after the draft report was completed. In response to the comment, EGM 09-01 will be incorporated into report revisions. We need HQ to confirm that the December 2008 costs provided informally are what are presented in EGM 09-01. Application of the “December 2008 vessel operating costs” will reduce the project benefit cost ratio. Listed below is comparison of the December 2008 vessel operating costs that SWG received informally from IWR with the EGM 08-04 costs used in the District’s calculations.

Foreign Flag Tanker Cost

DWT	December 2008 a/		EGM 08-04 c/	
	At Sea b/	In Port b/	at sea	in port
20,000	\$659	\$403	\$792	\$456
25,000	\$696	\$430	\$827	\$479
35,000	\$766	\$481	\$895	\$523
50,000	\$865	\$554	\$1,007	\$600
60,000	\$952	\$622	\$1,103	\$672
70,000	\$1,001	\$653	\$1,160	\$706
80,000	\$1,058	\$692	\$1,225	\$747
90,000	\$1,107	\$724	\$1,283	\$781
110,000	\$1,192	\$772	\$1,382	\$833
150,000	\$1,369	\$878	\$1,590	\$945
165,000	\$1,439	\$922	\$1,671	\$991
265,000	\$1,900	\$1,207	\$2,207	\$1,290
300,000	\$2,061	\$1,306	\$2,393	\$1,393

320,000 \$2,103 \$1,363 \$2,499 \$1,452

a/ December 2008 unpublished vessel operating costs transmitted by email from IWR to SWG on 17 December 2008.

b/ The “at sea” cost shown reflect “economic speed” costs. The “in port” costs shown reflect “static dockside” costs. The “economic speed” and “dockside/static” costs are generally 69 percent less than “service speed” and “maneuvering” costs. Based on informal guidance, it is understood that economic speed costs” for all “at sea” cost calculations. “Dockside/static” costs are applicable for “in port” vessel unloading.

c/ Economic Guidance Memorandum 08-04, December 2007.

Discussion: EGM #09-01 pertains to discount rates. HQUSACE agreed to confirm the official status of the FY08 guidance.

Required Action: The current discount rate will be used in the revised report. In regard to the vessel operating costs, the “December 2008 deep-draft vessel operating costs” shown above will be incorporated into the revised report. The costs are not posted at the HQ website; however, IWR told District personnel in December 2008 that these costs represent current costs and are to be used in current planning studies.

Compliance: The economic analysis reflects use of the current discount rate. The analysis reflects use of the December 2008 deep-draft vessel operating cost.

HQUSACE Assessment: Partially resolved. The analyses appear to be using the appropriate rate, however, that is not explained consistently. The last paragraph on page ES-2 indicates a discount rate of 4.325% was used and it should be corrected to 4.375%. Also, on page 9-76 the text at the top of the page indicates the discount rate is 4.625% and Table 63 states it is 4.375%. The text should be scrubbed for consistency throughout. The appropriate discount rate will need to be used for submission of the final report. The December 2008 deep draft vessel operating cost data is correct for Double Hulled Tankers and Containerships, so this issue is resolved.

Response: The Report and Appendix have been scrubbed to insure consistency for the appropriate discount rate (4.375%).

FRC Discussion: Response is adequate.

Required Action-2: No further changes to the Report are required. Comment is resolved.

Action-2 Taken: No Change.

HQUSACE Assessment-2: Comment resolved. Note the FY 2011 interest rate for project evaluation and formulation is 4 1/8%. The final report needs to use the interest rate for the fiscal year of publication.

(2) Beneficiaries.

It is not clear from the report which facilities are benefiting from the improvements for various depth plans. The text indicates that LNG vessels have drafts of 39-40 feet maximum and require about 4 to 6 feet of underkeel clearance. Therefore these vessels would not appear to benefit from depths in the range of 55 to 60 feet. Crude petroleum appears to be delivered to both the Seaway and Conoco Philips facilities. Under existing conditions the crude petroleum tankers calling at Seaway are larger than those operating in the upper channel and it is not clear from the report whether Seaway may be the only facility benefiting at some point as channel depths get deeper. This is further confused by the berthing/dock information on page 17 of the Engineering Appendix, which indicates that Seaway and the LNG terminals are the only facilities taking advantage of the deeper channel depths. Additional information is needed to assure that multiple beneficiaries exist at the project depths being recommended up to the upper turning basin and a Federal interest still exists based on guidance in ER 1165-2-123. Clarification is needed in the report as to which facilities are benefiting from the various plan depths in order to better assess policy regarding single beneficiaries and incremental justification.

District Response: Deepening and widening benefits were not calculated for LNG for the Federal project. The HQ observation that these vessels would not appear to benefit from depths in the range of 55 to 60 feet is correct.

A statement outlining the facilities evaluated for channel deepening benefits will be added to the first few pages of the Appendix. Currently, the Appendix starts with a description of the existing traffic base (pages 1-5). Specific facility use by channel reach is clearly outlined on pages 6-7 of the Appendix. Pages 8-20 outline commodity volumes and trendlines. Details associated with vessel utilization were documented on pages 21-50.

The comment reference to the berthing/dock information on page 17 of the Engineering Appendix, which indicates that “Seaway” and the LNG terminals are the only facilities taking advantage of the deeper channel depths, requires clarification. First, deepening benefits were not calculated for LNG. Second, channel deepening in the “Teppco/Seaway” reach will allow larger and more fully loaded vessels to use the “Teppco/Seaway” dock. Third, deepening of the reach which includes Conoco-Phillips and Dow Chemical, will allow the existing fleet to be loaded more fully. New vessel order data for chemical carriers shows construction of larger chemical carriers. In addition, both chemical and petroleum tankers using this reach presently load to a maximum draft of 42 feet.

It is noted in the Appendix that crude petroleum is delivered to both the Seaway and Conoco Philips facilities. Under existing conditions the crude petroleum tankers calling at Seaway are larger than those operating in the upper channel. The vessels using the Conoco Phillips dock will generally not be any larger than those presently using that dock; however, channel deepening to 50 to 60 feet will allow the existing range of vessels to be more fully loaded. Channel deepening will allow the existing fleet and vessels slightly larger to load more fully. An

effect of channel deepening is that the Conoco-Phillips dock will be utilized at a greater rate than it presently is. Distribution of the number of vessels presently using the TEPPCO/Seaway dock versus Conoco-Phillips docks will be presented in the revised report.

Benefits for commodities other than crude oil were calculated and are included in the draft report benefit calculations. Benefits were calculated for chemical exports and petroleum product imports. The petroleum product imports would be imports to the Conoco Phillips dock. The chemical export benefits would be exported from Dow Chemical. The benefits for chemical exports are being reviewed and the forecast estimate presented in the base analysis may be revised based on input obtained from Dow Chemical that there are no expectations that vessels will ever be loaded to maximum loaded drafts in excess of 42 feet. Benefits had initially been calculated for 15 percent of future chemical export tonnage. Review of recent historical data showed that an increasing percentage of chemical exports were loaded to drafts over 40 feet, with the maximum loaded draft being 42 feet. The percentage of tonnage transported in vessels with loaded drafts over 40 feet is displayed in Table 26 of the Economic Appendix. Table 26 includes data for 1990, 1994, and 2002-2005. Data for other years in the 1990s were not available. Data for 2006-2007 will be added to the table. The forecasted increase in the percentage of Freeport exports transported in vessels with loaded drafts over 45 feet was based on examination of Freeport's 1990-2006 export tonnage by loaded draft and chemical product vessel construction data. Examination of Freeport 1990-2006 export data showed a transition of some of Freeport's export tonnage from loaded drafts less than 40 feet in the early 1990s to loaded drafts of 40-42 feet; with 42 feet representing the allowable loaded draft permitted by the Brazos Port Pilots' Association. This in consideration with "new vessel construction data" obtained from the Lloyds' Register of Ships and the large concentration of sodium hydroxide export tonnage from Freeport were indicators that transition to larger chemical carriers was possible over the 50-year planning period.

Based on ER 1105-2-100, Appendix E pages E-24 and 25, paragraph E-8b.(4)(c). Under the theory of Progressive Development an "end of the line" reach of channel serving the last benefiting terminal should not be viewed as a separable element of the project unless there is a disproportionate investment in serving the "end of the line" user. Increments of channel serving a private property terminal such as Conoco Phillips at the "end of the line" are not to be considered a single owner situation for purpose of application of the single owner policy as long as the costs of serving the "end of the line" user is not disproportionate. Under the application of the policy the Outer Bar to Upper Turning basin should be considered as a single separable element of the project serving at least two benefiting terminals – the publicly owned Port leased Teppco/Seaway Terminal and the privately owned Conoco Phillips terminal. Therefore, this Outer Bar to Upper Turning Basin separable element channel has "multiple users". The AFB materials evaluate this reach of channel as a single separable element, and this is consistent with policy and the progressive development principle.

Discussion: HQ indicated that the review comments are not questioning progressive development. The documentation should state what the beneficiaries are at various locations and identify if multiple beneficiaries run out at some point. Determine if there is a point where bulkheads are needed or if existing bulkheads require modification (or not). Make best judgment on chemical fleet. The District should check trade journals, industry announcements, etc., for additional information, and temper world fleet orders with interviews.

Required Action: Report revisions are being made to describe facility locations and include information on vessels currently using the channel; verify the chemical fleet; reevaluate existing bulkhead design in light of the deepening; and recheck and confirm bulkhead modifications and any effects on optimization.

Detailed descriptions of the existing condition and the without and with project future as it relates to traffic, docks, and vessels will be included in the revised text. The Outer Bar to Upper Turning basin will be evaluated as single separable elements. Channel optimization analysis of the Lower and Upper Stauffer Channel will be presented in one foot increments. The optimization will be identified by channel reach and associated commodity and vessel utilization patterns as they relate to existing conditions and the without and with project future. A map with the dock and associated commodities will be added to the report. The distribution of recent historical and without and with project future crude oil imports by dock will be discussed in the report. Dock constraints and associated costs will be addressed. Additionally, pipeline capacity and “pumpage limitations” will be addressed. Costs pertaining to the without and with project future condition pipeline and pumpage modifications associated with the without and with project future will be addressed. Distinction between sweet and sour crude oil as it relates to docks and pipelines used will be included in the report. The capacity of existing facilities and planned expansions in relationship to projected tonnage will be specifically discussed.

The chemical fleet will be verified. Industry informed the District by email prior to the AFB that chemical tankers would not use channel depths over 45 feet during 2014-2064. The non-federal sponsor is currently verifying the industry statement based on the 50-year planning period. Additionally, the District will outline chemical fleet trend data from trade journals and industry announcements and expand the report presentation. The purpose of the revisions will be to better identify the likelihood of 7.6 percent of 2014-2024 and 15.2 percent of 2034-2064 chemical export tonnage being loaded to vessel drafts up to 50 feet. The 2014-2064 chemical product export forecast presented in the draft appendix may be revised downward based on IEPR comments and regional downturns affecting chemical production. The rationale for commodity specific tonnage and associated percentages by trade route included in the transportation savings benefits will be outlined in detail.

Based on IEPR, the petroleum product fleet will also be verified and the percentage of tonnage anticipated to be transported in vessels with loaded draft over 45 feet will be reviewed and the

rationale documented in the report text. Existing conditions and without and with project future fleets and loading practices will be outlined in detail.

Compliance: The operational reaches and the facilities located in each reach are described on pp. 4-5 of the Economic Appendix. The benefits for crude petroleum and products accrue to facilities in the first two operational reaches. In terms of vessel traffic and facilities, the first reach starts offshore at Station -350+00 and goes to Station 115+00, and includes the Lower Turning Basin and the Brazosport Turning Basin. These reaches extend through Station 174+00. The benefits for these two operational reaches by commodity type are outlined on pp. 110-119. Descriptions of the facility locations are presented in Figures 1, 2, 6, and 7. Figure 2 shows the location of all the facilities. The Lower Stauffer Channel and the Velasco Terminal are located in the third operational reach. The fourth operational reach provides access to service and seismic vessels. Channel optimization for the Lower and Upper Stauffer Channel is presented in one-foot increments (Tables 101-102, 129).

As noted on p. 15 of the Economic Appendix, the Conoco-Phillips Sweeny refinery receives crude oil through the Seaway and the Conoco-Phillips docks on the Freeport Channel. The maximum vessel sized vessel using the Seaway dock is 175,000 DWT. Approximately 90 percent of Freeport's total crude oil ship tonnage is discharged at Seaway, the remaining 10 percent at the Conoco-Phillips dock. Both Seaway and Conoco-Phillips terminals provide access to the regional and national pipeline network. Both terminals are capable of receiving either sweet or sour crude oil. The pilots' guidelines indicate that the maximum vessel length allowed at Conoco-Phillips is 820 feet. This corresponds to a tanker up to approximately 110,000 DWT. The dock dimensions were not added to the appendix but will be included in the final document. Crude petroleum imports are shown to increase at an average annual rate of 0.9 percent from 2003/05 through 2030 (Table 46) and 2030-2064 (Table 53). Specific capacity data was not included in the report; however, capacity data were subsequently provided in response to external peer review comment 2136768. The data indicated that crude petroleum refinery capacity for regional and national terminals receiving crude oil through Freeport is sufficient to accommodate future import volumes. Petroleum product imports are shown to remain relatively flat through 2064 (Table 49). The transportation savings for petroleum product imports was estimated to result in 43 percent of 2014-2024 tonnage and 63 percent of 2025-2064 tonnage being transported at more fully loaded drafts. The 2002-2007 historic data showed an average of 43 percent and a maximum of 63 percent of tonnage transported in vessels with loaded drafts of 40 feet or more (Table 34).

Chemical and petroleum products are unloaded at Dow Chemical. The maximum chemical carriers presently used are 52,000 DWT. The maximum petroleum product carriers presently used are 106,000 DWT. These larger product carriers transport gasoline and naphtha. Dow Chemical has three docks and its largest dock can accommodate vessels of 820 feet in length by 125 feet wide. This corresponds to a tanker up to approximately 110,000 DWT. The maximum vessel length that can be accommodated at Dow's other docks 685 and 620 feet. These dock

dimensions were not added to the appendix but will be included in the final document. Freeport's chemical exports are forecasted to grow at an average annual rate of approximately 3.2 percent from 2003 to 2060 (Table 51). The 2014-2024 benefits were calculated using 7 percent of 2014-2024 and 14 percent of 2025-2064 tonnage. The 2002-2007 historic data showed an average of 7 percent and a maximum of 11 percent of tonnage transported in vessels with loaded drafts of 40 feet or more. Other considerations are outlined in response to comment i(3). With the exception of container cargo, industry did not provide a forecast for chemicals or other commodities.

Tables 23-26, 28 provide information on vessel size and the relationship between loaded and design draft for crude oil tankers. Information on cargo parcel size is presented in Table 30-32.

The BCR and net excess benefit calculations reflect all necessary bulkhead and dock modifications.

Discussion of bulkheads is included in the main report.

HQUSACE Assessment-2: The concern on which facilities are benefiting from the improvements for various depth plans has been resolved by changes to the report. The concern on bulkheads is not resolved and is listed among the unresolved comments.

Discussion: Determine if there is a point where bulkheads are needed or if existing bulkheads require modification (or not).

Required Action: Reevaluate existing bulkhead design in light of the deepening; and recheck and confirm bulkhead modifications and any effects on optimization.

HQUSACE Assessment: Partially resolved. The compliance response states that the BCR and net benefit analysis reflect all necessary bulkhead and dock modifications. Section 3.2 and Table 5 of the Engineering Appendix indicate that costs would be incurred for berth deepening and structural modifications. However, Section 12.8 states that there are no berth/dock costs required. It is not clear why that would be the case since channel depths proposed are significantly deeper than existing depths. Please clarify. Associated costs need to be factored into the NED analysis and optimization as a basis for plan designations and can have potential to change the net benefits for various plan depths by different amounts. The district need to review the analysis to assure that all the associated NED costs have been included in accordance with ER 1105-2-100, Paragraph D-3.f and revise the text for consistency.

Response: Cost will be incurred for berth deepening and structural modifications and are included in the project cost. Section 12.8 has been revised to clarify that berth/dock costs are required. The analyses have been reviewed to assure that all NED costs are included.

FRC Discussion: Response is adequate. HQ wants to see in Report.

Required Action 2: Implement Response by including the information in the draft Report.

Action-2 Taken: Next to last sentence of third paragraph of Section 12.8 states “Berth deepening and structural modifications will be incurred and are included in the project cost.”

Review of Draft Report (December 2010) on Need for Bulkheads. Reference is made to Volume I page 8-4 and Volume II Appendix B Engineering Appendix (Report) page 22. “Dredging volumes were estimated for the dock and berthing areas by taking the area of the berth and multiplying by assumed depth of cut.” “All berthing areas were assumed to be at the existing depth of the waterway. The associated costs relating to the facility’s ability to utilize the new depth were identified by others.” Neither the Economic Appendix nor the Engineering Appendix or the Baseline Cost Estimate presented any specific dollar information on bulkhead modification costs. In fact, page 8-4 of the report and page 21 of Appendix B indicate that docks and wharves were not analyzed. Because bulkhead modifications can be very expensive and bulkheads may have been constructed with significant safety factors or their condition may have deteriorated with time, a specific engineering determination is needed to determine the adequacy of the existing structures, the need for bulkhead modifications to accommodate increased berth depths, and the related incremental associated project costs. Those costs can result in step functions of incremental cost that can potentially affect plan optimization. The assumption that bulkhead designs are adequate at existing depths needs to be verified. Also the associated costs identified by others need to be reviewed and documented by the ATR team.

Further, the rationale for the upgrade costs shown in Table 5 of Appendix B needs to be provided since it isn’t clear how they are derived. Five berths are shown to require upgrades at a cost of \$7,500,000 each. However, the berth areas vary between 130,000 and 180,000 square feet and the difference between current and design water depth varies from 1 (Dow berth 8) to 5 feet (Conoco Phillips berths 3 and 4). No upgrade costs are shown for the 270,000 square-foot Seaway/TEPPCO berths although the water depth difference is 15 feet. In addition, it is noted that the TPCS in Appendix D shows the identical non-Federal costs under WBS item 12 for contracts 3, 5 and 6 for the NED and LPP plans although the Federal costs vary. Also, no non-Federal costs are shown under item 12 for the Upper and Lower Stauffer channels under contract 7.

HQUSACE Assessment-2: Please review and clarify/revise as needed.

Action-3 Taken (12 April 2011): See Section 12.8

HQUSACE Preliminary Assessment (21 April 2011): The concern is not resolved. Note that the text in Section 12.8 in the April 2011 Feasibility Report is identical to the December 2010

Draft. There was no clarification or revision as requested. No information has been provided in response to HQUSACE Assessment 2. Because bulkhead modifications can be very expensive and bulkheads may have been constructed with significant safety factors or their condition may have deteriorated with time, a specific engineering determination is needed to determine the adequacy of the existing structures, the need for bulkhead modifications to accommodate increased berth depths, and the related incremental associated project costs.

SWG Preliminary Response (2 May 2011): SWG responses are interspersed into the comments. The next to last sentence in the third paragraph of Section 12.8 should read “Berth deepening and structural modifications will be incurred and are included in the project cost. The phase “...incurred but are not included ...” was inadvertently included in the final report. The berthing and structural modifications total \$54.587 million. A majority of that total (~\$37,500,000 before contingencies are added) is for bulkhead modifications. The cost is shown in the Total Project Cost Summary in the WBS 12 account as the non-Federal cost for Navigation Ports and Harbors. This cost is also included in Table 94 on page 12-14. The report will be modified to be clear on the fact that associated costs are accurately included in the current costs.

HQUSACE Preliminary Assessment (continued):

(1) First, dredging volumes were estimated for the dock and berthing areas by taking the area of the berth and multiplying by assumed depth of cut.” “All berthing areas were assumed to be at the existing depth of the waterway.

SWG Preliminary Response (continued):

(1) The confusing sentence reading “All berthing areas were assumed to be at the existing depth of the waterway” will be removed from the report.

HQUSACE Preliminary Assessment (continued):

(2) Second, the associated costs relating to the facility’s ability to utilize the new depth were identified by others.” Neither the Economic Appendix nor the Engineering Appendix or the Baseline Cost Estimate presented any specific dollar information on bulkhead modification costs. In fact, page 8-4 of the report and page 21 of Appendix B indicate that docks and wharves were not analyzed. The assumption that bulkhead designs are adequate at existing depths needs to be verified. Also the associated costs identified by others need to be reviewed and documented by the ATR team.

SWG Preliminary Response (continued):

(2) As detailed above and below the bulkhead cost information has been clarified. The associated costs are part of the Mii that was reviewed by the Cost PCX in Walla Walla. They subsequently certified the cost estimate.

HQUSACE Preliminary Assessment (continued):

(3) Third, the rationale for the upgrade costs shown in Table 5 of Appendix B needs to be provided since it isn't clear how they are derived. Five berths are shown to require upgrades at a cost of \$7,500,000 each. However, the berth areas vary between 130,000 and 180,000 square feet and the difference between current and design water depth varies from 1 (Dow berth 8) to 5 feet (Conoco Phillips berths 3 and 4). No upgrade costs are shown for the 270,000 square-foot Seaway/TEPPCO berths although the water depth difference is 15 feet.

Fourth, it is noted that the TPCS in Appendix D shows the identical non-Federal costs under WBS item 12 for contracts 3, 5 and 6 for the NED and LPP plans although the Federal costs vary. Also, no non-Federal costs are shown under item 12 for the Upper and Lower Stauffer channels under contract 7.

SWG Preliminary Response (continued):

(3) The \$7,500,000 costs were obtained from the local sponsor in coordination with the locally involved industries along the channel. All of the facilities being modified are approximately the same size. The table noted in the PGM that shows several different sizes ranging from 130,000 to 180,000 square feet are measurements of the berthing areas and do not relate to the extent of bulkhead modification. These costs are also for the deepest depths considered so are conservative. SWG considered these estimates good and with contingencies added clearly detail the amount of expected non-Federal cost to the project.

Concerning the 270,000 sf Teppco dock facility with no modification costs in same Table, that facility was constructed to be able to withstand depths deeper than the LPP so no modifications are necessary outside of additional dredging and these costs are included in the additional dredging costs calculated for the LPP.

Clarification and revision of Section 12.8 is needed to substantiate project feasibility. The bulkhead costs for other Corps project have resulted in step functions of incremental cost that affected plan optimization.

HQUSACE Preliminary Assessment (Further dialogue in 27 April 2011 email):

(4) Further information provided by SWD email on 4/26 clarified that the \$37.5M in upgrade costs shown in table 5 of the Engineering Appendix relate to bulkhead modifications and not to the berth dredging costs. This was not evident to the HQ reviewers since much of the explanation seemed focused on berth dimensions, etc. Based on the email, the difference between the \$54,587,000 value in Table 94 and the \$37,500,000 total upgrade costs shown in Table 5 of the Engineering appendix is the cost of berth dredging (\$40,672,000-\$37,500,000) and the 34% contingency which results in total associated costs of \$54,587,000. It would be helpful to clarify the information shown in the Engineering text and to show the berth dredging and bulkhead costs

required at the various benefitting facilities for each channel segment, so that it is clear what the associated costs are based on. It is not evident how the associated costs were accounted for in the depth optimization analyses and what associated costs are involved for other plans. Table 5 has a footnote that indicates the upgrade costs are shown for the NED plan. The upgrade costs are the same for each facility shown (\$7.5M). No information is shown for the LPP or other plan depths. The same non-Federal costs of \$54,587,000 are shown for the LPP and NED in the MCACES estimates. It isn't evident why that would be the case since differing depths are being considered.

SWG Preliminary Response (Further response to 27 April 2011 email):

(4) As clarified above associated costs have been incorporated into the analysis of the final plan. On the two estimates having the same associated cost value, the associated costs for the NED in the Mii estimate are low and incorrect. The associated costs for the NED need to be increased by approximately \$3M to be accurate. The associated costs for the LPP are correct.

On the lack of associated costs for Contract 7, the FWOP for the Lower Stauffer assumed that the sponsor would receive a permit to construct a container facility and berthing area with access at 40-foot depth. The NED was identified at 45 and the LPP is at 50. The report should have included an additional associated cost to increase the berthing facility from 40 to 45/50 feet for the NED/LPP. This modification will be made and included before the document is released for S & A review. This additional cost is expected to be minimal and will have no impact on plan formulation.

Associated costs were not included in depth optimization. On bulkhead modification costs the team assumed that the local service facilities would not perform incremental upgrades solely based on a proposed deepening. SWG assumed that any changes made would be done at a greater level to prepare for potential modifications to the channel in the future. On dredging costs there is no tipping point where dredging suddenly becomes more or less expensive when deepening. The team assumed that changes to costs based on dredging berthing areas would remain consistent and would not affect formulation.

HQUSACE Preliminary Assessment (Further dialogue in 27 April 2011 email):

(5) The LPP is recommending a depth of 55 feet for the Freeport channel. None of the design water depths in Table 5 are that deep except for the TEPPCO facility at 60 feet. Please clarify in Table 5 what is meant by current and design water depths. HQ reviewers were taking this to mean the current berth depth and required berth depth for the NED plan. How does that relate to the adequacy of the adjacent bulkheads? Please clarify what the adequacy is of the bulkheads for the benefitting docks at various plan depths. and what associated costs went into the depth optimizations. Please clarify what facility is benefitting from the 55 foot channel to Brazosport and the new turning basin, since TEPPCO is the only facility with a design depth shown over 50 feet in Table 5? What is required for the associated bulkhead and berth dredging at TEPPCO - no

costs are shown. The footnote [1] regarding upgrade costs for berth 3 being included in the upgrade costs for berth 2 is confusing.

SWG Preliminary Response (Further response to 27 April 2001 email):

(5) Table 5 shows docking areas (Berth Numbers) along the channel, with their owners, and channel station locations. The water depths in the Table are what the Freeport Harbor existing channel depth is at each location and what channel depth the bulkheads are designed for. Upgrade costs are estimates to modify the bulkheads to accommodate a 60-foot channel depth (as noted in footnote 2 – NED Plan depths).

As for upgrade to berthing areas 2 and 3 at Seaway/TEPPCO, these berthing areas are on either side of a thin unloading facility at Station 124+00. They are, for all intents and purposes, the same berthing area. The table will be modified to remove the footnote.

The docking facilities and their channel reaches are shown below:

Lower Turning Basin Area	ConocoPhillips Dock 4 ² Dow Dock 14 ¹ Dow Dock 13 ²
Channel Through Brazosport Turning Basin	Dow Dock 8 ¹
Channel from Brazosport Turning Basin	Dow Dock 22 ¹
Channel to and through Upper Turning Basin	Dow 3A ² Seaway/TEPPCO Docs 2 and 3 ³ Seaway/TEPPCO Dock 1 ² ConocoPhillips Dock 2 ¹ Conoco Phillips Dock 3 ¹
Lower Stauffer Channel	New Velasco Terminal Dow Dock 1 ²

- ¹ Bulkhead Modifications
- ² Barge Only
- ³ No Modifications

This information will be clarified in the report.

HQUSACE Assessment (May 2011): The concern is not yet resolved, however information provided in the preliminary responses has been helpful and should be included in the report to improve its clarity. The response regarding the associated costs for the NED plan being low seems confusing. It is indicated that the NED cost is low but the LPP cost is accurate. However, on the Lower Stauffer the NED is shallower than the LPP. Later the preliminary response seems to say both estimates for the Lower Stauffer need adjustment. Further clarification is needed.

Action Required: Revise the Engineering text and MCACES estimates to show the correct value of associated costs for the NED/LPP plan on the Lower Stauffer as indicated in the above preliminary responses above (NED/LPP plan costs should be increased by \$3 million). Clarify

whether this \$3M change applies to both the LPP and NED or only one of them, and explain why the NED/LPP associated costs should be the different. Modify the Engineering discussion on Table 5 to explain the NED versus LPP associated costs for bulkheads and berth dredging as well as to clarify the water depth information shown. Revise the Table 5 footnotes as indicated in the preliminary response. Provide an explanation on assumptions for bulkhead improvements that clarifies why optimization is not affected by the associated costs. Also, provide the breakout of bulkhead versus berth dredging costs so that the upgrade costs shown in Table 5 are clearer. Provide an explanation for Table 5 on the contingencies applied to the costs shown in order to match the associated cost values shown in the main report.

District Action: Mii estimates have been corrected to accurately show costs of NED vs LPP and are attached. The NED Mii estimate has been increased to correctly show the \$3M difference. The Engineering Appendix has been modified on page 23. Additional information has been added detailing how the associated costs break down and the information has been made consistent with the main report. The following information/text has been modified/added to Engineering Appendix:

Table 5
Freeport Dock Berths Current Depth

Berth	Owner	Location	Contract No.	Water Depth (feet)		Berthing Area, SF	Upgrade Cost, (\$1,000)	Remarks
				Current	Design			
2	ConocoPhillips	166+00	6	45	50	152,000	7,500	820 feet LOA Design Vessel
3	ConocoPhillips	173+00	6	45	50	152,000	7,500	820 feet LOA Design Vessel
4	ConocoPhillips	B.H. 22+00	2	14	20	N/A	N/A	Barges Only
1	Seaway/TEPPCO	133+00	6	20	20	N/A	N/A	Barges Only
2	Seaway/TEPPCO	124+00	6	45	60	270,000	0	Outside Berth
3	Seaway/TEPPCO	124+00	6	45	60	[1]	[1]	Inside Berth
1	Dow	Stauffer Channel	7	15	25	N/A	N/A	Barges Only
3A	Dow	119+00	6	16	20	N/A	N/A	Barges Only

8	Dow	82+00	5	44	45	130,000	7,500	
13	Dow	77+00	5	< 20		N/A	N/A	Barges Only
14	Dow	75+00	3	45	47	180,000	7,500	
22	Dow	107+00	5	45	47	130,000	7,500	
1	Velasco Terminal	Stauffer Channel	7	18	50	210,000	0	

^[1]Included in Upgrade Cost of Berth 2

^[2] LOA means length overall

Bulkhead modification costs are estimated to total \$37,500,000 as detailed in Table 5. Costs to dredge adjacent berthing areas is estimated to cost \$4,992,000. Contingencies were applied to these costs and combined they total \$56,935,000 as detailed in the main report. The project also requires \$1,373,000 in modifications to aids to navigation.

Associated costs were not included in depth optimization. On bulkhead modification costs the team assumed that the local service facilities would not perform incremental upgrades solely based on a proposed deepening. After coordinating with the facility owners and local sponsor, the team determined that any modifications would be done at a greater level to prepare for potential modifications to the channel in the future. For this reason the associated costs are the same for the NED and LPP plan.

HQUSACE Assessment: The concern is resolved by the response and text changes included in the report. The footnote to Table 94 on page 12-14 provides the cost breakdown between associated costs for berth dredging and bulkheads.

(3) TOPS. The economic appendix indicates that an assessment is ongoing to evaluate the potential impacts of the TOPS facility on this project. Given the marginal justification for the 55-foot main channel alternative, this may be critical to whether or not the LPP is justified economically. Further information is needed to address the uncertainty surrounding the effects of the proposed facility.

District Response: Freeport’s Teppco/Seaway and Conoco-Phillips terminals will not be utilizing TOPS. The crude oil using TOP will be transported to Texas City, Houston, and Port Arthur; however, a March 2009 press release revealed that the Port Arthur participant, Motiva, has put its participation on hold based on uncertainty associated with future crude petroleum import volumes and trade routes.

Discussion: TOPS is on hold. Keep track of TOPS status. Future study documentation should contain a qualitative discussion of TOPS and relay that it does not impact the analyses.

Required Action: Keep track of TOPS status. Incorporate a qualitative discussion of TOPS and document that it does not impact feasibility studies. April 2009 press releases reveal that Texas Offshore Oil Port System (TOPS) alternative is presently on hold based. Specific updates will be included in the revised report. In spite of TOPS being on hold, offshore alternatives will still be evaluated. The effect of TOPS on the benefit calculations will be explicitly evaluated in the sensitivity section of the revised report. While TOPS was not noted as a specific alternative in the report, the specific basis of the four sensitivities presented in the Economic Appendix was that 100 percent of all crude oil would use offshore transfer options. The results of that analysis showed that channel depths of 58 and 60 feet produced BCRs over unity for the four sensitivity scenarios included in the appendix. The BCR for the 55-foot depth was over unity for the scenario based on three feet of underkeel clearance but not for 1-foot underkeel clearance sensitivity. The draft report discussion and corresponding tables will be revised to include specific TOPS designation.

Compliance: April 2009 press releases reveal that Texas Offshore Oil Port System (TOPS) alternative is presently on hold based. There was no change in status as of July 2009. In spite of TOPS being on hold, offshore alternatives will still be evaluated. The effect of TOPS on the benefit calculations was explicitly evaluated in the sensitivity section of the revised report (pp. 202-204).

HQUSACE Assessment: The concern is resolved by the response.

8.C. ENVIRONMENTAL.

(1) HTRW, page 9. The report indicates that the HTRW assessment revealed that several sources of HTRW exist within the study area, many of which are concentrated in the project vicinity. Without clarification this seems to infer that HTRW may be a problem that could affect the project planning. However, the text later indicates that HTRW is not found within the project footprint. HQ suggests that the text on page 9 be modified so that no confusion results regarding the without project conditions in the project area.

District Response: Concur. The text on page 9 will be modified to clearly indicate that HTRW does not affect project planning.

Discussion: The response is adequate.

Required Action: Text on page 9 will be modified to clearly indicate that HTRW does not affect project planning.

Compliance: HTRW paragraph on page 9 has been revised.

HQUSACE Assessment: **The concern is resolved** by the text changes in Section 1.5.5, page 1-15.

(2) Clean Air Act Compliance, page 165. The report states that the project is located in a non-attainment area for nitrous oxides. Coordination is planned with EPA to determine if the proposed project is compliant with the state’s implementation plan, which establishes budgets for air quality control. This course of action is acceptable. There may be options for reducing contaminant emissions that need to be evaluated to achieve compliance, which can change the project costs and implementation schedule significantly. These should be explored during the feasibility phase if needed, since this has been an issue addressed by ASA (CW) and OMB during recent report reviews.

District Response: Concur. Compliance with the State Implementation Plan (SIP) regarding project emissions should be confirmed by TCEQ/EPA before the feasibility process is complete. This will be accomplished by submitting the General Conformity Determination Document (GCD) to TCEQ/EPA for review and noticing it to the public concurrent with the DEIS. This meets the notice requirement for the GCD and should allow ample time to coordinate with TCEQ/EPA, and to receive a concurrence letter before the FEIS is finalized. Thus, there should be no surprises with respect to schedules or budget that could impact project implementation.

Discussion: The response is adequate.

Required Action: Compliance with the State Implementation Plan (SIP) regarding project emissions should be confirmed by TCEQ/EPA before the feasibility process is complete. This will be accomplished by submitting the General Conformity Determination Document (GCD) to TCEQ/EPA for review and noticing it to the public concurrent with the DEIS. This meets the notice requirement for the GCD and should allow ample time to coordinate with TCEQ/EPA, and to receive a concurrence letter before the FEIS is finalized. Thus, there should be no surprises with respect to schedules or budget that could impact project implementation.

Compliance: Air Quality section of Affected Environment on page 187 has been revised.

HQUSACE Assessment: Partially resolved. It is not clear whether the costs will be impacted by air quality compliance requirements until a determination is made that the project conforms to the SIP. The results of the coordination need to be presented in the final report.

Response: Once the EIS is reviewed by the TCEQ/EPA during the public review period and a determination is made concerning project compliance with the SIP, agency review findings will be documented in the final report. Any necessary actions potentially required for achieving project compliance with the SIP, will be implemented prior to or during project construction as appropriate and practicable.

FRC Discussion: Response is adequate. Appropriate course of action.

Required Action-2: Implement Response for the draft Report. Address any subsequent comments for the final Report.

Action-2 Taken: Section 10.2, page 10-5 has been revised.

HQUSACE Assessment-2: The concern is resolved and the results of the coordination need to be presented in the final report.

(3) Content of Feasibility Report. Since the EIS is a separate document, the feasibility report needs to be complete as a stand-alone document (ER 1105-2-100, Exhibit G-5). Therefore, the report needs to contain all information necessary to support the alternative selection. The EIS may be referenced for more details, but the report itself needs to include: (a) summaries of all relevant resources in the project area (Existing and FWOP conditions); (b) summary of impacts to such resources from each alternative in the final array; and (c) thorough discussion of mitigation (see other comments).

District Response: Concur. The Feasibility Report will be revised to reflect all relevant resources in the project area, impacts to those resources from project alternatives, and will include a comprehensive discussion of mitigation.

Discussion: The response is adequate. The Feasibility Report should be at same level of detail.

Required Action: The Feasibility Report will be revised to reflect all relevant resources in the project area, impacts to those resources from project alternatives, and will include a comprehensive discussion of mitigation.

Compliance: The FR has been revised to reflect the affected environment in the project area (see pages 186-189) and the impact associated with the project (see pages 198-201). Mitigation is discussed on pages 201-219.

HQUSACE Assessment: This comment is resolved.

(4) *Compensatory Mitigation.* A thorough discussion of mitigation must be included in the draft Feasibility Report in accordance with ER 1105-2-100 Appendix C. The project impacts, significance of the resources and impacts, the habitat assessment, and mitigation formulation must be include in the Feasibility Report. The CE/ICA is required per Corps regulations, not NEPA, and this information needs to be included in the planning report. Presently, details are only in the EIS.

District Response: Concur. A comprehensive discussion of project mitigation, to include CE/ICA, will be included in the Feasibility Report.

Discussion: The response is adequate.

Required Action: A comprehensive discussion of project mitigation, to include CE/ICA, will be included in the Feasibility Report.

Compliance: Mitigation is discussed on pages 201-219.

HQUSACE Assessment: This comment is resolved.

(5) *Coordination and Input from other Agencies/Environmental Compliance.* Chapter XIII provides a summary of coordination efforts, public views, and comments. Although the end of the chapter indicates what input was received from the public, the chapter does not do so in regards to input with Federal and state agencies, as received through coordination required by various environmental regulations. For instance, for the Fish and Wildlife Coordination Act (FWCA), the report indicates that coordination occurred with the USFWS and the Texas wildlife agency, but does not summarize what the input from those agencies was. The USFWS Coordination Act Report (CAR) is provided as an Appendix to the DEIS, which is appropriate; however, the report does not summarize the CAR nor indicate that the USFWS is not satisfied

with the Corp's mitigation plan. This is very important to know and needs to be clearly stated in the feasibility report, not just the EIS. All the environmental requirements cited in this chapter should be reviewed to make sure that input from other agencies, if required and/or received, is included under the FWCA discussion in addition to those of the USFWS and state agency.

District Response: Concur. The chapter will be revised to include Federal and state agency coordination and inputs.

Discussion: The response is adequate.

Required Action: The chapter will be revised to include Federal and state agency coordination and inputs.

Compliance: Resource Agency Coordination is discussed on pages 201 and 202.

HQUSACE Assessment: This comment is resolved however given the documentation the Agency might anticipate a comment from the Service regarding the adequacy of the mitigation plan.

Response: The district will respond as appropriate, to all agency comments received regarding the adequacy of the mitigation plan.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report. Address any subsequent comments for the final Report.

Action-2 Taken: Section 13.1 states that ongoing coordination with Agencies continued throughout the study. Next to last paragraph of 13.2 states that no oral comments were provided by agencies at the public meetings and no subsequent written comments were received. Any comments from the agencies during the public review period will be addressed in the final Report.

HQUSACE Assessment-2: The concern is resolved and the results of the coordination need to be presented in the final report.

8.D. O&M COSTS, ENGINEERING APPENDIX. The Engineering Appendix shows the O&M costs for the LPP and the NED plans are identical in Table 1. However, elsewhere in the report the O&M costs are shown as increasing as plan depths increase. Clarification is needed to assure that the correct information is being used throughout the report for project formulation.

District Response: Concur. The shoaling rate for the LPP and the NED plans is the same, therefore the O&M costs are the same. O&M costs will be clarified throughout the report.

Discussion: The incremental cost in Economic Appendix is different than in the main report.

Required Action: Clarify O&M costs and coordinate all information in the Economic and Engineering Appendices and in the main report for the existing 45-foot project, the non-Federal sponsor’s widening project, and the NED and LPP alternatives.

Compliance: O&M costs were verified for each alternative plan and coordinated between Engineering and Economics. The O&M costs are shown on various tables throughout the FR. O&M costs are shown on Economic Summary and Conclusion Tables for the NED Plan and the LPP beginning on page 166.

HQUSACE Assessment: The concern is partially resolved by the text changes to the report such as in Table 65 which show O&M differing between the NED and LPP when depths differ. However, review identified a further concern. Table 49 shows that the costs for the various depth alternatives have nearly identical incremental costs in comparison to prior depths. The O&M costs vary by about \$33,400 per foot between 41 and 45 feet, but the incremental cost decreases to about \$6,200 per foot between 46 and 50 feet. It is not evident why that trend would be expected and these O&M values can have a significant impact on plan optimization for the Lower Stauffer. Please explain why that trend in incremental O&M is expected to occur or revise as needed.

Response: The O&M cost inconsistency will be corrected. The corrected O&M costs that will be incorporated into the report tables are shown below.

Lower Stauffer O&M Costs (\$1,000s)
for 41- to 50-foot Depth Increments (4.375%)

Channel Depth	Average Annual O&M Cost
41 feet	\$732.1
42 feet	\$738.1
43 feet	\$744.0
44 feet	\$750.0
45 feet	\$755.9

46 feet	\$762.1
47 feet	\$768.3
48 feet	\$774.5
49 feet	\$780.7
50 feet	\$786.9

FRC Discussion: Response and Table are adequate.

Required Action-2: Include Table in draft Report.

Action-2 Taken: Average annual O&M costs for Lower Stauffer Channel depths are shown in Benefits and Cost Tables 106 and 107.

HQUSACE Assessment-2: **The revised tables 106 and 107 have resolved the concern.**

8.E. PLAN FORMULATION AND SELECTION.

(1) Draft Feasibility Report, discussion regarding a Locally Preferred Plan (LPP), page 70.

The text on Page 70 (Cost Estimates) is the first time in the main body of the DFR that indicates a LPP will be pursued. The LPP and reasons for taking this direction need to be fully explained earlier.

District Response: Concur. The LPP will be introduced and generally described at the end of Section VII., Detailed Plan Formulation of the DFR. Further discussions will be throughout the rest of the Report.

Discussion: The response is adequate.

Required Action: The LPP will be introduced and generally described at the end of Section VII., Detailed Plan Formulation of the DFR. Further discussions will be throughout the rest of the Report.

Compliance: The LPP is first generally discussed at the end of Section VII, page 62.

HQUSACE Assessment: The report recommends a LPP for all reaches of the Freeport channel, however it fails to explain how this recommendation is within policy, or not. The report currently recommends the following:

- Main Channel - a LPP that is smaller than the NED Plan, which should fall under a CX.
- Stauffer Reach – a LPP that is LARGER than the NED Plan. Report needs to be clearer that the Sponsor will pay more and show the incremental cost difference over the NED Plan.

Applicable guidance for this concern is found in ER1105-2-100, Appendix E, Section E-3 (pages E-7 and E-8):

b. Plan Recommendations.

(1) The National Economic Development (NED) Plan. Ordinarily the plan that reasonably maximizes net benefits, known as the NED plan, is recommended. Another plan may be recommended if it qualifies for a categorical exemption, or if a specific Secretarial exception from ASA(CW) is sought.

(4) The Locally Preferred Plan. Projects may deviate from the National Economic Development Plan and/or the National Ecosystem Restoration Plan if requested by the non-Federal sponsor and approved by ASA(CW). In some instances, a non-Federal sponsor may not be able to afford or otherwise support the NED, NER or Combined NED/NER Plan. Plans requested by the non-Federal sponsor that deviate from these plans shall be identified as the Locally Preferred Plan (LPP). When the LPP is clearly of less scope and cost and meets the Administration's policies for high-priority outputs, an exception for deviation is usually granted by ASA(CW). In making a decision to recommend a LPP smaller in scope and costs than the NED, NER or Combined NED/NER plans, the district should assist the sponsor in identifying and assessing the financial capability of other potential non-Federal interests who may be willing and able to participate in plan development and implementation. In all cases, the LPP must have greater net benefits than smaller scale plans, and enough alternatives must be analyzed during the formulation and evaluation process to insure that net benefits do not maximize at a smaller scale than the sponsor's preferred plan. If the sponsor prefers a plan more costly than the NED plan, the NER Plan or the combined NED/NER Plan, and the increased scope of the plan is not sufficient to warrant full Federal participation, ASA(CW) may grant an exception as long as the sponsor pays the difference in cost between those plans and the locally preferred plan. The LPP, in this case, must have outputs similar in-kind, and equal to or greater than the outputs of the Federal plan. It may also have other outputs. The incremental benefits and costs of the locally preferred plan, beyond the Federal plan, must be analyzed and documented in feasibility reports.

(5) Categorical Exemption for Flood Control and Navigation Projects. If the non-Federal sponsor identifies a constraint to maximum physical project size or a financial constraint due to limited resources, and if net benefits are increasing as the constraint is reached, the requirement to formulate larger scale plans in an effort to identify the NED plan is suspended. The constrained plan may be

recommended. If the NED plan is identified at a physical size or cost which is less than the constraint, the NED plan requirement is satisfied and the NED plan should be recommended.

The report should be set up to show that the main channel LPP is less in cost than the NED, the benefits are rising, reasons why the Sponsor prefers a smaller plan, cite the guidance in the report allowing for this recommendation, display the information in the report, and then recommend the LPP. The recommendation should go something like "In accordance with ER-1105-2-100, E-3.b(5) which states ".....cite...." the proposed project meets the requirements for a categorical exemption and I recommend the constrained LPP consisting of.....etc.

The report should be more clear that the tentatively recommended plan for the Stauffer reaches are larger than the NED plan, reasons why the Sponsor desires the larger plans, the incremental cost over the NED Plan and the final cost share of this feature of the recommended plan.

Response: Reference: Planning Guidance Notebook, ER1105-2-100, Appendix E, pages E-7 and E-8, b. Plan Recommendations

The NED plan for the Main Channel reach shows 60 feet. However, as stated in paragraph 12.4 of the Draft Feasibility Report, Port Freeport does not consider the depth over 50 feet as needed in the upper portion of the Main Channel or more than 55 feet in the lower portion of the Main Channel. Port Freeport has identified an acceptability constraint to the maximum physical size of the project as no more than these depths. Greater depths are substantially more costly and not needed based on an anticipated ship size in the foreseeable future, and so are not acceptable to the local sponsor. The benefits for the Locally Preferred Plan are on the rising limb towards the benefits for the NED as shown in the Feasibility Report at Table 76, below. Therefore, their LPP recommends a depth of 50 feet for the upper portion of the Main Channel. This also shows a cost reduction for the LPP of \$85 million. Selection of the LPP should be eligible for a categorical exclusion per regulation.

In the Lower Stauffer Channel reach (3,700 feet), the NED plan would recommend a depth of 45 feet. However, Port Freeport would prefer a depth of 50 feet to match the Main Channel depth below the Stauffer Channel. This will also provide better depth for container traffic to the container dock area/facilities. Port Freeport, as stated in paragraph 12.8 of the Draft Feasibility Report, will pay the incremental cost difference between the NED and the LPP. This cost is \$424,000 and is shown in the Draft Feasibility Report, Table 91 – Cost Apportionment (page 2). The incremental benefits between the plans have been analyzed and are documented in the Feasibility Report, Table 65, below, below and the Economic Appendix, Section 8, Table 134, below. The net excess annual benefits for the LPP are \$1.92 million; the excess annual benefits for the NED are \$1.98 million (see Table 134 of the Economic Appendix (page 3)). Selection of the LPP for the Lower Stauffer Channel will need ASA(CW) approval and is being requested by Port Freeport.

Table 76
Freeport Harbor Channel
Outer Bar to Upper Turning Basin^a
Average Annual Benefits and Costs (4.375 percent and \$1,000)

Channel Alternative	50 feet	52 feet	50/55 feet ^b	55 feet	58 feet	50/60 feet ^c	60 feet
2014	11,279.6	17,254.8	20,885.1	21,727.3	28,241.5	33,137.8	35,045.5
2024	13,089.0	19,767.9	23,824.2	24,766.7	32,047.0	37,518.1	39,651.3
2034	14,689.8	21,792.3	26,103.6	27,107.4	34,847.9	40,663.0	42,932.9
2044	15,630.3	23,095.6	27,627.8	28,682.3	36,818.7	42,931.8	45,317.1
2054	16,322.6	24,169.2	28,933.7	30,041.6	38,594.0	45,020.3	47,527.1
2064	17,027.6	25,272.5	30,279.6	31,443.2	40,430.4	47,183.9	49,817.4
Average Annual Benefits	13,735.6	20,591.4	24,754.7	25,722.5	33,195.4	38,810.8	41,000.8
First Cost of Construction	239,522.9	263,673.0	296,843.0	299,898.1	344,696.6	373,259.0	374,562.3
Interest During Construction	17,203.6	19,501.7	22,852.3	22,948.9	27,926.9	31,204.3	31,245.5
Total Investment	256,726.5	283,174.7	319,695.3	322,847.0	372,623.5	404,463.3	405,807.8
Average Annual Cost	12,727.8	14,039.0	15,849.6	16,005.8	18,473.6	20,052.1	20,118.8
Average Annual O&M	3,771.9	4,160.5	4,743.4	4,743.4	6,042.6	6,908.8	6,908.8
Total Annual Cost	16,499.7	18,199.5	20,593.0	20,749.2	24,516.3	26,961.0	27,027.6
Average Annual Benefits	13,735.6	20,591.4	24,754.7	25,722.5	33,195.4	38,810.8	41,000.8
Net Excess Benefits	-2,764.2	2,391.9	4,161.7	4,973.2	8,679.1	11,849.8	13,973.2
B/C Ratios	0.8	1.1	1.2	1.2	1.4	1.4	1.5

^aExcludes the Stauffer Channel Modification.

^bLPP : Based on a 55-foot channel depth for the lower portion of the Main Channel and a 50-foot channel depth for the upper portion of the Main Channel.

^cNED: Based on a 60-foot channel depth for the lower portion of the Main Channel and a 50-foot channel depth for the upper portion of the Main Channel.

Table 65 of Feasibility Report and Table 134 of Economic Appendix
Freeport Channel and Stauffer Modification
NED and LPP Economic Summary
Average Annual Values at 4.375% and \$1,000s

	NED Plan			
	Freeport Channel 60 feet	Stauffer Modification		Totals
		Lower Reach 45 feet	Upper Reach 25 feet	
First Cost of Construction	373,259.0	7,814.0	2,368.0	383,441.0
Interest During Construction	31,204.3	100.4	4.3	31,309.1
Total Investment	404,463.3	7,914.5	2,372.3	414,750.1
Average Annual Cost	20,052.1	392.4	117.6	20,562.1
Average Annual O&M	6,908.8	755.9	22.3	7,687.0
Total Annual Cost	26,961.0	1,148.3	139.9	28,249.2
Average Annual Benefits	40,197.9	3,128.2	195.4	43,521.6
Net Excess Benefits	13,237.0	1,979.9	55.5	15,272.4
B/C Ratios	1.5	2.7	1.4	1.5
	LPP			
	Freeport Channel 55/50 feet	Stauffer Modification		Totals
		Lower Reach 50 feet	Upper Reach 25 feet	
First Cost of Construction	296,821.0	9,511.0	2,368.0	308,700.0
Interest During Construction	22,850.5	122.3	4.3	22,977.0
Total Investment	319,671.5	9,633.3	2,372.3	331,677.0
Average Annual Cost	15,848.4	477.6	117.6	16,443.6
Average Annual O&M	4,743.4	786.9	22.3	5,552.7
Total Annual Cost	20,591.8	1,264.5	139.9	21,996.3
Average Annual Benefits	24,678.7	3,188.4	195.4	28,062.5
Net Excess Benefits	4,086.9	1,923.8	55.5	6,066.2
B/C Ratios	1.2	2.5	1.4	1.3

Note: Totals may not add due to rounding.

The Report will be revised to ensure consistence and clarification of this information.

The following revised Tables were furnished to HQ just prior to the FRC:

The table below (Table 73) replaces Table 76 (provided in the previous response package). Table 76 pertained to a “sensitivity” rather than the base case data in the feasibility report. The Table 73 shown below responds to the review concern and will replace Table 73 in the feasibility report.

Table 73 (revised 9Aug2010)
Freeport Harbor Channel
Outer Bar to Upper Turning Basin^a
Average Annual Benefits and Costs (4.375 percent and \$1,000)

Channel Alternative	50 feet	52 feet	50/55 feet ^b	55 feet	58 feet	50/60 feet ^c	60 feet
2014	11,103.90	16,476.90	19,825.20	19,825.20	26,469.50	31,086.40	31,086.40
2024	13,141.90	18,944.30	22,617.90	22,617.90	29,764.30	34,613.80	34,613.80
2034	16,337.20	22,874.60	27,084.10	27,084.10	35,098.70	40,398.50	40,398.50
2044	18,196.50	25,415.90	30,067.80	30,067.80	38,918.40	44,775.10	44,775.10
2054	19,625.80	27,598.60	32,739.10	32,739.10	42,513.30	48,985.10	48,985.10
2064	21,146.60	29,941.10	35,614.50	35,614.50	46,396.10	53,538.80	53,538.80
Average Annual Benefits	14,800.40	21,120.40	25,145.80	25,145.80	32,917.30	38,148.50	38,148.50
First Cost of Construction	\$239,522.9	\$263,673.0	\$296,843.0	\$299,898.1	\$344,696.6	\$373,259.0	\$374,562.3
Interest During Construction	\$17,203.6	\$19,501.7	\$22,852.3	\$22,948.9	\$27,926.9	\$31,204.3	\$31,245.5
Total Investment	\$256,726.5	\$283,174.7	\$319,695.3	\$322,847.0	\$372,623.5	\$404,463.3	\$405,807.8
Average Annual Cost	\$12,727.8	\$14,039.0	\$15,849.6	\$16,005.8	\$18,473.6	\$20,052.1	\$20,118.8
Average Annual O&M	\$3,771.9	\$4,160.5	\$4,743.4	\$4,743.4	\$6,042.6	\$6,908.8	\$6,908.8
Total Annual Cost	\$16,499.7	\$18,199.5	\$20,593.0	\$20,749.2	\$24,516.3	\$26,960.9	\$27,027.6
Average Annual Benefits	\$14,800.4	\$21,120.4	\$25,145.8	\$25,145.8	\$32,917.3	\$38,148.5	\$38,148.5
Net Excess Benefits	(\$1,699.3)	\$2,920.9	\$4,552.8	\$4,396.6	\$8,401.0	\$11,187.4	\$11,120.9
B/C Ratios	0.9	1.2	1.2	1.2	1.3	1.4	1.4

^aExcludes the Stauffer Channel Modification.

^bLPP : Based on a 55-foot channel depth for the lower portion of the Main Channel and a 50-foot channel depth for the upper portion of the Main Channel.

^cNED: Based on a 60-foot channel depth for the lower portion of the Main Channel and a 50-foot channel depth for the upper portion of the Main Channel. The 52-, 55-, and 58-foot alternatives all reflect 50-foot channel depth for the upper portion of the Main Channel .

Table 65 of Feasibility Report and Table 134 of Economic Appendix (revised 9Aug10)

Freeport Channel and Stauffer Modification

NED and LPP Economic Summary

Average Annual Values at 4.375% and \$1,000s

	NED Plan			
	Freeport Channel 60/50 feet	Stauffer Modification		Totals
		Lower Reach 45 feet	Upper Reach 25 feet	
First Cost of Construction	\$373,259.0	\$7,814.0	\$2,368.0	\$383,441.0
Interest During Construction	\$31,204.3	\$100.4	\$4.3	\$31,309.1
Total Investment	\$404,463.3	\$7,914.4	\$2,372.3	\$414,750.1
Average Annual Cost	\$20,052.1	\$392.4	\$117.6	\$20,562.1
Average Annual O&M	\$6,908.8	\$755.9	\$22.3	\$7,687.0
Total Annual Cost	\$26,960.9	\$1,148.3	\$139.9	\$28,249.1
Average Annual Benefits	\$38,148.5	\$2,618.9	\$195.4	\$40,962.7
Net Excess Benefits	\$11,187.6	\$1,470.6	\$55.5	\$12,713.6
B/C Ratios	1.4	2.3	1.4	1.5
	LPP			
	Freeport Channel 55/50 feet	Stauffer Modification		Totals
		Lower Reach 50 feet	Upper Reach 25 feet	
First Cost of Construction	\$296,843.0	\$9,511.0	\$2,368.0	\$308,722.0
Interest During Construction	\$22,852.3	\$122.3	\$4.3	\$22,978.9

Total Investment	\$319,695.3	\$9,633.3	\$2,372.3	\$331,700.9
Average Annual Cost	\$15,849.6	\$477.6	\$117.6	\$16,444.8
Average Annual O&M	\$4,743.4	\$786.9	\$22.3	\$5,552.7
Total Annual Cost	\$20,593.0	\$1,264.5	\$139.9	\$21,997.5
Average Annual Benefits	\$25,145.8	\$2,656.6	\$195.4	\$27,997.8
Net Excess Benefits	\$4,552.8	\$1,392.1	\$55.5	\$6,000.3
B/C Ratios	1.2	2.1	1.4	1.3

Note: Totals may not add due to rounding.

FRC Discussion: Response is adequate. For the LPP waiver, need a Table showing incremental depths, costs, and cost sharing dollar amounts.

Required Action-2: Incorporate Tables, including the break-out Table in the discussion, in the draft Report; LPP waiver must be approved prior to release of the draft Report.

Action-2 Taken: See Tables 38 and 66 of DFR and Tables 76 and 136 of the Economic Appendix. LPP waiver was approved by the ASA(CW), 30 November 2010.

HQUSACE Assessment-2: The approval of the waiver and the incorporation of the revised tables have resolved the concern.

(2) Recommended Plan, Executive Summary. The Executive Summary shows conflicting information on the recommended plan. Page III says the recommended plan calls for a 57 to 55-foot deep entrance channel and 55-foot main channel. Paragraph 2 on page IV indicates the recommended plan involves 59 to 57-foot depths between the Gulf and the lower turning basin. The text needs to clarify features associated with the most economical plan in comparison to the LPP which is being recommended.

District Response: Concur. Text will be revised to clarify the features.

Discussion: The response is adequate. Check the Engineering Appendix and cross-walk.

Required Action: Text will be revised to clarify the features.

Compliance: The Executive Summary has been revised to reflect the various project depths associated with the various channel reaches of the Recommended Plan.

HQUSACE Assessment: Not resolved. Page ES-2 still contains conflicting information with channel depths in the Outer Bar channel described as both 59 and 57 feet and the Jetty Channel as 57 and 55 feet. Sections 12.4 and 12.5 (including Table 89) present the depths as 57 and 59, but on page 12.9 the text refers to an authorized depth of 59 feet and in Table 89 the footnote indicates that the depths are required depths including advance maintenance. In addition, Section 12.5.3 states that the remainder of Stauffer channel will be deepened to 30 feet, ES-2 says Upper Stauffer will be deepened to 25 feet, and Table 89 says 27 feet is required including advance maintenance. This information needs to be clarified and made consistent to assure that the proper depths are cited for authorization. The recommended depth should be cited consistently with explanation of additional depth for advance maintenance.

Response: The third sentence of the second paragraph of ES-2 has been revised to read: “The tentatively Recommended Plan calls for a 57- to 55-foot deep by 600-foot-wide Outer Bar and Jetty Channel (57-foot-deep Outer Bar Channel/55-foot-deep Jetty Channel and 55-foot-deep Main Channel.”

The second sentence of the third paragraph of ES-2 and the first paragraph of 12.4 have been revised to reflect: “The tentatively Recommended Plan includes deepening the Freeport Harbor Outer Bar Channel into the Gulf of Mexico to –57 feet mean low tide (MLT), deepening the Jetty Channel from the Lower Turning Basin to the end of the jetties in the Gulf of Mexico to –55 feet MLT, widening the Entrance (Outer Bar and Jetty) Channel reach to 600 feet,…”.

Paragraph 12.5 states: “Dredging of the Freeport Harbor Channel will include 2 feet of advanced maintenance below designated depths to ensure safe vessel passage. In addition, the Outer Bar Channel will include an additional 2 feet of dredging to account for the high wave environment offshore, outside the jetties”.

Section 12.5.1 has been revised to “Outer Bar/Jetty Channel”.

Section 12.5.2 has been revised to: “The Main Channel portion of Freeport Harbor extends from Station 71+52 in the Lower Turning Basin to the Upper Turning Basin. This segment will be deepened from an authorized depth of –45 feet to –55 feet. From Station 132+66 to Station 184+20 at the Upper Turning Basin, the channel will be deepened to –52 feet. Based on the ERDC’s Ship Simulation Report, the recommended width for this portion of the channel is 400 feet. The Main Channel will be constructed by hydraulic pipeline dredge, with the dredged material going to new PAs 8 and 9. The Lower Turning Basin will maintain its existing 750-foot diameter and be deepened to –57 feet. The Brazosport Turning Basin will be enlarged from its existing 1,000-foot diameter to a new 1,200-foot diameter. The Upper Turning Basin will maintain its existing 1,200-foot diameter and be deepened to –52 feet”.

Section 12.5.3 has been corrected to 27 feet. As stated in Table 89, footnote 1 for Required Depth, Includes Advance Maintenance. “(2 foot)” has been added to footnote.

The recommended authorized depth for the overall project will be 55 feet, with various reaches having various depths, plus any advance maintenance and/overdepth.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report.

Action-2 Taken: See revised Sections 12.5.1, .12.5.2, and 12.5.3.

HQUSACE Assessment-2: The revised sections have resolved the concern.

(3) Dredged Material Management Plan, page 9 and elsewhere. The report states that a long-term dredged material placement plan was developed for the selected plan. Page 49 states that the capacity of the existing PA 1 will be diminished by the material from the new LNG facility, therefore PAs 8 and 9 were identified for additional placement capacity. Page 169 discusses use of PAs 8 and 9 and page 70 discusses capacity and levee heights at PA 1 for the LPP. At the top of page 172, the text indicates that all of the material from the Main Channel and Stauffer Channel will be placed in confined areas PAs 8 and 9. This leads to some confusion as to what the base plan for disposal is under the without-project conditions and what the incremental costs are associated with the proposed project (LPP) and NED plan. Clarification is needed as to the use of placement areas under the without-project and with project conditions to assure that the least cost plan has been identified and the incremental costs and cost sharing are correct.

District Response: Concur. Clarification will be made to the placement areas and their use. Least cost plan will be identified.

The base plan (45-foot project -1991) calls for hopper dredged material to go offshore in open water disposal sites. The hydraulic/pipeline dredged material from the main channel is to be disposed in upland PA 1. The capacity in PA 1 is being diminished. During initial detailed feasibility studies, the Port requested that PA1 not be included in the DMMP for the new project and they would provide new disposal area. Therefore new PAs (PAs 8 and 9) were established for the project. The Port will use PA for future non-Federal materials. New work material from the enlargement of the new Brazosport Turning Basin is designated for placement in PA1. All other new work material and future maintenance materials will go to PAs 8 and 9.

Discussion: The response is adequate.

Required Action: Explain Base Plan with FWOP and incremental cost.

Compliance: The 50-Year DMMP is discussed in Section XI, page 220. PA-1 will be used for the portion of the new project channel from the Lower Turning Basin to below the Brazosport Turning Basin (Sta. 91+55). Under the existing base plan; PA-1, along with several of the other existing PAs, would continue to be use for the 50-Year period of analysis. The Summary of PA and Dredging Information is shown on Table 83, page 221.

HQUSACE Assessment: The concern is resolved by the response and text changes in section 11.0, which explain the base plan under the future without-project and with-project conditions.

(4) National Economic Development Plan. The report identifies the NED plan as including the 60-foot main channel, the 45-foot Lower Stauffer channel and the 30-foot upper Stauffer channel. However, the incremental analyses are inadequate to characterize any of these as components of the NED plan. The 60-foot main channel is the largest scale plan evaluated and although it has the highest net benefits it does not bracket the optimization for the main channel. The 45-foot Stauffer channel has greater net benefits than the 44-foot plan and the 50-foot plan, but one foot depth increments greater than 45 feet were not evaluated. It is not bracketed either because it is not clear whether a depth of 46 feet, for example, might have greater net benefits. The upper Stauffer channel was only analyzed for a 30-foot depth, similar to what had been authorized, so there is no basis for calling that the NED plan since other depth alternatives were not considered. The upper Stauffer was evaluated based on speculative benefits and it is not clear that sufficient benefits would result to justify any improvements in that area. The fact that those channel dimensions were previously authorized and subsequently deauthorized gives them no special standing. A complete evaluation based on vessel traffic is needed to demonstrate optimization and justification for a recommendation in the upper Stauffer channel. Further evaluation is needed to demonstrate bracketing of the Stauffer channel alternatives as a basis for determining the cost sharing for recommended components. It is not necessary to evaluate main channel depths beyond 60 feet, since that is beyond the LPP identified by the sponsor. However, the 60-foot plan should not be referred to as the NED plan. Rather the report should indicate that the NED depth was not identified and the 60-foot depth was the most economical of the main channel depths evaluated. See ER 1105-2-100, paragraph 2-3.f.(1).

District Response: Concur. For the Lower Stauffer Channel, benefits and cost for 1-foot increments are included in the Economic Appendix for the alternative fleet. Benefits for 1-foot increments between 45 and 50 feet were not presented for the base fleet because they are relatively flat. The data is available and will be added to the revised report. In comparison to the base fleet, benefits do increase for channel depths over 45 feet but the results of the analysis show that the maximum net excess benefits peak at 45 feet.

The 60-foot main channel is the largest scale plan evaluated and although it has the highest net benefits it does not bracket the optimization for the main channel. Concur that because the report does not show benefits and costs for depths over 60 feet, the 60-foot depth cannot be called the NED plan. Benefit calculations were performed for 62 feet but were not included in the report; however, recent cost data is not available and the non-Federal sponsor does not have interest in depths beyond 60 feet. Based on the non-Federal sponsor's interest, the 60-foot will be labeled as the most economical plan of the main channel depths evaluated.

Incremental analysis for the Upper Stauffer Channel was recently completed and will be included in the revised feasibility report. The analysis evaluates channel depth alternatives

between 16 and 30 feet. An assumption of the analysis is that the channel would eventually shoal to depth less than 16 feet. A channel depth of less than 16 feet would still allow some vessels to use the channel; however, the depth would not sufficient to serve the entire fleet of platform supply vessels, seismic vessels, and other vessels. Net excess benefits are maximized at 26 feet. Draft revised section for Report is attached.

Discussion: The 60-foot main channel is not the NED plan, but it is the most economical. The Upper Stauffer Channel NED plan is now at 26 feet (in comparison to the 30-foot alternative in the draft report). Discuss the NED plan with the sponsor to identify their recommendation. Stauffer Channel revisions require ATR. Determine if design draft or operating draft was used for vessels. Should use sailing draft; if unknown, use reasonable judgment. Are large vessels over 400 feet? None greater than 400 feet projected. Double check length and sailing draft. Check Tables 16 and 11. Are vessels being backed into channel using vessel power or tug-assist?

Required Action: Conduct ATR of the Upper Stauffer Channel revisions. Use sailing drafts in analyses. Identify the recommended plan and its cost sharing requirements.

The revised report will present the depth optimization analysis of the Lower and Upper Stauffer Channel in one foot increments. Additionally, the Outer Bar to Upper Turning basin will be evaluated as single separable elements. The Outer Bar to Upper Turning basin reaches (2 reaches) will be continue to be evaluated based on channel depth alternatives of 50 to 60 feet. Channel depth optimization will be identified by reach and associated commodity and vessel. All channel reaches and increments will be appropriately bracketed.

Since the AFB, additional information from the Ports of Freeport and Houston concerning container operations was obtained; this information will be incorporated into the revised report. The Lower Stauffer Channel analysis is being revised to eliminate draft report emphasis on Velasco Terminal's anticipated efficiency advantages over Houston. A table showing the markets for which Freeport has mileage advantages over Houston will be presented. The revised evaluation will focus on the effects of regional growth in the market area expected to be served by Freeport. Freeport has definitive mileage advantages for some markets and these will be specifically identified. Freeport's long-term growth will continue to be defined by Global Insight's published growth rates in relationship to U.S. Gulf Coast trends. The effects of the Panama Canal will be specifically discussed. As noted at the AFB, Lower Stauffer Channel benefits and costs for 1-foot increments between will be displayed in the revised report. The effects of Houston container capacity and long-term Gulf Coast container traffic trends will be reconciled. Expectations concerning Freeport's use of trucks versus rail will be outlined.

As noted at the AFB, the benefit calculations for the Upper Stauffer Channel are being reevaluated based on critical expectations concerning loaded draft. A recurring emphasis of the revised report will be to thoroughly distinguish between existing conditions and the without and

with project conditions. Loaded draft expectations and associated impacts to channel depth optimization will be presented; recognizing that under present conditions loaded drafts are restricted by the shoaled condition of the channel. Risk based distributions of vessel sailing draft will be incorporated into the analysis in order to determine its affect on depth optimization. Vessel classes will be defined based on reasonable brackets. Given the absence of loaded draft records, depth optimization will be reevaluated using the Excel @Risk add-on package using industry input concerning expectation associated with loaded draft. Vessel fleet selection will continue to be based on the world offshore supply fleet. The class of general cargo vessels will continue to be defined based on a range able to turn in the channel prior to shoaling. Assumptions concerning future conditions will be based on reasonable expectations given the nature of the channel.

As noted in the pre-AFB and confirmed based on follow-up, the maximum vessel length using the Upper Stauffer is 400 feet. Upper Stauffer vessel operating practices will be outlined in the revised report. In regard to tug assistance, some vessels require tug assistance under existing conditions and will continue to require tug assistance if the channel is deepened. The vessels that do not require tug assistance characteristically have “twin engines” and “bow thrusters”. It was noted that a 300-foot long twin engine vessel with a bow thruster would not require tug assistance.

For vessels requiring tug assistance, the revised report will note that under present conditions one tug is used 50 percent of the time and two tugs the remaining 50 percent. Follow-up input revealed that a deeper channel would not change this percentage distribution; however, a deeper channel would allow for reductions in delays during adverse weather due to the present inability to use harbor tugs. While anticipated to be small, the associated effects on the benefit calculations will be reviewed. Definitions of inland and harbor tugs will be included in the revised report.

It will also be noted during post-AFB follow-up that seismic vessels over 200 feet long presently require tug assistance 100 percent of the time. Seismic vessels will continue to require tug assistance if the channel was deepened. Presently, inland waterway tugs are used to maneuver seismic vessels. Inland tugs have greater maneuverability than harbor tugs and are also less expensive to operate. For windy conditions, Freeport industry representatives noted during AFB follow-up that it is advantageous to use harbor tugs; however, the operating draft of harbor tugs totally restrict their use due to the shoaled condition of the channel. As a result of channel deepening, the duration of delays would be reduced if the channel depth were sufficient to accommodate harbor tugs. Harbor tugs used in other parts of the channel have operating drafts of 18 to 20 feet. A general review of the availability of harbor tugs required lower operating drafts will be made. Under the without project condition and present traffic levels, vessels that

harbor tugs delay transit once or twice annually for 12 to 24 hours. The report will discuss the effect of changes in the number of vessels between the without and with project future.

Compliance: The distribution of sailing drafts used for the container analysis (see Table 92). The distribution for sailing drafts for Upper Stauffer Channel vessels is outlined in Tables 104-105, 123-126. The distribution of sailing drafts for crude oil tankers for total tonnage is shown in Tables 22-24. Evaluation of the sensitivity of the projected mix of loads and draft for crude oil tankers is provided in the sensitivity section of the revised appendix (Tables 142-143). Comparison of Tables 142 and 143 shows that the 55/50-foot alternative is relatively more sensitive to changes in the percentage utilization rate than the 60/50-foot alternative. Evaluation of methods of shipment data is presented on pp. 54-59. Sensitivity of method of shipment data is presented on pp. 205-212 and summarized in Tables 142-143.

The revised report presents the depth optimization analysis of the Lower and Upper Stauffer Channel in one foot increments. The Lower Stauffer one-foot incremental analysis is shown in Tables 101-102. The Upper Stauffer one-foot incremental analysis is shown in Tables 127-129. The Outer Bar to Upper Turning basin will be evaluated as single separable elements (pp. 110-113). The Outer Bar to Upper Turning basin reaches (2 reaches) will be continue to be evaluated based on channel depth alternatives of 50 to 60 feet (pp. 110-113). Channel depth optimization will be identified by reach and associated commodity and vessel (pp. 114-118). All channel reaches and increments are appropriately bracketed. The calculations are based on estimated sailing drafts. Sailing draft data for container vessels (Table 92) and service/seismic vessels (Tables 104-105) were obtained from comparable ports. Table 82 shows the geographic locations for which Freeport has a mileage advantage over Houston for container traffic. Discussion of rail developments that would favor Freeport container traffic is presented on pp.120-124. The transition to rail would represent a change as Houston and Freeport are presently truck ports.

Since the AFB, additional information from the Ports of Freeport and Houston concerning container operations was obtained and was information was incorporated into the revised report. The container vessel benefit calculations associated with channel deepening are based on a 2014 annual throughput of 200,000 TEUs. If both loaded and empty containers are considered, the average cargo weight is generally taken as 7.5 metric tons per TEU. Freeport's annual tonnage volume is estimated to be approximately 1.5 million short tons in 2014. Traffic will initially consist of about 2 vessels per week. Each vessel would drop off and pick up approximately 300 TEUs per each vessel visit. Emphasis on Velasco Terminal's anticipated efficiency advantages over Houston was eliminated. A table showing the markets for which Freeport has mileage advantages over Houston is presented. It is noted on p. 17 in Section 2, are that expectations are that Freeport's imports will grow at rates generally comparable to the regional and national trends. This expectation is based on the study area's established infrastructure of regional and

national pipeline distribution links. The effects of the Panama Canal are noted to affect Freeport's container and product tonnage (pp. 26, 39, 41, 57, 72, 79, 81, 101, 128, 133-134).

As outlined starting on p. 160 of the appendix, the Upper Stauffer Channel presently serves approximately 20 to 30 offshore vessels per month. This compares to a count of 20 to 30 vessels per week when more depth was available. The number of vessels and the range of sailing drafts able to use the channel have diminished due to shoaling. Discussions with channel users and company officials indicated, under existing conditions, maneuvering vessels in the silted channel and maintaining a proper alignment for safe passage is hazardous. As outlined in the appendix, transportation savings benefits of the proposed channel dredging were evaluated based on a transportation costs between Freeport and the most likely alternative port, Galveston. Other alternatives of further distance were not evaluated as the focus of the analysis was to identify minimum savings based on review concerns. Transportation savings benefits were calculated for offshore, seismic and cargo vessels. Transportation cost savings were calculated for channel depth alternatives between 20 and 30 feet. The sensitivity analysis evaluated the effect of increasingly more conservative assumptions. The goal of this sensitivity and those performed for the other commodities was determination of the effect of less traffic and lower utilization. For purpose of the base and sensitivity analyses, the relationship between design draft and loaded draft found from the Galveston and Bayou Lafourche vessel records was applied to Freeport base of approximately 420 offshore supply vessels, 55 seismic vessels, and 48 cargo vessels. The use of these ports provided for a wider distribution of vessels that are generally not constrained by channel depth. As shown in the appendix, the upper range of drafts, design and sailing, are clustered around 22-25 feet (Table 123).

As noted in the pre-AFB and the revised appendix, the maximum vessel length using the Upper Stauffer is 400 feet. In regard to tug assistance, some vessels require tug assistance under existing conditions and will continue to require tug assistance if the channel is deepened. The vessels that do not require tug assistance characteristically have "twin engines" and "bow thrusters". It was noted that a 300-foot long twin engine vessel with a bow thruster would not require tug assistance.

HQUSACE Assessment: Partially resolved. The NED plan for the Lower Stauffer is the 45 foot plan although Table 49 shows that the 47-foot plan has the greatest net benefits (\$1,993,600). The 47-foot plan has annual net benefits \$13,700 greater than the 45- foot plan, but the construction cost is about \$680,000 greater. If the report is concluding that the additional net annual benefits are not significant enough to incur the construction cost involved and the 45-foot plan reasonably maximizes the net benefits that should be stated in the text. Similarly, the net benefits maximize for the Upper Stauffer at 26 feet in Table 63 and the rationale for the 25-foot plan as NED needs to be explicitly stated. Note that the sponsor is buying up to a LPP of 50 feet in the Lower Stauffer and will be paying for an additional 5 feet rather than 3 feet based on the NED designation of 45 feet.

Response: In response to the HQ suggestion to use Fleet Sensitivity No. 2 as the base, the maximum net excess benefits for the Lower Stauffer Channel occur at 45 feet. Revisions to the report will be made to reflect this change. In response to inconsistencies associated with the maximum net excess benefits for the Upper Stauffer Channel, the maximum net excess benefits was intended to be based on the average of the benefits presented in Tables 63 and 64. A new table following Table 64 showing the average of the benefits presented in Table 63 (as presented in the report reviewed by HQ) and Table 64 (with minor revisions) will be added to the revised report. The rationale for identification of 25 feet as the NED plan is 25 feet represents the average of the benefits in Table 63 (as presented in the report reviewed by HQ) and Table 64 (revised).

FRC Discussion: Response is adequate.

Required Action-2: Implement Response. Provide the new Tables and explanations and rationale in the draft Report.

Action-2 Taken: See Tables 61 through 65.

HQUSACE Assessment-2: The incorporation of Tables 61 through 65 has resolved the concern.

(5) ASA(CW) Waiver for LPP.

The report is recommending LPP features which need to be addressed with ASA(CW). The lower Stauffer channel appears larger than an NED plan and the Main Channel has marginal justification in comparison to the 60-foot plan. A formal waiver request should be prepared and coordinated with ASA(CW) requesting approval to recommend the LPP. See ER 1105-2-100, paragraph 2-3.f.(4).

District Response: Concur. The District will coordinate with SWD and HQ on the preparation of a waiver.

Discussion: The response is adequate.

Required Action: When ready, provide information required for coordination with the ASA(CW)'s office., to include a side-by-side line item comparison of the NED and LPP.

Compliance: Waiver request to be developed.

HQUSACE Assessment: Not resolved. The compliance statement indicates that the waiver request is to be developed. Approval to coordinate the LPP with the public cannot be given until the waiver request is submitted and approved. The District should immediately prepare documentation similar to that described in the above comment to facilitate this waiver request.

It is noted that while the LPP is smaller than the NED plan overall, the Upper and Lower Stauffer channel plans are larger than the NED plan. This will all have to be presented in a coherent package to the ASA(CW).

Response: Draft waiver request will be submitted for ASA(CW) approval.

FRC Discussion: Response is adequate.

Required Action-2: Submit waiver request. See additional Required Action/Discussion at comment e.1.

Action Taken: LPP waiver was approved by the ASA(CW), 30 November 2010.

HQUSACE Assessment-2: Comment resolved by approval of the LPP waiver.

(6) Proposed/Selected/Recommended Plan Terminology. As the Feasibility Report and EIS will be released as draft reports, the proposed plan/alternative should always be identified with the precursor “tentatively.” This should be added throughout both reports.

District Response: Concur. The precursor “tentatively,” will be added throughout the Feasibility Report and the EIS when discussing the proposed/recommended plan.

Discussion: The response is adequate.

Required Action: The precursor “tentatively,” will be added throughout the Feasibility Report and the EIS when discussing the proposed/recommended plan.

Compliance: “Tentatively” has been added throughout the DFR and DEIS

HQUSACE Assessment: This concern is resolved.

8.F. COST SHARING.

(1) Cost Apportionment, page 187.

Table 76, which is supposed to provide information on cost apportionment, is missing from the report. The report needs to provide complete information on cost apportionment. This is a significant concern.

District Response: There was confusion about Table 76 in the hard copy Report provided and the electronic file provided. Cost apportionment will be discussed at the AFB.

Discussion: The Cost Apportionment Table will change based on decisions concerning the Upper Stauffer Channel, O&M, etc. Berthing area costs are an economic cost and must be included.

Required Action: Ensure future submittals (hard copy) include the Cost Apportionment Table and include berthing area costs. The Table should also include any local sponsor facilities.

Compliance: The Main Channel from above the Brazosport Turning Basin to the Upper Turning Basin has been optimized and the Lower and Upper Stauffer Channel has been reevaluated and optimized. Table 85 on page 235 shows the proposed dimensions for the tentatively Recommended Plan. Costs have been updated and are discussed on pages 237 and 238 and shown on Table 86, page 239. Cost Sharing Allocation is discussed on page 238 and 239. The Cost Apportionment is shown on Table 87, page 240. Berthing area costs have been incorporated into the cost estimate and the potential for facilities modifications were investigated.

HQUSACE Assessment: Tables 90 and 91 provide the required information, however the presentation is confusing. Table 90 displays the Federal fully funded cost as \$271,519,000, whereas Table 91 displays the Federal fully funded cost as \$135,562,500. There is a similar discrepancy for the non-Federal costs, with the fully funded non-Federal share stated as \$62,833,000 in Table 90 and \$198,789,500 in Table 91. These differences need to be explained.

Response: Table 90 reflects project cost based on the overall cost accounts (prior to allocation and apportionment). Table has been revised for descriptor and is shown below. Table 91, as stated in the second paragraph of 12.7, reflects project cost based on cost-sharing apportionment requirements. Table 91 is also shown below.

**TABLE 90
TENTATIVELY RECOMMENDED PLAN COST
COMPARISON OF TOTAL COSTS (Rounded)**

Cost	First Cost	Fully Funded Cost
Account Item Description	(Oct 09 Price Level)	(Oct 09 Price Level)
Federal Construction Cost		
01 Lands & Damages	77,000	78,000
06 Fish & Wildlife Facilities	124,000	135,000
12 Navigation Ports & Harbors	205,304,000	219,242,000
30 Planning, Engineering & Design	28,644,000	32,640,000
31 Construction Management	18,213,000	19,424,000
Federal Construction	\$ 252,362,000	\$ 271,519,000

Non-Federal Construction (LERR/Facilities) Cost

01	Lands & Damages	1,751,000	1,815,000
02	Relocations	-0-	-0-
12	Navigation Ports & Harbors	54,587,000	57,965,000
30	Planning, Engineering & Design		3,053,000
	Non-Federal Construction	\$ 56,338,000	\$ 62,833,000
	Total Navigation	\$ 308,700,000	\$ 334,352,000

**TABLE 91
COST APPORTIONMENT**

Cost Apportionment Navigation

	First Cost	Fully Funded Cost
Federal Navigation:		
Freeport Channel	\$ 147,560,000	\$ 159,863,600
Lower Stauffer Channel	6,307,000	6,832,900
Upper Stauffer Channel	1,877,500	2,034,000
Lands & Damages	77,000	78,000
Less Non-Federal 10 percent Cash Contribution(30,687,000)		(33,246,000)
TOTAL FEDERAL NAVIGATION	\$ 125,134,500	\$ 135,562,500
Non-Federal Navigation		
Freeport Channel	\$ 147,560,000	\$ 159,863,600
Lower Stauffer Channel	2,652,900	2,874,100
Upper Stauffer Channel	490,600	531,400
Difference – NED vs. LPP (Lower Stauffer)	424,000	459,400
Land & Damages	1,751,000	1,815,000
Non-Federal 10 percent Cash Contribution	30,687,000	33,246,000
TOTAL NON FEDERAL NAVIGATION	\$ 183,565,500	\$ 198,789,500
TOTAL NAVIGATION	\$ 308,700,000	\$ 334,352,000

FRC Discussion: Response is adequate.

Required Action-2: Check cost accounts 12 and 30 under non-Federal cost in Table 90 and incorporate Table. Submit a cost break-out table for NED vs. LPP plans for lower Stauffer

Channel by depth increments to HQ. See additional cost break-out Table requirements at Required Action; comment e.1 above.

Required Action-2: See Tables 93 and 94.

HQUSACE Assessment-2: The incorporation of Tables 93 and 94 in Volume I pages 12-13 and 12-14 have resolved the concern.

(2) *USCG Navigation Aids.* The text includes conflicting information regarding the cost sharing for navigation aids to be provided by the US Coast Guard. Page 185 indicates that cost allocation for aids is done in the same manner as GNF costs because they are needed due to channel deepening and widening. This is incorrect. Page 186 indicates correctly that USCG is responsible for 100% of the cost of aids to navigation.

District Response: Concur. Aids-to-Navigation as GNF is being removed.

Discussion: The response is adequate. Coordinate with the USCG on feasibility and Section 204 projects.

Required Action: Aids-to-Navigation as GNF is being removed.

Compliance: Aids-to-Navigation was removed as a GNF.

HQUSACE Assessment: The concern is partially resolved. Page 12-15 states that navigation aids are 100% USCG expense. However, page 12-13 indicates that navigation aids are an associated cost in one location and GNF in another. It is not clear how they are being treated in the cost apportionment, but they should not be cost shared as GNF.

Response: Navigation aids are not a GNF and last paragraph on 12-13 has been revised to reflect that they are a Federal project expenditure, but not cost shared.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report.

Action-2 Taken: Last sentence in third paragraph of 12.8 states that “The USCG is responsible for 100 percent of the cost of aids to navigation.”.

HQUSACE Assessment-2: Not resolved. Page 12-13 states, “Associated costs are the costs of resources directly required for project construction, but for which no project expenditure is

made, such as USCG navigation aids, estimated at \$113,000.” USCG navigation aids are economic costs that are part of the USCG budget. The use of associated costs is confusing. Per ER 1105-2-100 page E-22, “Aids to navigation are provided by the Coast Guard, and are a Federal cost included in the economic justification, but are not subject to project cost sharing.”

Action-3 Taken: Subject verbiage revised as suggested.

HQUSACE Assessment: The above action taken **has resolved the concern.**

(3) Recommended Plan Cost Sharing. Cost sharing for the recommended plan cannot be determined until the NED plan is adequately defined for Stauffer channel, since the report proposes a larger plan as part of the LPP for Lower Stauffer Channel and the recommended plan for the Upper Stauffer Channel are not adequately supported. See comment on NED Plan.

District Response: Concur. Final NED and LPP costs are being revised. Cost sharing will be clarified based on the Upper Stauffer Channel optimization. Cost sharing will be discussed at the AFB

Discussion: The response is adequate.

Required Action: Final NED and LPP costs are to be revised. Cost sharing will be clarified based on the Upper Stauffer Channel optimization.

Compliance: Cost estimates for the NED and the LPP were revised and coordinated with the Cost PCX. Costs have been updated and are discussed on pages 237 and 238 and shown on Table 86, page 239. Cost Sharing Allocation is discussed on page 238 and 239. The Cost Apportionment is shown on Table 87, page 240.

HQUSACE Assessment: Not resolved. It is still not clear whether the LPP cost sharing is being done appropriately. The report should clearly show the cost sharing for the NED plan for each project location as a basis for LPP cost sharing in each location and the total project overall. The information in Table 91 does not allow for verifying the calculation. Blended cost sharing based on depth zones should be explained in a footnote. The associated non-Federal costs and USCG costs should also be explained.

Response: Table 91 has been revised with NED and LPP cost shown. Footnotes have been added.

FRC Discussion: Response is adequate.

Required Action-2: See comment e.1.

Action-2 Taken: See Sections 12.6, 12.7 and 12.8.

HQUSACE Assessment-2: The revised Table 95 on page 12-16 has resolved the concern.

8.G. LOCAL COOPERATION, PAGES 198 AND 199. The items of local cooperation listed on pages 198 and 199 include references that do not appear appropriate. These include paragraphs relevant to ecosystem restoration and dredged disposal areas. Disposal areas are considered part of GNF based on changes included in Section 201 of WRDA 1999. Counsel should review the list of cooperation items to assure that they are appropriate. Consideration is needed of any non-standard items related to development and operation of public port facilities that may be required based on the specific circumstances for this project.

District Response: Concur. References on pages 198 and 199, specifically paragraphs h. and i., are not appropriate for inclusion in the report since they address ecosystem restoration which is not a project purpose and is not part of the recommended plan. These paragraphs will be deleted from the document. Counsel will review draft report prior to Public Review.

Discussion: Response Adequate. Local cooperation items are boilerplate and should be on the USACE website. Check the website.

Required Action: The District should check the USACE website for standard items. References on pages 198 and 199, specifically paragraphs h. and i., which are not appropriate for inclusion in the report since they address ecosystem restoration which is not a project purpose and is not part of the recommended plan, will be deleted from the document. Counsel will review draft report prior to Public Review.

Compliance: The District checked the USACE website and the local cooperation items have been revised. Local cooperation items are discussed in Section XIV. Recommendations. Ecosystem restoration has been removed from the DFR. Counsel will review draft report prior to Public Review

HQUSACE Assessment: Partially resolved. There does not appear to be any item of cooperation that relates to the sponsor providing for all costs in excess of the NED plan for the Lower Stauffer where it is a larger scale plan.

Response: Sponsor payment of differential costs between the LPP and the NED for Lower Stauffer Channel reach has been added Section 14.1.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report.

Action-2 Taken: See bullet d. of “Port Freeport shall:” of Section 14.1.

HQUSACE Assessment-2: The concern is almost resolved. Item d should include Stauffer along with Lower Channel.

Action-3 Taken: “Stauffer” added to bullet d.

HQUSACE Assessment: The above action taken **has resolved the concern.**

8.H. LEGAL AND ATR CERTIFICATIONS. The following comments relate to the Agency Technical Review and Legal Certification:

(1) ATR Certifications. While the Draft Feasibility Study and EIS are the products being reviewed, the certifications should specify that they were reviewed for the purposes of conducting the AFB. This comment is raised to avoid any confusion later when the true DFR and EIS is prepared and routed for public review. Another round of review will be needed prior to that, as review is life-cycle. No action required at this time, please be mindful of this during future review cycles.

District Response: Concur and noted.

Discussion: No discussion.

Required Action: No further action

Compliance: No further action

HQUSACE Assessment: Resolved. No further action required.

(2) ATR Documentation.

In some cases the individuals making ATR comments requested to see revised material; however the “comment status” is shown as closed. Therefore it is unknown if the revised material was ever provided or if the reviewer was then satisfied. The ATR documentation should fully demonstrate that a successful issue resolution process has been accomplished for each comment. No action required at this time, please be mindful of this during future review cycles.

District Response: Concur and noted.

Discussion: No discussion.

Required Action: No further action.

Action Taken: No further action

HQUSACE Assessment: Resolved. No further action required.

(3) ATR Comment #2021251. This comment identifies a significant concern with the sufficiency of the Engineering Appendix; however the response and subsequent rebuttal of the ATR commenter do not demonstrate this issue has been resolved. The District must ensure that the Engineering details fully comply with the requirements for Feasibility studies. District should reopen this comment in Dr. Checks and fully conclude the issue resolution process with the ATR Team.

District Response: Concur. Dr. Checks will be reopened with PCX and issue resolved.

Discussion: The response is adequate.

Required Action: Dr. Checks to be reopened with PCX and issue resolved.

Action Taken: Dr. Checks was reopened and issue is being reviewed for resolution

HQUSACE Assessment: This issue is resolved.

(4) ATR, Real Estate Representative. Please ensure that a real estate representative participates on future agency reviews of this document.

District Response: Jules Kettler, who used the Office of Counsel Discipline designation, made comments on the REP (#1965375). He is a retired Real Estate Corps personnel. He was working as an annuitant.

Discussion: The response is adequate.

Required Action: No further action.

Action Taken: No further action.

HQUSACE Assessment: Concern is resolved.

(5) Independent External Peer Review. It is noted that an IEPR will be required for this document when it reaches the draft report stage.

District Response: IEPR has been conducted and the Dr. Checks report was included with the Read-Ahead package. There were some non-concurrency issues with the review panel. A second round of comments and responses has been conducted and some issues have been resolved. A COE subject matter expert team is being established by the DDN PCX to discuss and resolve the disputes.

Discussion: The response is adequate. It was noted that IEPR representative now attend the CWRB meetings.

Required Action: A COE subject matter expert team is being established by the DDN PCX to discuss and resolve the disputes. Incorporate resolution in Report.

Action Taken: Subject Matter Team (SMT) is reviewing final responses from District based on SMT memo dated 26 June 2009. The memorandum for record contained the summary of the issue resolution panel's teleconference held on 24 June 2009 regarding the Freeport Harbor project. The District posted responses to IEPR comments 2136759, 2136768, 2136771, and 216772 in Dr. Checks on 20 July.

HQUSACE Assessment: Concern is resolved.

8.I. ECONOMIC APPENDIX.

(1) General Comment. The Economic Appendix does not provide a clear statement of the future without project condition. The future without project condition needs to be clearly described for each section of the analysis including the main channel, the lower Stauffer channel and the Upper Stauffer channel. The discussion is interesting and well written, but it is difficult to discern the specific assumptions that were adopted for the analysis. Guidance on documenting the without and with project conditions is provided in ER 1105-2-100, Appendix E, E-10.e.(3)(c).

District Response: A statement of the future without project condition is provided in the Economic Appendix but a more concise response will be prepared and included in the revised report.

Discussion: The response is adequate. The study documentation will also need a table and narrative describing FWOP, main channel, Upper Stauffer, Lower Stauffer Channel, etc. Add section.

Required Action: A more concise response will be prepared and included in the revised report. A table and narrative describing FWOP(s), main channel, Upper Stauffer, Lower Stauffer Channel to be added. Add section.

Action Taken: The future without project condition is represented by the description provided on pages 4-10 under the channel reach discussion. Discussion of the without project future as it relates to crude petroleum imports is provided on p. 63, 73-74, 79, 97, 105 and 107. LNG without project condition is outlined on p. 79. The Lower Stauffer Channel without project condition is outlined on pp. 143 and 145. The Upper Stauffer Channel without project condition is outlined on pp. 162.

HQUSACE Assessment: The concern is resolved.

(2) Waivers, page 4. The Economic Appendix indicates that the Brazos River Pilots Association limits the size of vessels that can come into the port to 820 feet long by 145 feet wide, unless waivers are granted. The report also states that these restrictions will be “relaxed” once the Section 204(f) project has been approved, however, the report does not clearly state what these “relaxed” restrictions are, or how they are handled in the future without project condition. The relaxed waiver process should be explained and incorporated into the future without project condition.

District Response: The pilots have informed SWG that rules concerning vessel sizes will be relaxed once the channel is widened under the Section 204(f) project. The effect of the rule relaxations will be that vessels larger than 820 feet long by 145 feet wide will be allowed to use the channel without a waiver. These dimensions correspond to a 120,000 DWT vessel. Under the without project future, which includes widening of the jetty channel, the maximum vessel size will range from 135,000 to 175,000 DWT. These vessels are characteristically longer and wider than 120,000 DWT vessels. Calculation of the transportation cost for the Federal project is based on a without project future that includes vessels up to 175,000 DWT operating without the need for a waiver. The maximum vessel size of 175,000 DWT also represents the maximum vessel size for the with project condition. The specific distribution of tonnage by vessel DWT used in calculation of the transportation costs for the without and with project future is directly dependent on the cost effectiveness of a range of vessels. The same range of vessel sizes was used in calculating the transportation costs between the without and with project conditions (i.e. waivers were not assumed for the without project condition).

Discussion: The response is adequate. See prior discussion.

Required Action: Implement the response.

Action Taken: It is stated on p. 97 that the channel widening evaluated under the Section 204 study will allow the range of vessels for the without project future to increase to 175,000 DWT.

HQUSACE Assessment: This comment is resolved.

(3) Chemical Tankers, page 5. The report states that the transition to large vessels (chemical tankers) over the 50-year period of analysis is likely. However the report provides very little support for this conclusion, except to indicate that for vessels on order, the maximum draft of tankers is 48 feet. The report should provide additional information to thoroughly support the assumption that there will transition to larger vessels, and that they will be deployed at Freeport Harbor.

District Response: Non-concur. The Economic Appendix does provide supporting information on recent utilization and new vessel orders. Read response to comment b(2).

Discussion: Need verification and other information on the likelihood of vessels coming. Check trade journals, industry brochures, etc.

Required Action: The report will include investigation of chemical fleet trend data from trade journals and industry announcements and expand the report presentation in relationship to Freeport and comparable ports with an emphasis on the U.S. Gulf Coast. The purpose of the revisions will be to better identify the likelihood of 7.6 percent of 2014-2024 and 15.2 percent of 2034-2064 chemical export tonnage being loaded to vessel drafts up to 50 feet. The 2014-2064 chemical product export forecast presented in the draft appendix may be revised downward based on IEPR comments and regional downturns affecting chemical production. Rationale and detailed discussion for inclusion of any benefits for channel depths over 45 feet will be outlined in detail.

Action Taken: There is no definitive information from trade journals that larger chemical carriers will be deployed to Freeport. The move to 75,000 DWT for some of Freeport's chemical tonnage represents an increase over the recent vessel size of approximately 46,000 to 51,000 DWT. While chemical carrier benefits are subject to some uncertainty, the planning period is 50-year starting in 2014 and Freeport's maximum chemical carrier vessel size increased from 39,000 DWT in 1990/1993 to approximately 50,000 DWT in 2007. Additionally, large chemical product parcels are transported in vessels up to 70,000 DWT at other Texas ports; however, Dow Chemical said that a vessel size of 52,000 DWT represented the maximum size vessel they would use in the foreseeable future.

In spite of Dow’s expectation that vessel utilization will not change in the foreseeable future, benefits were calculated based on 7 percent of 2014-2064 chemical exports being transported in vessels with drafts loaded between 45 and 50 feet and 14 percent of 2024-2064 tonnage being transported in vessels with drafts loaded between 45 and 50 feet. As noted on p. 108, completion of the Panama Canal improvements in 2014 is expected to result in increases in Freeport’s shipments to the Far East. Additional criteria for projecting future utilization of loaded drafts over 40 feet were Freeport’s existing loading patterns and the forecasted increases in the availability of an increased concentration of larger product carriers (Table 33). As noted on p. 109, the transportation savings benefits for petroleum products were calculated based on vessels from 85,000 to 100,000 DWT. The vessel sizes for existing conditions are the same as those anticipated for the without and with-project future. The transportation cost for chemical products were calculated based on vessels from 50,000 to 65,000 DWT for the existing condition and the without project future. The with-project future transportation costs were calculated using vessels from 50,000 to 100,000 DWT. The vessel sizes used in the analysis are shown in Table 67. The cost per ton for the without project are based on 50,000 to 65,000 DWT and the cost per ton for the “with” project are based on 50,000 to 75,000 DWT. Dow Chemical has three docks and its largest dock can accommodate vessels of 820 feet in length by 125 feet wide. This corresponds to a tanker up to approximately 110,000 DWT.

The Tables 37, 39, 40 and 41 present distributions of the world chemical carrier fleet by size and include vessel draft data. The tables include vessels “in use” and “vessels on order”. Table 41 is based exclusively on vessel in use as of 2008. That table does include chemical carriers in excess of 50,000 DWT. A sensitivity analysis of the effect of excluding benefits for chemical exports was made (Table 75). Chemical exports tonnage are forecasted to growth at an average annual rate of approximately 3.2 percent from 2003 to 2060 (Table 51). High long-term growth in chemical exports is related to expected long-term growth in demand from China. While relatively high, the forecast is statistically valid, with the base estimate forecast and associated application of the standard deviation produced a relatively small range of variance in results (Table 51). Additional research revealed that many new orders are not financed as yet. In conclusion, a period of analysis based on no changes in current conditions over the 50-year planning period indicates that there are not any benefits for chemical tonnage; however, this is not a realistic scenario. The most realistic judgement concerning the chemical fleet is that there will be a transition to larger and more fully loaded vessels over the 50-year planning period.

HQUSACE Assessment: This concern is resolved.

(4) Traffic Rules, pages 6 and 25. The report discusses the Brazos River Pilots Association operating rules and states on page 25 that underkeel clearances practices “are based on pilot input.” However, the assumptions used in the economic analysis should be based on actual vessel operating practices. Guidance is provided in ER 1105-2-100, Appendix E, E-10.e.(3)(b).

A sample of actual vessel operating data should be reviewed to confirm the assumptions used in the report are correct. In addition, the report indicates that the Section 204(f) study would result in relaxing of these rules however it is not clear what this means specifically. The report needs to state explicitly the assumptions that are employed in the economic analysis regarding traffic rules.

District Response: The text will be revised to state that underkeel clearance practices are based on actual operating practices. Table 11 displays Freeport’s number of total trips by loaded draft based on total tonnage. The sample calculation shown in Table 46 will be recalculated based on 3 feet of underkeel clearance. The effect on the crude petroleum import benefits of using of one-foot underkeel clearance is evaluated in the sensitivity section of the Economic Appendix.

Table 46, which shows Transportation Cost Calculation (Mexico to Freeport), will be corrected. This table is an example and the calculation is based on an underkeel clearance of 5 feet.

The transportation costs associated with the “without project future” were prepared based on 3 feet of underkeel clearance; again, actual operating practice. Analysis of the sailing records, which are shown in the Economic Appendix, show that under present condition, 42 feet is the absolute maximum loaded draft. The pilots said that the 3-foot underkeel clearance rule would not change with widening under the Section 204(f) or the Federal deepening project. Based on pilot input and analysis of actual operating conditions, the transportation costs for the with project future were calculated using 3 feet underkeel clearance.

Discussion: The response is adequate. The analysis will be based on empirical evidence.

Required Action: Implement the response. Base underkeel clearance assumptions on empirical evidence. Additional actual vessel operating data will be included in the revised report. Other: The sample calculation shown in Table 46 will be recalculated based on 3 feet of underkeel clearance.

Action Taken: The report calculations are based on actual operating cost data. The sample calculation shown in Table 46 will be recalculated based on 3 feet of underkeel clearance. The calculations are shown in Table 58.

HQUSACE Assessment: The report states that the Brazos River Pilots Association has a maximum loaded draft restriction of 42 feet in the existing 45 foot channel. Empirical data provided in Table 15 (page 32) generally supports this restriction and Section 6.0 (page 88) confirms that 3 feet of underkeel clearance was used in the economic analysis, so this concern is resolved. However, there is further discussion regarding BPRA policies that appears to be incorrect and confusing. The statement in Section 3.1 that “*maximum loaded draft cannot exceed 10 percent of the channel depth plus 1 foot*” is clearly in error, since if taken literally, it implies

that vessel sailing drafts are limited to 5.5 feet. Section 3.4.4 of the Economic Appendix restates the BPRA rule as “10 percent of the *design draft plus 1 foot.*” This definition makes sense. To avoid any confusion, it would be helpful to state clearly that this portion of the BRPA policy was not used to determine underkeel clearance. The inaccurate explanation of the BRPA policy in Section 3.1 needs to be revised. Guidance is provided in ER 1105-2-100, Appendix E, Section E-10.e.(3)(a). *Entering and departing vessel drafts in economic analyses shall reflect actual practices.*

Response: Section 3.1 has been revised to “design draft” rather than “channel depth”.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report.

Action-2 Taken: “channel depth” inadvertently was not revised in the draft Final DFR for public review. Section will be corrected for Final Report.

HQUSACE Assessment-2: The concern is not resolved. Page 35 paragraph 3.1 of Volume I continues to state, “The policy is that the maximum loaded draft cannot exceed 10 percent of the channel depth plus 1 foot. The text needs to refer to design draft not channel depth.

Action-3 Taken: Section 3.1 has been revised to “design draft” rather than “channel depth”.

HQUSACE Assessment-3: The concern is still not resolved. Page 34 paragraph 3.1 of Volume II Appendices continues to state, “The policy is that the maximum loaded draft cannot exceed 10 percent of the channel depth plus 1 foot. The text needs to refer to design draft not channel depth.

SWG Preliminary Response (2 May 2011): Concur. This was an oversight again. Once the change is incorporated a copy of the page with the modified information will be attached to this compliance document when final responses are submitted.

HQUSACE Assessment (May 2011): The concern is not yet resolved due to an oversight.

Action Required: Revise the text page and attach to the final compliance memorandum as noted above.

District Action: Text in Section 3.1 has been revised to state “design draft” rather than “channel depth”. The text in the Economic Appendix now reads:

Underkeel clearance is defined as the minimum clearance available between the deepest point on the vessel and the channel bottom, in still water. Presently, the maximum loaded draft suggested by the BRPA cannot exceed 42 feet. The loaded draft restriction is noted to be relative to the channel depth of 45 feet. The general rule is that the underkeel clearance be at least 10 percent of the design draft minus 1 foot. Interpretation of the BRPA general rule suggests that loaded drafts in excess of 42 feet should be very rare for a 45 foot channel. The transit data presented in Table 15 show this to be true. In addition to the trips by loaded draft summary data presented in Table 15, Freeport's tanker fleet was examined in order to identify the vessel loading patterns.

HQUSACE Assessment: The concern is resolved by the text change noted in the District action.

(5) Panama Canal Expansion, page 27. The report appears to assume that the Panama Canal expansion will occur in 2020. The Panama Canal Commission is forecasting a completion date of 2014 to 2015 and most Corps deep-draft navigation reports are using this time frame. The PDT may want to consider revising this assumption and the analysis to conform to the 2014-2015 timeframe.

District Response: Text will be revised. This revision will not result in a change in the project benefits based on this variable.

Discussion: The response is adequate.

Required Action: Use the 2015 Canal completion date for consistency with other USACE reports. Check Panama Canal website. The traffic forecasts are being reviewed to determine impacts.

Action Taken: The revised report recognizes the 2014/2015 Canal completion date for consistency with other USACE reports (p. 108). The traffic forecasts were reviewed to determine impacts. The impact of the Panama Canal suggests that the chemical product export forecast of some tonnage using larger carriers in the future is warranted. As a result, the chemical carrier forecast was not revised downward. As noted in the appendix, completion of the Panama Canal improvements in 2014 is expected to result in increases in Freeport's existing base of shipments to the Far East. A trade route forecast was not prepared and the transportation cost calculations are based on Freeport's 2002-2007 period routings for petroleum product imports and chemical products exports transported in vessels loaded to drafts of 40 feet or more. As previously noted, additional criteria for projecting future utilization of loaded drafts over 40 feet were Freeport's existing loading patterns and the forecasted increases in the availability of an increased concentration of larger product carriers (Tables 32, 34-34).

HQUSACE Assessment: This concern is resolved.

(6) Lightering and Lightening, page 37. The report needs to specifically explain the assumptions regarding lightering and lightening that were employed for the “without” and “with” project conditions. The report provides ranges of numbers (e.g. it takes 4-10 days to lighter a VLCC) but the specific assumptions are not documented.

District Response: Text will be revised to specifically address what the changes between the without and with project conditions. The specific assumptions will be outlined in the revised text.

Discussion: The response is adequate.

Required Action: Implement the response. Incorporate definitions. The text will be revised to specifically address changes in lightering and lightening based on the without and with project future. Each project condition will be carefully outlined in relationship to anticipated changes in lightering and lightening based on the channel depth alternatives. The rationale for anticipated changes will be thoroughly outlined in relationship to vessel operating cost changes, industry expectations, and relevant variables.

Action Taken: Table 64 displays the vessel sizes and number of shuttles for the without and with project future by channel depth alternative. Pages 102-105 provides discussion of how operating practices are anticipated to change under the with project future. It is noted on p. 63 that for a with-project condition that includes deepening, the mother vessels would discharge less cargo offshore. Based on the mother vessel discharging less cargo offshore, the with- project condition would affect the number and sizes of the shuttle vessels. For direct shipments, a with-project condition where than channel is deepened would allow for fewer vessel trips as the existing range of vessels would be able to carry more cargo. Discussion of existing and future without and with project constraints are presented on p. 73-74. It is recognized that there is uncertainty associated with the transition of anticipated changes; comparison of Freeport data for 1993 and 2007 suggests that an increase in channel dimensions would likely result in a shift to larger parcel sizes and larger vessels (Tables 31-33). Definitions of lightering and lightening are provided on pp. 54-55. With the exception of chemical products, industry anticipates that a deeper channel will result in the use of large and more fully loaded vessels. Dow Chemical said that existing maximum vessel size of 52,000 DWT represented the maximum size vessel they would use in the foreseeable future. SWG’s comparison of chemical carriers used in the early 1990s with those presently used show that the maximum size increased from 39,000 DWT or less to 52,000 DWT. Additionally, large chemical product parcels are transported in vessels up to 70,000 DWT at other Texas ports.

The specific differences in the without and with project conditions are outlined in the transportation cost analysis section.

HQUSACE Assessment: This concern is resolved.

(7) Containership Analysis, Economic Appendix. The following comments are related to the economic analysis for containerships:

(a) Container Terminal Capacity, page 92. The discussion of container terminal capacity is confusing, with two different concepts of “capacity” apparently being used. The report states that the Barbours Cut Terminal capacity is 918,241 TEU’s, with capacity defined as “the number of containers that can fit in the terminal at any one time.” Then the report states that Barbours Cut operated at nearly 50% above 2007 capacity with throughput of nearly 1.7 million TEUs.

District Response: Clarifications will be provided in the revised text. In regard to number of container and capacity, the report provides factual information. Barbours Cut was indeed operating beyond capacity. Briefly, Barbours Cut operates in excess of capacity by storing container at locations outside of the terminal. The volume of 1.7 million TEUs includes empties; however, that is only noted here for clarification. The total for loaded containers in 2007 is approximately 1.4 million.

Discussion: What is container commerce in without-project condition? Does it go through Houston or Freeport? If commerce is going from Houston to Freeport, need to do full origin-destination analysis. Very difficult story. Keep it simple. Emphasize commerce going through Freeport. Is Houston at capacity?

Required Action: Validate assumptions. Lay out a proposed course of action. Coordinate with HQUSACE. The effects of Houston capacity and associated logistics will be reviewed based on post-AFB interviews. The results of this review will be outlined in the revised report.

In regard to the without project future, advanced site preparation and active construction of Phase I of the Freeport container terminal was observed during the HQUSACE site visit (April 14-15, 2009). This confirmed that the without project future is defined by a scenario where container traffic goes through Freeport. Completion of Phase I of the Velasco Terminal is scheduled for September 2009. The port is presently in negotiations with a terminal operator.

Additionally, Freeport container analysis is being revised to eliminate the emphasis on the Velasco Terminal’s anticipated efficiency advantages over Houston. A table showing the markets for which Freeport has mileage advantages over Houston will be presented. The revised evaluation will focus on the effects of regional growth in the market area which will be served by Freeport. Freeport has some definitive mileage advantages and these will be specifically identified. The NED plan will be presented based on mileage advantages and long-term overflow

traffic from Houston. Long-term regional container growth will continue to be defined by Global Insight's published growth rates in relationship to U.S. Gulf Coast trends. The effects of the Panama Canal will be specifically discussed. As noted at the AFB, Lower Stauffer Channel benefits and costs for 1-foot increments between 45 and 50 feet will be presented in the revised report.

Action Taken: The District coordinated with HQUSACE (April 14-15, 2009), it was confirmed that the without and with project future is defined by a scenario where container traffic goes through Freeport. Differences between without and with project volumes were not forecasted and differences between without and with project volumes are expected to be minimal. Coordination with HQUSACE included a Freeport site visit and telephone conference with regional container port officials. As noted on p. 142, Freeport officials anticipate an estimated range of 107,000 to 230,000 TEUs for 2010. This base represents approximately 0.3 percent of the U.S. container throughput, and 11 percent of Houston's 2008 throughput of 1.8 million TEUs. As noted in the report, Bayport Container Terminal will be able to handle 2 million TEUs upon full build-out in 2015. It is also noted (page 142-143) that while construction of Freeport's additional terminal is in response to capacity limitations at Freeport's existing facilities which are located within the confines of the Brazos Harbor Turning Basin, the terminal is expected to meet increased long-term demand resulting from higher than anticipated regional population growth. The revised evaluation focuses on the effects of regional growth in the market area expected to be served by Freeport. As shown in Table 81, regional population growth from 2000 through 2008 exceeded earlier expectations. As discussed on p. 133, the distance from Freeport to towns and sites adjacent to Freeport was examined to determine the immediate market area. Table 82 displays mileages from Freeport to towns and cities within and adjacent to Brazoria County.

HQUSACE Assessment: This concern is resolved.

(b) Infrastructure Improvements, page 97. Growth of the container trade at Freeport Harbor depends on a number of infrastructure improvements, including highway and rail improvements. The report provides very little specific information regarding when these improvements will occur. The report needs to provide a realistic assessment of when these rail and highway improvements will be completed and the degree to which the future development of the container facility depends on these improvements.

District Response: Freeport's NED container volume will consist exclusively of truck transport. The initial port development, in particular Phase I, will primarily serve Texas markets that are within a day's drive of Freeport. In regard to road improvement, the Texas Department of Transportation (TxDOT) plans include road improvements for the vicinity and communities

served by Port Freeport. Documentation of the schedule associated with TxDOT road improvements will be added to the report text.

Discussion: This is part of (a) above.

Required Action: See part of (a) above. Freeport's NED Phase I container volume will consist exclusively of truck. Documentation of the schedule associated with TxDOT road improvements will be added to the report text. The revised evaluation will focus on the effects of regional growth in the market area expected to be served by Freeport. Discussion of long-term rail improvements and the anticipated percentage of Freeport traffic using rail will be addressed in the revised report.

Action Taken: Freeport's NED Phase I container volume will consist exclusively of truck. As noted on p. 122, Port officials are working with the Texas Transportation Commission on advancing both highway and railway improvement. Specific documentation of the schedule associated with TxDOT road improvements was compiled but is not shown in the report text. Discussion of long-term rail improvements and the anticipated percentage of Freeport traffic using rail are included in the revised report (pp. 120-124). The District aggregated highway improvement data but did not include the schedule in the report.

HQUSACE Assessment: This concern is resolved.

(c) Container Forecast, page 99. The report forecasts a volume of 201,000 TEU's in 2014, increasing to 609,000 TEU's in 2034 and 1,668,000 TEU's in 2064. The report does not distinguish between the without and with project conditions. The report needs to document a future without project forecast and a future with project forecast.

District Response: Differences between without and with project volumes were not forecasted. The Freeport facility is presently under construction and information associated with the effect of various channel alternatives on container throughput levels was not measured. An attempt to evaluate the effect of the container weight will be made. In regard to the without and with project forecast, with project condition volumes may be higher than for the without project condition; however, identification of difference in throughput were not estimated. For purpose of analysis, the with project forecast was assumed to not exceed the without project traffic forecast. Sensitivity analyses, looking at the effects of increasing the without project forecast for 5, 10, and 15 percent can be evaluated in the sensitivity section of the Appendix.

Discussion: This is part of (a) above.

Required Action: See part of (a) above. Based on coordination with the HQUSACE site visit (April 14-15, 2009), it was confirmed that the without and with project future is defined by a scenario where container traffic goes through Freeport. Differences between without and with project volumes were not forecasted and differences between without and with project volumes are expected to be minimal. The revised report will provide discussion of anticipated differences between the without and with project future; however, benefits will not be calculated for induced cargo.

Action Taken: Based on coordination with the HQUSACE site visit (April 14-15, 2009), it was confirmed that the without and with project future is defined by a scenario where container traffic goes through Freeport. Differences between without and with project volumes were not forecasted and differences between without and with project volumes are expected to be minimal. The container cargo traffic forecast was revised based on review comments (Table 144, p. 189).

HQUSACE Assessment: This concern is resolved.

(d) Without Project Channel Depth, page 117. The report assumes that the channel depth for the container facility, in the without project condition will be 40 feet. It is not clear who will maintain the channel, however it appears that the analysis assumes the Velasco container facility will operate at this depth in the without project condition. It is not clear how this assumption is carried through with respect to the cost estimate. The report needs to clearly explain the future without project condition for the container facility.

District Response: The port would maintain the channel under the most likely scenario. For purposes of analysis, the terminal was assumed to operate at 40 feet in the absence of a Federal project. The assumption is that the non-Federal sponsor would obtain a permit and deepen the channel. If the non-Federal sponsor seeks a permit, they will likely seek a permit for a depth of 45 feet as the project depth in the reach below the Velasco Terminal has a project depth of 45 feet.

The project construction cost estimate is based on dredging the channel from its natural depth to alternative depths up to 50 feet. The construction cost estimates are based on initial construction costs from the natural depth to alternatives depths of 40 to 50 feet. The benefit calculations were made based on a "threshold depth" of 40 feet. The approach used is similar to what is used by the Corps for "new projects". For the report presentation, the differences in transportation costs between 40 feet, which was used to represent the "without project condition" were compared to channel depth alternatives of 41 to 50 feet.

For additional clarification, the following could be added. Identification of the threshold depth is based on the minimal depth needed to operate before a port might shut down. Based on this definition, the use of 40 feet may not be too high of a starting point; however, sensitivity analysis can be performed to evaluate the effect of using a lower "threshold". In conversation with IWR, the threshold is also identified as the base from which channel deepening benefits are measured. With any Federal action, the channel depth would likely be around 18 feet; however, 18 feet was not used as a threshold and/or the without project condition depth because it is not realistic to think that a port would operate at 18 feet. IWR noted in informal conversation that a goal in identifying the threshold is to use a depth that will produce a realistic optimization. IWR added that corps guidance works well evaluating changes for existing, established projects; however, there is not guidance for determining depth optimization for new ports and/or situations of going from a non-existent to an existent state. The District understands that the key in identifying the starting point for measuring NED benefits is the general knowledge that for container ports, depth optimization takes place within the first 5 to 10 feet of the starting point.

Discussion: This is part of (a) above.

Required Action: See part of (a) above. Based on coordination with the HQUSACE site visit (April 14-15, 2009), it was confirmed that the without and with project future is defined by a scenario where container traffic goes through Freeport. Differences between without and with project volumes were not forecasted and differences between without and with project volumes are expected to be minimal. The revised report will provide discussion of anticipated differences between the without and with project future; however, benefits will not be calculated for induced cargo.

The port would maintain the channel under the most likely scenario. For purposes of analysis, the terminal was assumed to operate at 40 feet in the absence of a Federal project. The assumption is that the non-Federal sponsor would obtain a permit and deepen the channel. The project construction cost estimate is based on dredging the channel from its natural depth to alternative depths up to 50 feet. The construction cost estimates are based on initial construction costs from the natural depth to alternatives depths of 40 to 50 feet. The benefit calculations were made based on a "threshold depth" of 40 feet. The approach used is similar to what is used by the Corps for "new projects". For the report presentation, the differences in transportation costs between 40 feet, which was used to represent the "without project condition" were compared to channel depth alternatives of 41 to 50 feet. If the non-Federal sponsor seeks a permit, they will likely seek a permit for a depth of 45 feet as the project depth in the reach below the Velasco Terminal has a project depth of 45 feet.

Action Taken: The revised report follows the action outlined in the first two paragraphs under the District Response to 7(d).

HQUSACE Assessment: The additional information provided in the report raises related concerns. Based on the information provided that the project cost estimate is based on dredging the (Lower Stauffer) channel from its existing natural depth (-18 feet). However, it is assumed that the non-Federal sponsor will deepen the channel to -40 feet in the future “without” project condition. Economic benefits are based on this “threshold depth” of -40 feet. Thus, it appears that the report is including the incremental depth from -18 feet to -40 feet in the project cost, even though this depth will be provided in the “without” project condition. The cost of work accomplished in the “without” project condition cannot be included in the project cost estimate for a “with” project alternative. The work done by the non-Federal sponsor to attain the -40-foot depth should not be included in the cost estimate and will not be eligible for Federal cost-sharing. The report should be revised to clearly reflect that this is a non-Federal cost.

Response: The reference to a future “without” project condition 40’ deep channel was inadvertently included in the Report and Economic Appendix. The 40’ depth should have referred to an off-channel berth area being constructed by the local sponsor. This berth area is being constructed in two phases and may eventually be as deep as 45’; this construction is not part of the federal project.

The correct Future-Without-Project condition for the channel is the existing Stauffer Channel , which is 200 feet wide at a current depth of 18 feet and the locally-constructed berth area, referenced above, which is off-channel.

In reference to a 40’ depth for the existing 18’ deep channel, in 2008 in coordination with HQ, it was determined that, for economic analysis, a “threshold depth” of 40’ was reasonable from which to begin economic incremental analysis. This threshold depth is the minimum depth necessary for the facility to function (i.e., the probable or most likely depth that would need to be in place to “call” a new or currently non-existent operation/facility of concern into existence). Incremental analysis of benefits was then performed between 40 and 50 feet. The B/C analysis accounts for the benefits from the “threshold depth” to 50 feet; however on the cost side, the cost of removing the material starting at the WOP existing channel depth of 18 feet must be included in the project cost. Utilizing only the benefits beginning at the “threshold depth” and including the additional costs to bring the project to the “threshold depth”, the overall project is justified.

There are additional unanalyzed benefits that could be derived between the existing -18 feet and the “threshold depth” of -40 feet. These benefits are qualitatively estimated to be approximately 15% of the benefits between -40 feet and -50 feet. The resultant BCR would qualitatively be 2.9 vs. the BCR of 2.5 that is shown in Table 65 of the Report, which is based on benefits from the threshold depth of 40’ to 50’ alone.

The Report documents will be revised to correct and clarify this information between the WOP and the threshold depth.

FRC Discussion: Response is adequate.

Required Action-2: Include the information from the Response paragraph clarifying the Without Project in the draft Report.

Action-2 Taken: See second and third paragraphs of Section 8.0.

HQUSACE Assessment-2: The information in Section 8.0 has resolved the concern.

(e) **Split Pickups, page 127.** The report discusses the impact of “split pickups” where the chassis is stored in a location separate from the containers (a characteristic of the Houston container facilities). The costs provided by Freeport Harbor are \$50 per move, plus an additional charge of \$50 per move if the chassis is stored in another location after the move. In addition a charge for waiting at the port gate is applied at the rate of \$40 per container. These costs seem excessive, since the primary difference in operations is a relatively small amount of additional travel distance. They need to be confirmed with the Houston container facilities, or other knowledgeable, independent sources. In addition, a clear explanation needs to be provided of the differences in Port operations that cause these expenses. It is presumed that these costs are considered in the NED benefit analysis, although this is not clear from the report. However, if that is the case, are these containers moving through Houston or the Velasco terminal in the without project condition? If the report is assuming that containers will shift from Houston, in the future without project condition, to Freeport in the future with project condition then the report needs to provide a total delivered price analysis to demonstrate this. It is not acceptable to focus only on a single difference in port operations. Guidance is provided in ER 1105-2-100, Appendix E, E-10.

District Response: The District is working on independent review of the costs provided by Freeport Harbor of \$50 per move, plus an additional charge of \$50 per move if the chassis is stored in another location after the move. Review of the port’s estimate of charges for waiting at the port gate is applied at the rate of \$40 per container.

A detailed explanation of the cause for these charges is presently being prepared; however, it is not yet complete. As noted in response to (7) a, capacity constraints in Houston have historically operated in excess of capacity by storing containers at locations outside of the terminal. The result of storing containers off-site results in higher costs. Additionally, traffic congestion contributes to delays.

The basis for shifting and/or the “shifting costs” were not included in the benefit calculations. Under the without project condition, the containers are assumed to be presently using Houston. Under the with project condition, the containers are assumed to use Freeport. While the diversion to Freeport is expected to occur regardless of channel depth, the indication from Port Freeport is that a channel of less than 40 feet would not be built at Freeport. It is our

understanding that the port believes that they would need, at least, 40 feet in order to operate at a profit.

Freeport does have some mileage advantages for some markets over Houston and that data will be included in the revised report.

Discussion: The response is adequate.

Required Action: Response to this issue will differ from District AFB response. The basis for the change is additional information based on coordination with the HQUSACE site visit (April 14-15, 2009). The Lower Stauffer Channel analysis is being revised to eliminate the emphasis on the Velasco Terminal's anticipated efficiency advantages over Houston. A table showing the markets for which Freeport has mileage advantages over Houston will be presented. The revised evaluation will focus on the effects of regional growth in the market area expected to be served by Freeport. Freeport has some definitive mileage advantages and these will be specifically identified. The NED plan will be presented based on mileage advantages and long-term overflow traffic. Long-term regional container growth will continue to be defined by Global Insight's published growth rates in relationship to U.S. Gulf Coast trends. The effects of the Panama Canal will be specifically discussed. As noted at the AFB, Lower Stauffer Channel benefits and costs for 1-foot increments between 45 and 50 feet will be presented in the revised report.

Action Taken: Response to this issue differs from District AFB response. The basis for the change is additional information based on coordination with the HQUSACE site visit (April 14-15, 2009). The Lower Stauffer Channel analysis was revised to eliminate the emphasis on the Velasco Terminal's anticipated efficiency advantages over Houston. Table 82 of the revised report shows the markets for which Freeport has mileage advantages over Houston. The revised evaluation focuses on the effects of regional growth in the market area expected to be served by Freeport which overlaps with Houston. The NED plan calculations are based on general advantages associated with mileage and long-term overflow traffic. Long-term regional container growth is defined by Global Insight's published growth rates in relationship to U.S. Gulf Coast trends. The effects of the Panama Canal are discussed (pp. 133-134). As noted at the AFB, Lower Stauffer Channel benefits and costs for 1-foot increments between 45 and 50 feet are presented in the revised report.

HQUSACE Assessment: The concern is resolved.

(f) Sailing Drafts and Underkeel Clearance, page 107. It is not clear from the report what sailing draft and underkeel clearance assumptions are employed in the analysis for the without and with project conditions. Sailing draft assumptions are a fundamental and critical part of the

economic analysis for containerships, and as displayed in Table 69, these vessels rarely sail at their design drafts. The title of Table 68 refers to loaded drafts, as do some of the column headings; however the table provides no information on loaded drafts. The report should base sailing draft and minimum underkeel clearance assumptions for container vessels on actual operating practices.

District Response: Table 69 is accurate and was compiled from the USACE trips published data. The title of Table 68 will be revised to take “loaded drafts” out of the title. The public data available at the USACE website includes a data field called “container”. Source: <http://www.iwr.usace.army.mil/ndc/data/dataclen.htm#Foreign%20Traffic%20Vessel%20Entrances%20and%20Clearances>

In response to the underkeel clearance question, the minimum underkeel clearance used for the container vessel calculations was 3 feet. The specific loaded drafts by vessel DWT and channel depth alternative are shown in the table below. The percentage distribution shown in the third column of the table was used to weight the transportation costs by vessel size. The distribution of cargo by DWT was assumed to remain constant between channel depth alternatives. The effect of deeper channel depth was forecasted to result in lower transportation costs per ton for larger vessels; however, the percentage of tonnage forecasted to be shipped in larger vessels was not forecasted to increase based on channel depth increases. As suggested by the percentage distribution, the 94.5 percent of tonnage is expected to be transported in vessels with loaded drafts of 40 feet or less. An alternative vessel DWT distribution showing a higher concentration of tonnage in vessels between 55,600 and 80,596 is outlined in the Economic Appendix. The effect of using a higher concentration of larger vessels results in higher transportation savings benefits but it did not change the optimization curve. The results from both distributions were that the maximum net excess benefits peaked at 45 feet.

Container Vessel Inputs

Vessel Design Draft, Vessel DWT, Maximum Loaded Draft

Design Draft	Vessel DWT	% of Cargo By DWT	% of Channel Depth Alternative (feet)										
			40	41	42	43	44	45	46	47	48	49	50
Maximum Loaded Draft by Channel Depth and Vessel DWT													
34	22,900	53.5%	34	34	34	34	34	34	34	34	34	34	34
37	33,900	29.3%	37	37	37	37	37	37	37	37	37	37	37
40	45,400	11.9%	37	38	39	40	40	40	40	40	40	40	40

42	55,600	4.8%	37	38	39	40	41	42	42	42	42	42	42
44	62,949	0.1%	37	38	39	40	41	42	43	44	44	44	44
45	67,652	0.1%	37	38	39	40	41	42	43	44	45	45	45
46	80,596	0.4%	37	38	39	40	41	42	43	44	45	46	46
47	86,750	0.0%	n/a										
100.0%													

Discussion: The response is adequate.

Required Action: The revised report will include the detailed data outlined in response to the AFB comment.

Action Taken: The sailing drafts shown in Table 92 of the revised appendix were used for the without and with project future calculations. Table 88 shows the distribution of vessel sizes used for the base calculations and the sensitivity analysis. The Table 88 column labeled “adjusted regional share” was used for the base calculations. Table 93 displays the calculations by channel depth using the regional fleet distribution shown in Table 88 and discussed on pp. 140-141 of the appendix.

HQUSACE Assessment: The additional information provided in the revised report raises some related concerns. The baseline economic analysis for the Freeport Harbor containership fleet forecast uses the actual traffic experience at Houston, with some adjustments. There is no explanation for the adjustments, which appear to be subjective and somewhat arbitrary. Historically Freeport is a much smaller container port than Houston, and has very different traffic and loading patterns. For example, no containerships calling at Freeport Harbor have had sailing drafts greater than 30 feet while Houston had 477 vessel trips greater than 30 feet in 2008 alone (Table 87). In addition, Freeport had only 71,900 loaded and empty TEU’s in 2008, while Houston had 1,794,300 loaded and empty TEU’s, or 25 times the TEU shipments of Freeport (Table 79). There were a total of 104 container vessel transits at Freeport in 2008, while Houston had 820 vessel transits. Thus Freeport handled an average of less than 700 TEU’s per vessel, while Houston handled an average of almost 2,200 TEU’s per vessel. These significant differences in these two ports, together with the lack of validation regarding the adjustments that were made to the historic vessel shares raises serious doubts as to the appropriateness of the baseline containership forecast. The adjusted average of the Houston and the U.S. shares, employed in scenario two, would seem to be a more appropriate and defensible procedure, and this procedure would still result in an NED plan of -45 feet. The report should adopt the procedure contained in Scenario Two and as the baseline for benefit estimation.

Response: In response to the HQ suggestion, the report and appendix will be revised to reflect use of “Fleet Sensitivity No. 2” as the base.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response in the draft Report.

Action-2 Taken: Table 106 presently reflects the change in the base fleet.

HQUSACE Assessment-2: The incorporation of Table 106 in the Economics Appendix resolves the concern.

(g) Velasco Container Terminal, pages 84 and 87. The report indicates that the development of this facility will be in two phases and that dock and terminal enlargements are anticipated to be in place by 2011. Does that mean both phase I and II would be completed, or just phase I? The report also mentions a Phase III, but provides no information on this phase. The report needs to clearly explain the assumptions regarding the Velasco terminal in the future without and with project conditions.

District Response: The benefit calculations are based on completion of Phase I. Plans for Phase II and III have not been finalized by the non-Federal sponsor. The Report will clarify the assumptions.

Discussion: The response is adequate.

Required Action: The revised report will clarify that the benefit calculations are based on completion of Phase I.

Action Taken: For purposes of the benefit calculations, a threshold of 40 feet was selected as best representing the threshold for the without project condition (p. 145). The revised report will clarify that the benefit calculations are based on completion of Phase I. As noted on p. 118, the without project condition is based on the assumption that the non-Federal sponsor obtains a permit to dredge the 3,000-foot long channel from its existing depth of 18 feet to an operating depth of 40 feet. Based on a without project condition depth of 40 feet, optimization of Federal interest in channel depth improvements over 40 feet were subsequently evaluated. For purposes of analysis the transportation savings benefits for container cargo were calculated from a pre-base depth of 18 feet (p. 118).

HQUSACE Assessment: The descriptions of the “without” and “with” project conditions provided in the report are satisfactory. However, benefits for the Lower Stauffer Channel should be calculated as the difference in transportation cost between the “without” and “with” project conditions, where the “without” project condition is defined as the 40-foot deep channel, not the pre-base depth of 18 feet as stated in the response. In addition, it appears from Tables 1 & 2 of the Engineering Appendix that the project costs for the Lower Stauffer Channel are based

on the 18-foot depth. This is also not correct. The project costs should be based on the increment above the 40-foot without project channel depth. The assumption in the report is that the increment from 18 feet to 40 feet will be provided by the sponsor in the without project condition prior to implementation of the project. Thus, it cannot be considered a project cost; it will be provided by the non-Federal sponsor at their expense and is not eligible for Federal cost-sharing.

Response: The reference to a future “without” project condition 40’ deep channel was inadvertently included in the Report and Economic Appendix. The 40’ depth should have referred to an off-channel berth area being constructed by the local sponsor. This berth area is being constructed in two phases and may eventually be as deep as 45’; this construction is not part of the federal project.

The correct Future-Without-Project condition for the channel is the existing Stauffer Channel , which is 200 feet wide at a current depth of 18 feet and the locally-constructed berth area, referenced above, which is off-channel.

In reference to a 40’ depth for the existing 18’ deep channel, in 2008 in coordination with HQ, it was determined that, for economic analysis, a “threshold depth” of 40’ was reasonable from which to begin economic incremental analysis. This threshold depth is the minimum depth necessary for the facility to function (i.e., the probable or most likely depth that would need to be in place to “call” a new or currently non-existent operation/facility of concern into existence). Incremental analysis of benefits was then performed between 40 and 50 feet. The B/C analysis accounts for the benefits from the “threshold depth” to 50 feet; however on the cost side, the cost of removing the material starting at the WOP existing channel depth of 18 feet must be included in the project cost. Utilizing only the benefits beginning at the “threshold depth” and including the additional costs to bring the project to the “threshold depth”, the overall project is justified.

There are additional unanalyzed benefits that could be derived between the existing -18 feet and the “threshold depth” of -40 feet. These benefits are qualitatively estimated to be approximately 15% of the benefits between -40 feet and -50 feet. The resultant BCR would qualitatively be 2.9 vs. the BCR of 2.5 that is shown in Table 65 of the Report, which is based on benefits from the threshold depth of 40’ to 50’ alone.

The Report documents will be revised to correct and clarify this information between the WOP and the threshold depth.

FRC Discussion: Response is adequate, same as h.2.

Required Action-2: See h.2.

Action-2 Taken: See second and third paragraphs of Section 8.0.

HQUSACE Assessment-2: The information in Section 8.0 of Volume II the Economic Appendix and page 9-42 of Volume I have resolved the concern.

(h) Average Weight of Containers, page 85. It is not clear if the average weights discussed include the weight of the container. The report should provide additional explanation regarding how the container weights are determined.

District Response: The weight of the containers will be discussed in the revised report; however, it is not clear if differences in the optimization of plans can be discerned based on the inclusion of container weight.

Discussion: The response is adequate. The container weight affects vessel draft and should be included in the assumption.

Required Action: The container weight affects vessel draft and will be included in the assumption. The report will provide explanation regarding how the container weights are determined.

Action Taken: While container weights were not obtained, vessel sailing drafts were obtained. Sailing draft is, of course, affected by the combination of the weight of the container and the cargo. The focus of the revised application was the distribution of cargo by sailing draft as it relates to vessel size (Table 92). The weight of the individual containers was not investigated as it was believed that data was not practical to obtain. The factor of 7.5 tons per TEU was only used to estimate total container tonnage. The value of 7.5 was multiplied by the annual estimate of total TEUs. For instance, Freeport’s annual TEU estimates of 200,000 TEUs in 2014 and 234,000 TEUs in 2024 was multiplied by 7.5 in order to obtain an estimate of total annual tonnage. Given 7.5 tons per TEU, an annual throughput of 200,000 TEUs equates to 1.5 million tons. Additional clarification in the form of sailing drafts and the percentage of cargo by vessel size can be found in response to comment 7(f).

HQUSACE Assessment: In order to better understand the economic analysis, it would be helpful to have information on the number of empty and loaded containers for the existing condition as well as the future “without” and “with” project conditions. If actual data is not available provide an estimate from persons knowledgeable about the facilities operations.

Response: In response to the comment, a review was made of the average number of “empty versus loaded containers” for the region and the U.S. based on available data. The results showed that the ratio of loaded to light containers for the Houston terminals in 2008 is 76 percent. The average of the 2004-08 ratios for all U.S. ports, as aggregated from the American Association of Port Authorities (AAPA) website data, is 64 percent. As a point of comparison

data for 1995-08, also found at the AAPA website, showed that 2004-08 average ratio represents an increase over the 1995-99 average ratio of 61 percent.

Ideally, the SWG report data should recognize the ratio of loaded versus empty container. While the SWG report does not explicitly account for empty containers, the use an average weight of 7.5 short tons per TEU accounts for empty containers (Economic Appendix, p. 134). During the 2007-2008 study analysis period Freeport personnel confirmed that a weight of 7.5 short tons per TEU was reasonable when considering loaded and light containers. This factor was subsequently applied to the TEU throughput estimate used for the analysis. It should be recognized that an average weight of 7.5 short tons per TEU is considerably lower than the average weight of a loaded TEU commonly cited. An average weight of 10 long tons per loaded TEU was used in the Panama Canal Study prepared for APL by Drewry Shipping Consultants, LTs, November 2005 (p. 1). Data as obtained from the global security website notes that the average loaded container weighs about 10 to 12 (long) tons. It is also noted at that website that modern container vessels may be carrying 12 to 14 long tons per TEU. (<http://www.globalsecurity.org/military/systems/ship/container-types.htm>). In the absence of empirical data given that the Freeport terminal will be new, the average of 7.5 short tons per TEU is believed reasonable. Additionally, the combined effect of using loaded versus light container ratios of 64 to 75 percent and average weights of 10 to 14 tons produces similar results as the current report application of 7.5 short tons per TEU. ~~Presentation of the effect of using a loaded to light ratio based on the mid point of 64 to 75 percent and the midpoint between 10 and 14 long tons per TEU will incorporated into the sensitivity analysis.~~

FRC Discussion: Response is adequate.

Required Action-2: Comment resolved. No additional work required. Strike last sentence of Response.

Action-2 Taken: No Change.

HQUSACE Assessment-2: The concern is resolved. See page 140 of Volume II Economics Appendix.

(8) Upper Stauffer Channel, Economic Appendix.

Economic Appendix, page 130, Upper Stauffer Channel – The economic analysis of the Stauffer Channel does not clearly define the existing condition, or the future “without” and with project conditions. Some specific concerns with this analysis are as follows:

(a) Alternative Ports. The report does not explain why the only alternative port considered is Galveston, Texas. It appears that crew boats, supply vessels and seismic vessels could dock at a variety of locations along the Gulf Coast. Are Galveston and Freeport the only locations where these types of vessels can be berthed and serviced?

District Response: Galveston was considered as the only alternative port as it is the closest alternative and/or the next most likely least cost alternative. The homeports for the vessels include Louisiana as well as oversea locations. Freeport or Galveston is used by Louisiana vessels rather than traveling home; this is particularly helpful if urgent and quick repairs are needed. Additionally, Freeport serves as an alternative for activities associated with supply purchases, crew emergencies, and storm refuge. Freeport has a 4 hour savings in travel time over Galveston in reaching the open waters of the Gulf of Mexico.

Discussion: The response is adequate.

Required Action: Implement the response. The revised report will state that Galveston was considered as the only alternative port as it is the closest alternative and/or the next most likely least cost alternative. The homeports for the vessels include Louisiana as well as oversea locations. Freeport or Galveston is used by Louisiana vessels rather than traveling home; this is particularly helpful if urgent and quick repairs are needed. Additionally, Freeport serves as an alternative for activities associated with supply purchases, crew emergencies, and storm refuge. Freeport has a 4 hour savings in travel time over Galveston in reaching the open waters of the Gulf of Mexico.

Action Taken: Transportation savings benefits of the proposed channel dredging were evaluated based on a transportation costs between Freeport and the most likely alternative port, Galveston. Other alternatives of further distance were not evaluated as the focus of the analysis was to identify minimum savings based on review concerns. Transportation savings benefits were calculated for offshore, seismic and cargo vessels. Transportation cost savings were calculated for channel depth alternatives between 20 and 30 feet. The sensitivity analysis evaluated the effect of increasingly more conservative assumptions. The goal of this sensitivity and those performed for the other commodities was determination of the effect of less traffic and lower utilization. For purpose of the base and sensitivity analyses, the relationship between design draft and loaded draft found from the Galveston and Bayou Lafourche vessel records was applied to Freeport base of approximately 420 offshore supply vessels, 55 seismic vessels, and 48 cargo vessels. The use of these ports provided for a wider distribution of vessels that are generally not constrained by channel depth. As shown in the appendix, the upper range of drafts, design and sailing, are clustered around 22-25 feet (Table 123)

HQUSACE Assessment: This comment is partially resolved. It is noted that there is an inconsistency between the text of the report, which states that benefits optimize at 25 feet, and the tables regarding the depth of the NED plan

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report. Ensure Tables and write-up consistent.

Action-2 Taken: See Tables 61 through 65.

HQUSACE Assessment-2: The concern is unresolved. Table 63 shows highest excess benefits at 26 feet. Table 65 shows highest net excess benefits at 25 feet. A footnote explanation is needed on page 9-79 that states traffic levels did not increase beyond current levels.

Action-3 Taken: A footnote was not added but more detailed explanation is provided in the revised economic appendix, and additional explanation is provided in this response to comment. Specifically, it is noted in the Economic Appendix that the results of the sensitivities show that the BCR remains above unity if the 2008–2067 traffic growth rate of 1.1 percent; however, the BCRs fall below unity for all alternatives if the traffic growth rates falls below 0.9 percent. The variable with the greatest sensitivity is the number and sailing drafts for OSVs. Due to the variability associated with the sensitivities and shown in Tables 131-132 (Appendix) and Tables 63-64 (Main Report), the average annual benefit calculations were assumed to be best represented by the average of the transportation savings from the base and the sensitivities. The result of averaging the benefits from the base and the sensitivities produces a NED of 25 feet; Table 133 (Economic Appendix) and Table 65 (Main Report) presents the benefits estimated from the average of the range of benefits. Tables 133 and 65 also present the economic summary data from application of the average annual construction cost inputs. The results of the analysis displayed in Tables 133 and 65 show that the 25-foot depth alternative produces the maximum net excess benefits.

HQUSACE Assessment: The concern is resolved. A footnote was not added but more detailed explanation is provided in the revised economic appendix, and additional explanation is provided in the above response.

(b) Fleet Forecast. The existing and future fleets expected to use the Stauffer Channel are only vaguely defined. The report states, “Channel traffic presently consists of a limited number of seismic and crew vessels.” The report needs to be more specific regarding the number of vessels currently using the channel. Also, the report needs to be clear about how the number of vessels expected to use the channel in the future “without” and “with” project conditions was determined. The transportation benefits are based 312 supply vessels and 32 seismic vessels, however no documentation is provided in the report to support this claim. The report needs to provide complete documentation of the existing fleet and a clear basis for the fleet forecast that was adopted. Guidance on fleet forecasting is provided in ER 1105-2-100, Appendix E, E-10.d.(4)(a).

District Response: Details associated with Upper Stauffer channel traffic will be included in the revised report. Clarification of existing and future traffic levels will be outlined. The estimated number of vessels using the project was identified based on industry input. Unfortunately, while they are required to report, the types of vessels using lay-berth and obtaining supplies do not

report to the Corps Waterborne Commerce Statistics Center. Better documentation will be sought for the 312 supply vessels and 32 seismic vessels used for the base benefit calculations given the guidance outlined in ER 1105-2-100, Appendix E, E-10.d.(4)(a).

Discussion: The response is provisionally adequate.

Required Action: Implement the response. The revised report will include specific details associated with the existing and the without and with project vessel fleet; recognizing that existing traffic is limited due to the shoaled condition of the channel. As noted in response to the comment, while vessel operators are required to report, the types of vessels using lay-berth and obtaining supplies are not reported to the Corps Waterborne Commerce Statistics Center. The center is aware of this problem. Recognizing data collection constraints, better documentation has been sought for the 312 supply vessels and 32 seismic vessels used for the base benefit calculations given the guidance outlined in ER 1105-2-100, Appendix E, E-10.d.(4)(a) to the extent possible. The results of this search will be included in the revised report.

Action Taken: As outlined starting on p. 160 of the Appendix, the Upper Stauffer Channel presently serves approximately 20 to 30 offshore vessels per month. This compares to a count of 20 to 30 vessels per week when more depth was available. The number of vessels and the range of sailing drafts able to use the channel have diminished due to shoaling. As noted on p. 162, the without project condition is characterized by shoaling induced depth reductions. A channel depth of 18 feet was assumed to be available for 2014-2064. Under the without project future, the channel would continue to serve OSVs vessels. As outlined starting on p. 164, loaded drafts and general vessel size data, as indicated by net registered tons and gross tons found for other U.S. Gulf Coast ports serving offshore supply vessels were found in the Corps' Entrance and Clearance files for Galveston and Bayou LaFourche (Louisiana). These data were used to help define the range of vessels using other U.S. Gulf Coast ports. Tables 104 and 105 summarize the range of loaded drafts for vessels presently using Galveston and Bayou Lafourche. The vessels drafts shown in Tables 103-104 represent the range of vessels that Freeport has lost due to insufficient water depth and hazardous conditions. The focus of comparative port and fleet investigations was to determine sailing drafts, light drafts, and associated vessel characteristics. An additional focus was to help determine the range of loaded drafts for ports with less restrictive depths.

HQUSACE Assessment: This comment is resolved.

(c) Underkeel Clearance. The report also states that the pilots prefer to have a 10 percent channel clearance plus 2 feet. However underkeel clearance assumptions used in the analysis should be based on actual vessel operating practices, which are not documented. Guidance is contained in ER 1105-2-100, Appendix E, E-10.e.(3)(b).

District Response: See response to (4) Traffic Rules, pages 6 and 25 above.

Discussion: See Traffic Rules.

Required Action: Implement the response. Use actual operating practice. The text will be revised to empirical data associated with clearance practices (Table 11 of the Economic Appendix pre-ABF). Additional actual vessel operating data will be included in the revised report.

Action Taken: The text will be revised to empirical data associated with clearance practices (Table 11 of the Economic Appendix pre-ABF). Additional actual vessel operating data will be included in the revised report.

HQUSACE Assessment: This comment is resolved.

(d) Incremental Analysis. The report provides no incremental analysis of channel dimensions for the Stauffer Channel. Channel dimensions must be incrementally justified based on a clearly defined fleet and actual operating practices. Guidance is provided in ER 1105-2-100, Chapter 2, paragraph 2-4.e.

District Response: Incremental analysis for the Lower Stauffer was provided in the report. Supplemental documentation will be provided where needed. Table 80 of the Economic Appendix shows the transportation cost per ton by one-foot channel increments between 40 and 50 feet. Table 83 presents the total transportation savings benefits in one-foot channel increments between 40 and 50 feet. Table 85 shows the annual savings for the base fleet for channel depths of 40 to 45 feet in one-foot increments and also shows the annual savings for the 50-foot alternative. The transportation savings benefits for 45 to 50 feet were not presented in one-foot increments for the base fleet; however, the data that follows provides expansion of Table 83 as presented. Table 83 of the report will be expanded to include all depths.

Table 83 Revision
Economic Analysis Summary *
Base Fleet Application

October 2008 Dollars and Average Annual Values Based on 2016-2064 at 4.625%

Channel	Interest			Average	Average	Total	Average	Net	BCR
	First	During	Total	Annual	Annual	Annual	Annual	Excess	
Depth	Cost	Construction	Investment	Cost	O&M	Cost	Benefits	Benefits	
41 feet	\$8,740.7	\$181.4	\$8,922.2	\$460.7	\$195.1	\$655.8	\$757.9	\$102.1	1.2
42 feet	\$9,209.9	\$191.7	\$9,401.6	\$485.4	\$205.6	\$691.0	\$1,438.0	\$747.0	2.1
43 feet	\$9,679.0	\$202.0	\$9,881.0	\$510.2	\$216.0	\$726.2	\$2,050.9	\$1,324.7	2.8

44 feet	\$10,148.1	\$212.3	\$10,360.4	\$535.0	\$226.5	\$761.5	\$2,225.7	\$1,464.2	2.9
45 feet	\$10,617.2	\$222.6	\$10,839.8	\$559.7	\$237.0	\$796.7	\$2,368.9	\$1,572.2	3.0
46 feet	\$11,252.1	\$238.6	\$11,490.7	\$593.3	\$251.2	\$844.5	\$2,386.1	\$1,541.6	2.8
47 feet	\$11,887.0	\$254.6	\$12,141.6	\$626.9	\$265.3	\$892.3	\$2,402.0	\$1,509.7	2.7
48 feet	\$12,522.0	\$270.5	\$12,792.5	\$660.5	\$279.5	\$940.0	\$2,413.6	\$1,473.6	2.6
49 feet	\$13,156.9	\$286.5	\$13,443.4	\$694.1	\$293.7	\$987.8	\$2,413.6	\$1,425.8	2.4
50 feet	\$13,791.8	\$302.5	\$14,094.3	\$727.8	\$307.8	\$1,035.6	\$2,413.6	\$1,378.0	2.3

* Totals may not calculate exactly due to rounding.

Transportation savings benefits for the Upper Stauffer Channel have been revised based on channel depth alternatives from 16 to 30 feet. The results of this Upper Stauffer Channel analysis are being finalized and are addressed to some extent in response to comment “(4) National Economic Development Plan”. Indications are that the maximum net excess benefits are 26 feet based on the existing distribution of vessels in the world fleet by draft and application of an average annual growth rate of 1.0 percent for 2014-2064. The growth rate, base vessel, and forecast are presently being reviewed.

Discussion: The response is adequate.

Required Action: Implement the response. The data outlined in the district response will be presented in the revised report. Incremental analysis for the Lower Stauffer will be outlined in the report and supplemental documentation will be provided where needed.

Action Taken: Tables 93-102 provide the incremental analysis for the Lower Stauffer. Tables 123-129 provide the incremental analysis for the Upper Stauffer.

HQUSACE Assessment: The report now provides incremental analysis for both Lower and Upper Stauffer Channels. It is noted that, based the information provided in Table 104, net NED benefits maximize at -47 feet for the Lower Stauffer channel rather than -45 feet, as stated on page 147 of the Economic Appendix.

Response: The text will be revised based on the use of “Fleet Sensitivity No. 2” as the base fleet. This will result in maximum net excess benefits at 45 feet.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report. Display Incremental Analysis.

Action-2 Taken: Tables 106 and 107 display the base fleet and the incremental analysis for “Fleet Sensitivity No. 2”.

HQUSACE Assessment-2: The concern is not resolved. Table 106 shows the base fleet maximum net benefits at 45 feet. However, Table 107 shows Fleet sensitivity No. 2 with maximum net benefits at 47 feet.

Action-3 Taken: Tables 109 and 110 (formerly 106 and 107 respectively) have been modified. The alternatives producing the highest net excess benefits show an optimal depth of 45 feet for the base analysis and sensitivity analyses 1 and 2. Sensitivity analyses show various results with possible varying optimal depths. The text was modified to reflect the results in the table.

HQUSACE Assessment: The above action taken and table revision **have resolved the concern.**

8.J. MCACES COST ESTIMATE.

(1) Value Engineering.

The Engineering Appendix does not indicate discussion about VE. The district should address VE in the Engineering Appendix to comply with the requirements prescribed in ER 1110-2-1150 and ER 11-1-321.

District Response: Concur. VE study was done and the report results will be incorporated into the Engineering Appendix.

Discussion: The response is adequate.

Required Action: Incorporate VE study report results into the Engineering Appendix.

Action Taken: VE study has been performed and is attached to Engineering Appendix.

HQUSACE Assessment: **The concern is resolved** by the response. A VE section was added to the Engineering Appendix.

(2) Cost Estimate Narrative. There are no notes on the MCACES estimate describing the basis and assumptions used in the development of the estimate. There is no information about the factors and rates that were used for escalating costs and for determining construction management and PED costs. It is not very clear whether the correct factors and rates were properly applied. The district should include a narrative about the development of the cost estimate in the MCACES report. Guidance for development of estimates is described in ER 110-2-1302 and EI01D010.

District Response: A narrative was provided and included in the Cost Section of the Engineering Appendix.

Discussion: HQ requested the inclusion of information on the development of costs in the cost estimate itself; not just in TPCS. However, the District explained that Walla Walla (Cost PCX) directed that S&A, etc. only be in TPCS. HQUSACE will discuss the issue with PCX. No berthing area costs are in estimate at this time.

Required Action: Incorporate dredging for berthing areas in the cost estimate. Since the AFB was conducted, HQ has determined that paragraph 8 in ER-1110-2-1302 requires a narrative to support the cost estimate. Therefore study documentation is required to include notes/narrative with the MCACES estimate.

Action Taken: Berthing area costs are included in the cost estimate.

HQUSACE Assessment: The concern is resolved by the response and changes to the cost estimate.

(3) Cost Risk Analysis, page 71, paragraph 3. Paragraph 3, page 71 of the Engineering Appendix states “A formal Cost Risk Analyses was performed with the cooperation of the Cost Engineering Directorate of Expertise (DX) of the Walla Walla District in August 2008.” However, there is no report of the analysis included in the report. The district should include the results of the cost risk analysis in the report as prescribed in ECB 2007-17.

District Response: At the September 2008 timeframe of the risk analysis development, the ECB 2007-17 was the only guidance and did not require a report. Since then, the Walla Walla Cost DX has developed a standardized report for the risk analysis and suggests the report's Executive Summary be placed within the Cost Appendix.

Discussion: The District will need to get the report from Walla Walla.

Required Action: Incorporate the cost risk report in future submittals.

Action Taken: Feasibility Analysis Report is part of Cost/Engineering Appendix.

HQUSACE Assessment: The concern is resolved. A CSRA report was added to the Engineering Appendix.

8.K. REAL ESTATE APPENDIX.

(1) Exhibit “C” Map Sheet PA Index, page 1, paragraph 3.

This paragraph references Exhibit “C” Map Sheet PA Index. It is not part of the plan. It is not referenced in the list of exhibits on page II. It is also referenced in paragraph 4.

District Response: Exhibit "C" comprises of all the maps depicting Placement Areas, Pipeline Easement, Channel Improvement Easements and Mitigation Sites. We will stamp the Cover Sheet "Exhibit "C"

Discussion: The response is adequate.

Required Action: Stamp the Cover Sheet "Exhibit "C"

Action Taken: Cover Sheet stamped.

HQUSACE Assessment: **This concern is resolved.**

(2) Non Standard Estate Permanent Disposal Area Easement page 3.

The Appendix states that this non standard estate was approved. Was this estate approved by the District Chief of Real Estate, by placing the body of the non-standard estate in the REP of a feasibility report or by request for approval forwarded prior to use of such estate through Division to HQUSACE (ATTN: RE COP) for appropriate coordination, review, and final determination?

District Response: The non-standard estate used in this project was approved by Division and ultimately by HQUSACE. It was originally requested to be approved for use on the Houston/Galveston Navigation Channels Project back in 2000. This Estate has been used ever since then.

Discussion: The response is adequate.

Required Action: Provide the document from 2000 that gave the approval of these estates.

Action Taken: Real Estate was unable to find document for approval from the Houston/Galveston Navigation Channels Project. It is requested that the non-standard estate be reapproved for the Freeport Harbor project.

HQUSACE Assessment: This concern is not resolved. The Real Estate Appendix states that this non-standard estate was approved. However, there was no non-standard estate in the REP. Was this estate approved by the District Chief of Real Estate, by placing the body of the non-standard estate in the REP of a feasibility report or by request for approval forwarded prior to use of such estate through Division to HQUSACE (ATTN: RE COP) for appropriate coordination, review, and final determination?

Non-standard estates are specific to the project being reviewed and cannot be used for other projects. Please note that each project requires a new approval process through Real Estate and Counsel for the non-standard estate.

For all non-standard estates not within the scope of District's approval authority, approval may be obtained either by:

(a) Placing the body of the non-standard estate in the REP of a feasibility report or other study decision document that is approved by HQUSACE (must have been reviewed by the RE COP). Typically non-standard estates will be included in the Real Estate Plan of the feasibility report or other study decision document for review in detail during the planning review process.

Or,

(b) By request for approval forwarded prior to use of such estate through Division to HQUSACE (ATTN: CEMP-CR) for appropriate coordination, review, and final determination.

Response: The Non-Standard estate used in this project was previously approved by Division and ultimately by HQUSACE. It was originally requested to be approved for use on the Houston/Galveston Navigation Channels Project back in 2000. However, since we are unable to find approval document, we are placing the body of the Non-Standard Estate in the REP to be approved with Feasibility Report.

FRC Discussion: Response is adequate.

Required Action-2: Implement Response for the draft Report.

Action-2 Taken: See page 3 of the REP.

HQUSACE Assessment-2: The text on page 3 of Appendix C the Real Estate Plan has resolved the concern.

(3) *Tract Acquisition, page 5.* The document states that the sponsor already owns LERRs, but the chart shows an acquisition of one tract? Please clarify.

District Response: Sponsor currently owns all the real estate required for the proposed project. However in anticipation of the project, the sponsor went ahead and acquired the tracts before the execution of any PPA. In order to get credit for these costs we added them to the Real Estate Costs. These properties have been acquired within the last 5 years. Sponsor was advised of the risks of acquiring land prior to any PCA. See Exhibit "B".

Discussion: The response is adequate.

Required Action: Clarify LERRs.

Action Taken: LERRs clarified in REP.

HQUSACE Assessment: This concern is resolved.

(4) Utility Relocations, page 13.

0113 references utility relocations administration, 20 pipelines \$80,000 dollars? Pg 14 # 19 states 2 known pipelines but no relocations needed. Pg 183 of the feasibility report says 1 known pipeline. Please clarify and be consistent throughout.

District Response: Concur. The Real Estate Plan states that there are no known facilities /utilities relocation within the project area. Feasibility Report, page 183 will be revised.

Discussion: The response is adequate.

Required Action: Feasibility Report, page 183 will be revised.

Action Taken: Facility Removals/Deep-Draft Utility Relocations section on page 235 has been revised.

HQUSACE Assessment: This concern is resolved.

(5) Exhibit A, page 14.

22 references Exhibit “A” a letter to the sponsor but Exhibit “A” is the assessment of the sponsor’s acquisition capabilities.

District Response: Believe the reviewer has read this wrong. The exhibits correspond with index and page and product.

Discussion: The response is adequate.

Required Action: Implement the response.

Action Taken: Exhibits Correspond.

HQUSACE Assessment: This concern is resolved.