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15 September 1983
New Orleans District

DATA FOR TESTIFYING OFFICERS ON FY 1985 CIVIL WORKS BUDGET
LAKE PONTCHARTRAIN, LOUISIANA, AND VICINITY

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REFERENCE ER 1-3-240 WHICH STATES THAT BUDGETARY INFORMATION IS NOT TO BE RELEASED OUTSIDE THE DEPARTMENT OF THE ARMY

DATA FOR TESTIFYING OFFICERS ON FY 1985 CIVIL WORKS BUDGET

LAKE PONTCHARTRAIN, LOUISIANA AND VICINITY

BENEFIT-COST RATIO:

a. Comparison of Remaining B/C Ratios. - The remaining B/C ratio is 4.5 to 1, a decrease of 11.7 from that last presented to Congress (16.2 to 1). This change is due to the incorporation of the methodology contained in the Reevaluation Study "Lake Pontchartrain, Louisiana, and Vicinity Hurricane Protection Project," dated 22 December 1982, and brought to 1983 prices. Remaining B/C ratios are based on comparison of the benefits remaining to be realized by completing construction of the project and the cost remaining as of the budget year.

b. Annual Benefits: The following tabulation is provided for the purpose of comparing the Benefits presented in the justification paragraph of the Justification Sheet.

	TOTAL BENEFITS		
Annual Benefits	Last Est. Submitted to Congress ($)	Current Estimate at Project Interest Rate ($)	Change From Last (+ or -$)
Flood Control	$351,780,000	$196,319,000	
Inundation Reduction 1/	(336,688,000)	(196,319,000)	-140,369,000 2/
Intensification	(15,092,000)	0	-15,092,000 3/
Area Redevelopment	4,559,000	0	-4,559,000 4/
Total Annual Benefit	356,339,000	196,319,000 5/	-160,020,000
Interest Rate Used	3-1/8%	3-1/8%	

1/ Essentially complete protection will be provided to 151,580 acres, comprised of 45,640 acres of urban type development, 10,970 acres of partially developed land, 21,160 acres of open land, and 73,810 acres of woodland, swamp and/or marsh. Protection in varying degrees will also be provided for an additional 350,200 acres comprised of 2,400 acres of urban development, 7,600 acres of open land, and 340,200 acres of woodland, swamp and/or marsh. The current value of all lands is $7,012,000,000 and of improvements is $13,545,000,000. 1980 population: 858,000.

2/ Decrease due to the incorporation of the methodology contained in the Reevaluation Study "Lake Pontchartrain, Louisiana, and Vicinity Hurricane Protection Project," dated December 1982, and brought to 1983 prices.

3/ Primarily due to the lack of nearby land with appreciably lesser hurricane flood risks, the development pattern of the New Orleans Metropolitan Area suggests little evidence that significant levels of benefits exist which would qualify as either intensification or location benefits.

4/ Area Redevelopment benefits are not claimed in the reanalysis.

5/ Chalmette Unit will be reported separately upon completion of revised EIS. See WDTO-16 and YDTO-5.

BENEFIT-COST RATIO: (Continued)

b. Annual Benefits (Continued)

Annual Benefits	Benefits & Costs When 1st Funded for Construction In FY 1967 1/ ($)	Remaining Benefits/Cost: Last Presented to Congress ($)	Remaining Benefits/Cost: Current Estimate At Project Interest Rate ($)	Change From Last (+ or -$)
Flood Control				
Inundation Reduction 2/	$51,389,400	$232,209,000	$110,432,000	-121,777,000 6/ 7/
Intensification	344,000	12,798,000	-	-12,798,000 8/
Area Redevelopment	--	3,135,000	-	-3,135,000 9/
Total Annual Benefits	$51,733,400	$248,142,000	$110,432,000	
Total Annual Costs	$2,945,500	$15,320,000	$24,351,000	+9,031,000 5/
B/C Ratio	17.6	16.2	4.5 3/ 4/	-11.7
Interest Rate Used	3-1/8%	3-1/8%	3-1/8%	

1/ Based on cost estimate effective 1 July 1975.

2/ Essentially complete protection will be provided to 151,580 acres, comprised of 45,640 acres of urban-type development, 10,970 acres of partially developed land, 21,160 acres of open land, and 73,810 acres of woodland, swamp, and/or marsh. Protection in varying degrees will also be provided for an additional 350,200 acres comprised of 2,400 acres of urban-type development, 7,600 acres of open land, and 340,200 acres of woodland, swamp, and/or marsh. The current value of all lands is $7,012,000,000 and current value of all improvements is $13,544,000,000. 1980 population was 858,000.

3/ Chalmette Unit will be reported separately upon completion of revised EIS. See WDTO-16 and YDTO-5.

4/ Decrease due to the incorporation of the methodology contained in the Reevaluation Study "Lake Pontchartrain, Louisiana, and Vicinity Hurricane Protection Project," dated December 1982, and brought to 1983 prices.

5/ Increase due to reanalysis of costs contained in the Reevaluation Study cited above.

6/ Agriculture benefits are not claimed in the reanalysis due to their relative unimportance.

7/ Decrease due to old benefits being proportioned on costs remaining. This tended to overstate remaining benefits, as remaining costs were inflated as compared to sunk costs.

8/ Primarily due to the lack of nearby land with appreciably lesser hurricane flood risks, the development pattern of the New Orleans Metropolitan Area suggests little evidence that significant levels of benefits exist which would qualify as either intensification or location benefits.

9/ Area Redevelopment benefits are not claimed in the reanalysis.

ALLOCATION AND APPORTIONMENT OF FIRST COSTS:

Purpose	Allocation of First Costs: Based on Last Estimate Presented to Congress	Allocation of First Costs: Current	Percent of Current Total
Flood Control	$609,857,000	$812,200,000	94
Navigation (Seabrook Lock)	35,143,000	53,800,000	6
TOTAL	$645,000,000	$866,000,000	100

Purpose	Apportionment of First Cost: Based on Estimate Last Presented to Congress		Based on Current Estimate: Costs		Based on Current Estimate: Percent of Total	
	Federal	Non-Federal	Federal	Non-Federal	Federal	Non-Federal
Flood Control	$403,857,000	$206,000,000	$530,200,000	$282,000,000	61	33
Navigation (Seabrook Lock)	35,143,000	0	53,800,000	0	6	0
TOTAL	$439,000,000	$206,000,000	$584,000,000	$282,000,000	67	33

The apportionment of cost is based on the cost sharing formula as outlined in House Document No. 231, 89th Congress, and authorized by Flood Control Act of 1965. H.D. No. 231 specifies that local interests contribute in cash or equivalent work not less than 30 percent of the total project cost, said 30 percent to include the fair market value of lands, damages, and alterations (relocations) for the construction of the project.

One-half the cost of the Seabrook Lock is allocated to the hurricane protection purpose and these costs are apportioned in accordance with the 70/30 percent cost sharing formula. The other half of the cost of Seabrook Lock is allocated to the navigation purpose and is Federal cost. In addition, local interests are required to contribute the capitalized cost of operation, maintenance and repair of Rigolets Lock, and these funds are to be used by the Federal Government in project construction.

Apportionment of First Costs: Last Estimate to Congress: Federal	Last Estimate to Congress: Non-Federal	Current Estimate: Federal	Current Estimate: Non-Federal
$439,000,000	$206,000,000	$584,000,000	$282,000,000

ALLOCATION AND APPORTIONMENT OF FIRST COSTS: (Continued)

	Details of Apportionment	Apportionment		
	Project Costs to be Apportioned	Federal	Non-Federal	
To be apportioned on 70/30 basis:	$810,970,000			
70% of Project Costs:		$557,450,000		
30% of Project Costs:			$253,520,000	
One-Half the cost of Seabrook Lock that is allocated to the Navigation purpose:	53,800,000	53,800,000		
Cost of Beautification:	1,000,000	1,000,000		
Cost of Realinement at Florida Avenue Container Plant	230,000		230,000	1/
Subtotal	$866,000,000	$612,250,000	$253,750,000	
Capitalized cost at 3-1/8% of the Excess equivalent work by local interest above 30% in the New Orleans East Unit		-4,750,000	+4,750,000	
OM&R of Rigolets Lock to be contributed by local interests and used by the Federal Government in construction		-23,500,000	+23,500,000	1/
Total Project Cost (Ultimate)	$866,000,000	$584,000,000 2/	$282,000,000	3/
Reimbursement		+10,000,000	-10,000,000	
Total Current Estimate (Allocations)		$594,000,000	$272,000,000	

1/ See YDTO - 11, Local Cooperation, paragraphs (a)(4) and (5).

2/ Excludes $10,000,000 which local interests are required to reimburse the Federal Government for costs allocated due to the Water Resources Development Act of 1974. Section 92 specifies that local interests may agree to pay the unpaid balance of their required cash payment, due in annual installments, in accordance with a specific formula.

3/ Includes $10,000,000 which local interests are required to reimburse the Federal Government for costs allocated due to the Water Resources Development Act of 1974. Section 92 specifies that local interests may agree to pay the unpaid balance of their required cash payment, due in annual installments, in accordance with a specific formula.

FINANCIAL DATA:

a. Comparison of Federal Cost Estimates (Full Funding): The current Federal cost estimate of $594,000,000 is an increase of $126,000,000 over the last estimate ($468,000,000) submitted to Congress (FY 1984). This change includes increases of $14,000,000 for adjustments in the estimated inflation allowance through the construction period, $149,700,000 based on design modification and 10,300,000 in Engineering and Design, and $31,620,000 in Supervision and Administration based on a reanalysis of requirements. These increases were partially offset by decreases of $180,000 based on savings from completed work, $4,027,000 based on actual contract bids, and $75,413,000 due to reanalysis of Federal cost sharing requirements.

b. Comparison of Non-Federal Cost Estimate (Full Funding). The current non-Federal cost estimate of $272,000,000 is an increase of $95,000,000 over the latest estimate ($177,000,000) submitted to Congress. This change includes increases of $38,900,000 based on design modifications, $25,228,000 for Lands and Damages and Relocations, and $62,872,000 due to reanalysis of non-Federal cost sharing requirements. These increases were offset by decreases of $32,000,000 due to adjustments in the estimated inflation allowance through the construction period.

c. Comparison of Preconstruction Cost Estimate. - Not applicable.

d. Comparison of Project Cost Estimate (Full Funding). -

Feature	Latest Estimate to Congress FY 1984 Budget	Current Estimate	Change from Latest to Congress: Total	Price Level	Other
BARRIER UNIT					
Lands & Damages	$3,792,000	$3,773,000	$ -19,000	-13,000	-6,000 1/
Relocations	227,000	235,000	+8,000		+8,000 1/
Locks	75,170,000	102,810,000	+27,640,000	-1,300,000	+28,940,000 1/
Roads, Railroads & Bridges	245,000	245,000	-	-	-
Channels & Canals	7,420,000	8,453,000	+1,033,000	-	+1,033,000 1/
Breakwaters & Seawalls	6,030,000	9,010,000	+2,980,000	-175,000	+3,155,000 1/
Levees & Floodwalls	58,820,000	71,879,000	+13,059,000	-	+13,059,000 1/
Flood Control & Diversion Structure	98,799,000	167,232,000	+68,433,000	-268,000	+68,701,000 1/
Permanent Operating Equip.	17,000	13,000	-4,000	-4,000	-
Engineering & Design	$ 14,350,000	$ 17,080,000 2/	$ -2,730,000	$ 150,000	$ 2,580,000 1/
Supervision & Administration	10,790,000	34,380,000	-23,590,000	+135,000	+23,455,000 1/
Subtotal - BARRIER UNIT	$275,660,006	$415,110,000	$ 139,450,000	$-1,475,000	$140,925,000

1/ Based on LMNED-DG letter dtd 22 Dec 82 w/LMVED-TD 1st Ind dtd 27 Apr 83, approval to update Barrier Plan Cost Estimate Reevaluation Report as contained in draft.

2/ Includes $58,000 for U.S. Fish and Wildlife Service.

FINANCIAL DATA: (Continued)

d. Comparison of Project Total Cost Estimate (Full Funding). - (Continued)

Feature	Latest Estimate to Congress FY 1984 Budget	Current Estimate	Change from Latest to Congress: Total	Price Level	Other
NEW ORLEANS EAST UNIT					
Lands & Damages	$ 13,287,000	$ 36,357,000	$ +23,070,000	$+1,269,000	$ +21,801,000 1/
Relocations	12,088,000	16,133,000	+4,045,000	+105,000	+3,940,000 1/
Levees & Floodwalls	95,896,000	182,766,000	+86,870,000	+15,963,000	+70,907,000 1/
Pumping Plants	19,484,000	19,484,000	0	-	-
Engineering & Design	15,200,000	23,670,000 2/	+8,470,000	-2,195,000	+10,665,000 1/
Supervision & Administration	8,200,000	14,510,000	+6,310,000	-1,182,000	+7,492,000 1/
Subtotal-NEW ORLEANS EAST UNIT	$164,155,000	$292,920,000	$+128,765,000	$+13,960,000	$+114,805,000

1/ Based on LMNED-DG letter dtd 22 Dec 82, W/LMVED-TD 1st Ind dtd 27 Apr 83, approval to update Barrier Plan cost estimate contained in draft Reevaluation Report.

2/ Includes $13,000 for U. S. Fish and Wildlife Service.

NEW ORLEANS WEST UNIT					
Lands & Damages	$ 1,140,000	$ 1,140,000	0		-
Relocations	1,345,000	715,000	$-630,000	-	-630,000 1/
Levees & Floodwalls	50,015,000	39,805,000	-10,210,000	-	-10,210,000 1/
Engineering & Design	3,220,000	4,230,000	+1,010,000	+90,000	+920,000 1/
Supervision & Administration	1,865,000	3,910,000	+2,045,000	+10,000	+2,035,000 1/
Subtotal-NEW ORLEANS WEST UNIT	$57,585,000	$ 49,800,000	$-7,785,000	+100,000	-7,885,000

1/ Based on LMNED-DG letter dtd 22 Dec 82, w/LMVED-TD 1st Ind dtd 27 Apr 83 approval to update Barrier Plan Cost estimate as contained in draft Reevaluation Report

FINANCIAL DATA: (Continued)

d. Comparison of Project Total Cost Estimate (Full Funding). - (Continued)

Feature	Latest Estimate to Congress FY 1984 Budget	Current Estimate	Change from Latest to Congress: Total	Price Level	Other
MANDEVILLE UNIT					
Levees & Floodwalls	$ 1,125,000	$2,420,000	$ +1,295,000	$ +134,000	$-1,161,000 1/
Engineering & Design	240,000	240,000	0	-	-
Supervision & Administration	80,000	210,000	+130,000	-4,000	+134,000 1/
Subtotal-MANDEVILLE UNIT	$ 1,445,000	$ 2,870,000	$ +1,425,000	$ +130,000	$ 1,295,000

1/ Based on LMNED-DG letter dtd 22 Dec 82 w/LMNED-TD 1st Ind dtd 27 Apr 83 approval to update Barrier Plan cost estimate as contained in draft Reevaluation Report.

CHALMETTE UNIT					
Lands & Damages	$ 7,213,000	$ 7,213,000	0	$ -	$ -
Relocations	3,879,000	3,890,000	+11,000	-104,000	+115,000 1/
Levees & floodwalls	107,530,000	80,700,000	-26,830,000	-16,315,000	-10,515,000 2/
Permanent Operating Equip.	21,000	21,000	0	-	-
Engineering & Design	14,035,000	7,450,000 4/	-6,585,000	-6,845,000	+260,000 3/
Supervision & Administration	13,477,000	6,026,000	-7,451,000	-7,451,000	-
Subtotal-CHALMETTE UNIT	$146,155,000	$105,300,000	$-40,855,000	$-30,715,000	$-10,140,000

1/ Based on requirement for additional drainage.
2/ Decrease based on actual contract awards and design modifications.
3/ Based on Permission to Change Project Cost Estimate dated 22 Dec 82 (Draft Reevaluation Report).
4/ Includes $3,000 for U. S. Fish and Wildlife Service.

FINANCIAL DATA: (Continued)

d. Comparison of Project Total Cost Estimate (Full Funding). - (Continued)

Feature	Latest Estimate to Congress FY 1984 Budget	Current Estimate		Change from Latest to Congress: Total	Price Level	Other
GRAND TOTAL (Federal & Non-Federal)	$645,000,000	$866,000,000		$+221,000,000	$-18,000,000	$+239,000,000
Total Federal Cost	468,000,000	594,000,000	1/	+126,000,000	+14,000,000	+112,000,000
Total Non-Federal Cost:	177,000,000	272,000,000	2/	+95,000,000	-32,000,000	+127,000,000
Cash Contribution	134,029,000	202,544,000		+68,515,000	-33,257,000	+101,772,000
Other	42,971,000	69,456,000	3/	+26,485,000	+1,257,000	+25,228,000

1/ Includes future non-Federal reimbursement of $10,000,000; ultimate estimate Federal cost is $584,000,000.
2/ Excludes future non-Federal reimbursement of $10,000,000; ultimate estimate non-Federal cost is $282,000,000.
3/ Includes $48,483,000 for lands and damages and $20,973,000 for relocations.

E&D is 7.7% of the construction cost.
S&A is 8.0% of the construction and E&D costs.

e. Contingencies. - The estimate includes $96,500,000 for contingencies, which is 16% of the uncompleted work. The estimate last presented to Congress included $70,536,000 for contingencies, which was 21% of the uncompleted work. This increase is based on adjustments in the estimated inflation allowance through the construction period.

f. Firmness of Federal Cost Estimate. - The current estimate is based on the draft Reevaluation Report, Design Memorandums, plans and specifications, contracts, and completed works, with costs projected through the construction period.

FINANCIAL DATA: (Continued)

g. Appropriation History. -

Appropriation History		
Total thru FY 1979	92,444,000	1/
FY 1980	13,320,000	
FY 1981	8,800,000	
FY 1982	13,000,000	
FY 1983	13,750,000	2/
FY 1984	15,800,000	3/
Total to date	$141,314,000	

FY 1984 Budget History			FY 1985 Budget Request
LMVD Recommendation	$16,800,000		$24,200,000
OCE Recommendation	16,800,000		17,500,000
OMB Allowance	16,800,000		
House Allowance	16,800,000		
Senate Allowance	16,800,000		
Conference Allowance	16,800,000		
Work Allowance	15,800,000	3/	
Capability			

1/ Initial construction funds received in FY 1967.
2/ Reflects a decrease of $200,000 transferred and $850,000 revoked from the project and $4,000,000 assigned as savings and slippage.
3/ Reflects a reduction of $1,000,000 assigned as savings and slippage.

h. Capability.

i. Transfers: -

FY 1983:

From	To	Month of Transfer	Amount	Reason
Lake Pontchartrain	OCE	Mar 83	$850,000	Favorable bid on Third Lift Station 945-1113 and less than anticipated earnings on Verret Closure Station 1113-1568.
Lake Pontchartrain	Mississippi River - Gulf Outlet	Jul 83	$200,000	Funds available due to favorable bid on Final Levee Enlargement Station 704-945 and are required to fund foreshore work at the Bayou Bienvenue control structure.

FY 1984: None.

Anticipated: None.

FINANCIAL DATA: (Continued)

j. Unobligated and Unexpended Balances. -

	End of FY 1983		Estimated at End of FY 1984
Unobligated Balance	$ 0	$ 0	$ 0
Undelivered Orders	0	260,000	0
Unexpended Balance	0	260,000 1/	0

1/ Construction contract earnings less than anticipated. Funds will be expended in FY 1984.

k. Comparison of Bids.

Item	No. of Bidders	Low Bid	High Bid	Government Estimate	Last Est. to Congress	Current Est. to Congress	Current Working Estimate
Pipeline Canal & Gap Closure 2nd Lift	6	$2,419,010 1/	$3,969,630	$2,827,535	$3,253,000	$1,605,000 2/	$1,605,000 2/
Station 705-945, Final Levee Enlargement	10	$ 333,200	$ 575,120	$ 360,610	$ 500,000	$ 350,000	$ 350,000
IHNC, East and West Floodwall Capping	3/			247,000	$ 350,000	$ 280,000	$ 280,000
Station 945-1113 3rd Lift	6	585,860	1,052,350	758,820	1,200,000	615,000	615,000

1/ Includes $1,037,160 for maintenance dredging.
2/ Excludes maintenance dredging.
3/ This was a negotiated 8-A item.

1. Maintenance. -

Federal. Operation and maintenance of Seabrook Lock and Rigolets Lock and navigation channel will be the responsibility of the United States. Seabrook Lock will be maintained as a feature of the Mississippi River - Gulf Outlet project. Rigolets Lock and navigation channel will be maintained and operated by the United States; the costs involved will, however, be borne by local interests who will provide a cash contribution equal to the capitalized value of the estimated annual maintenance charge for the lock. The estimated annual Federal maintenance cost for replacements is $65,000.

FINANCIAL DATA: (Continued)

Non-Federal. The estimated annual Non-Federal cost for maintenance is $1,857,000 which includes $29,000 for replacements. (Refer to YDTO-11, Local Cooperation).

STATUS AND SCHEDULE:

a. Scheduled Completion Dates:

	Last Presented to Congress/Item	Present Schedule	Remarks
Entire Project	Sep 1991	Sep 1993	Excludes Barrier and New Orleans West Units which are indefinite.
New Orleans East Unit	Sep 1988	Sep 1993	Additional outfall canals required.
Mandeville Unit	Nov 1984	Sep 1985	Delay in receiving assurances.

b. Performance - FY 84:

Last Presented to Congress/Item	Present Schedule	Remarks
New Orleans East Unit		
Complete:		
IHNC East and West Capping Floodwall	-	Advanced 9 months and completed during FY 83.
Chalmette Unit		
Initiate and Complete:		
Station 278 to 355, 2nd Lift	Initiate	Delayed 6 months due to local interests' request for design modifications completed ahead of schedule.
Complete:		
Station 945-1117 3rd Lift	-	Completed ahead of schedule
P/L Canal and Gap Closure 3rd Lift	-	Completed ahead of schedule.

c. Construction Difficulties: None.

STATUS AND SCHEDULE: (Continued)

PHYSICAL DATA CHANGES: Physical data are the same as last presented to Congress.

OTHER DATA CHANGES: The Reevaluation report constitutes a complete reanalysis for the Lake Pontchartrain project, and as such, current evaluation procedures are applicable. Under these procedures none of the project area parishes qualify for inclusion of employment (area redevelopment) benefits. Therefore, this information has been removed from the justification sheet.

LOCAL COOPERATION: (Refer to YDTO-11)

Rights-of-way Schedule for Items Which Could Be Initiated in the Remainder of the Current Fiscal Year and in the Budget Fiscal Year.

Item of Work	Action taken by District	Scheduled Date for Receipt of R/W	Date R/W Was Obtained	Scheduled Award Date Actual (A)
NEW ORLEANS EAST UNIT				
New Orleans Lakefront Levee West of IHNC	To be requested Jan 84	Jan 85		Mar 85
Citrus Back Levee, 3rd Lift Sta 176-574	To be requested Apr 84	Jul 84		Oct 84
Citrus Lakefront Levee IHNC Paris Rd FSP	Requested 18 Apr 83	Nov 83		Jan 84
New Orleans East Lakefront Levee Paris Rd Southpt FSP	To be requested Oct 83	Aug 84		Oct 84
Mandeville Unit				
Mandeville Seawall	To be requested Nov 83	Dec 83		Jul 84
Chalmette Unit				
2nd Lift Sta 278-355	To be requested Dec 83	Mar 84		Jun 84
Final Enlargement Sta 370-682	To be requested Jul 84	Oct 84		Jan 85

PROBLEMS: All questions were fully answered in last year's appropriation hearing.

ADDITIONAL INFORMATION:

a. Inner Harbor Navigation Canal Flooding. - Subsequent to project authorization, owners of industries located along the IHNC on the floodside of the hurricane protection complained that the authorized Seabrook Lock, located at the Lake Pontchartrain terminus of the IHNC, would increase the hurricane surge elevation in the IHNC by eliminating lakeward flow in the canal. Further, in the fall of 1967, owners requested from the late Senator Ellender, Senator Russell Long, the late Congressman Hale Boggs, and the late Congressman F. Edward Hebert that consideration be given to providing protection to industries along the IHNC located on the floodside of the protection system.

(1) By Letter Report, "Lake Pontchartrain, La., and Vicinity - Report on Controlling Elevation of Seabrook Lock," the District Engineer recommended that the controlling elevation of the Seabrook Complex Rock Dike be reduced from 13.2 feet to 7.2 feet NGVD. The reduction will decrease the surge elevation in the IHNC north of its junction with MR-GO for hurricanes on tracks critical to the canal by allowing lakeward flow, thus reducing flood damages to industries on the banks of the canal north of the MR-GO. The reduction of the controlling elevation of the Seabrook Rock Dike from 13.2 to 7.2 feet NGVD was approved by the Office of the Chief of Engineers on 12 January 1967. Further, the Seabrook Lock complex is being designed to include a flow structure on the east side of the lock to give greater flexibility in control of salinity, flood stages, excessive current velocities in the IHNC, and to satisfy riparian flow requirements. The general design memorandum provides for a control structure with vertical lift gates to accomplish that control.

(2) A study was performed to determine the feasibility of constructing a floodgate-type structure to prevent hurricane surges occurring in the Lake Borgne from entering the IHNC. Insofar as possible, location of the structure considered conditions which would provide maximum benefits and be least detrimental to navigation. The three locations considered are:

(1) in the IHNC just north of its juncture with the MRGO,
(2) in the MRGO just east of its juncture with the IHNC, and
(3) in the MRGO in the vicinity of Paris Road bridge.

A meeting was held on 17 March 1969 with representatives of local interests to discuss the results of our studies. It was explained that none of the plans considered were found to be economically justified. Further benefits claimed for the plan located in the MR-GO in the vicinity of the Paris Road bridge do not include any benefits that would result from construction of the proposed port development along the south bank of the MR-GO from the IHNC to Paris Road. Plans for the port development had not advanced to a stage where it could be determined what the plan of improvement was to consist of or when it was to be accomplished. Representatives of the Board of Commissioners of the Port of New Orleans indicated that they would furnish additional information concerning the proposed port development. In December 1969 the Dock Board announced the proposed "Centroport" concept which is the plan of development for the port to occupy both banks of the MR-GO from the IHNC to the GIWW. In conjunction with these plans, it has been proposed that a structure be placed in the MR-GO south of its juncture with the GIWW and connected by levee to another gated facility in the shallow draft waterway. The benefits of such a plan are based on construction savings due to lower floodwall and levee elevation requirements and increased operating efficiencies for Centroport. However, the slow pace of the port development in this area and the completion of the higher floodwalls and levees in the interim have largely negated any benefits which might have resulted from this plan.

ADDITIONAL INFORMATION: (Continued)

b. Florida Avenue Complex. The addition of a major pumping station has been approved for the Florida Avenue Complex in addition to vertical lift gates in the drainage canal. The current cost estimate includes the vertical lift gates and the pumping station. Since the pumping station is an interior drainage item, local interests will fund and construct the station as part of their required project contribution. In addition, local interests plan to construct the floodwall reaches in this vicinity on both sides of the Inner Harbor Navigation Canal as a work-in-kind contribution.

c. St. Charles Parish Lakefront Levee. In view of the need for further environmental studies, as well as the inclusion of bayous LaBranche and Trepagnier in the Louisiana Natural and Scenic River System, the construction of this levee has been deferred. As a result of litigation on the project, alternatives to the authorized lakefront levee in St. Charles Parish were examined. The most favorable alternative is a levee which would generally parallel and run north of Airline Highway (US Highway 61). Though our studies are not yet complete, it appears questionable that a lakefront levee through St. Charles Parish would be economically justified.

d. Mandeville Seawall. The Mandeville Unit portion of the project had previously been placed in an indefinite category due to local interests' objections to the project. St. Tammany Parish Police Jury refused to furnish the financial assurances. (Refer to YDTO-12, Current Status of Assurances, Lake Pontchartrain Barrier Plan.) By virtue of a meeting on 6 July 1978 and a letter dated 8 August 1978, the mayor of Mandeville indicated interest in the seawall repairs. In October 1980 the town of Mandeville furnished a letter of intent to provide the finanacial support for the seawall restoration, providing that the restoration could be accomplished in such a way as to not preclude future recreational swimming at the seawall. The authorized plan requires that protection of the seawall be accomplished by using damaged riprap. This plan would make any future swimming hazardous. By letter dated 18 November 1982, the District Engineer requested a meeting with the town's representatives in an attempt to arrive at an acceptable plan. A bond issue to finance the project will be presented by the town of Mandeville on the 22 October 1983 ballot.

e. Report of Significant Post-Authorization Changes. In compliance with OCE letter dated 21 November 1973, subject, "Lake Pontchartrain, Louisiana and Vicinity, Lake Pontchartrain Barrier Plan Report on size selection, Chef Menteur Navigation Structure and the Rigolets and Seabrook Locks," and LMVD 1st Ind thereto, a significant post-authorization change report was prepared and submitted by NOD for review and approval on 7 January 1974. The report was returned by OCE on 16 December 1974 for additional information. A Public Meeting was held on 22 February 1975 in which comments were received on the sizes of the navigation structures. Additional work on the report was delayed until a review of the previous sizing decisions could be made. This review was completed and a new report was submitted on 25 June 1976. This report which covers the Rigolets Lock only was approved by OCE on 21 September 1976, subject to agreement with the local sponsor, which has been subsequently received.

f. Save Our Wetlands Suit. Save Our Wetlands, Inc., filed suit on 8 December 1975 in United States District Court for the Eastern District of Louisiana against the New Orleans District Engineer, the Secretary of the Army, the Administrator of the Environmental Protection Agency, and the President of the Orleans Levee Board. The Clio Sportsman's League joined the suit on 21 June 1976. The suit alleges the following:

(1) that the regional cumulative Environmental Impact Statement should be accomplished prior to proceeding with the project;

(2) that the Corps has not complied with the conditions of final approval by the Environmental Protection Agency of Section 404 requirements of the Federal Water Pollution Control Act;

(3) that the Corps has not completely eliminated the St. Charles Parish lakefront levee as required by the Environmental Protection Agency. The suit also seeks to have the New Orleans East lakefront levee removed and to have three openings for tidal interchange provided under the Southern Railroad embankment.

ADDITIONAL INFORMATION: (Continued)

f. Save Our Wetlands Suit. (Continued)

The Government moved to dismiss the lawsuit based on laches and the contention that the allegations of the plaintiffs were not liable to trial in a court of justice under the National Environmental Policy Act. A hearing was held on 5 November 1976 and the court denied the motion on 7 December 1976. In addition, a hearing was held on 15 December 1976 on the Orleans Levee District's (a co-defendant) motion to dismiss issues regarding assurances for the project. The court denied the motion. On 30 December 1977, Judge Charles Schwartz, of the Federal District Court in New Orleans, issued an order enjoining any further construction of the Chef Menteur and Rigolets Complexes, New Orleans East Area (East of Paris Road), and the Chalmette Area of the project until a new environmental statement is prepared.

On 8, 10, and 27 March 1978 Judge Charles Schwartz lifted the injunction on the New Orleans East Area (East of Paris Road) and on 10 March 1978 he lifted the injunction on the Chalmette Area Plan.

g. St. Tammany Parish Police Jury Suit. This agency has also filed a lawsuit on 30 March 1977 attacking the project. Their suit was similar to the Save Our Wetlands suit and was combined with that suit.

h. St. Charles Parish Suit. On 12 April 1977 an unincorporated association of citizens and property owners filed suit against the project in an effort to force construction of the St. Charles Parish lakefront levee, which is indefinitely deferred for environmental reasons, or, in the event the levee is not built, to force the Government to purchase lands in St. Charles Parish which may otherwise be subject to tidal flooding. The U.S. Attorney sought dismissal on the grounds that the plaintiffs lacked cause of action upon which relief could be granted by the court. At a 17 May 1978 hearing, Judge Charles Schwartz declared that the suit was premature and deferred further consideration until completion of the revised EIS.

i. Deferred Payment Plan. The modification authorized by the Water Resources Development Act of 1974, whereby local interests may agree to pay the unpaid balance of the cash payment due, with interest, in yearly installments, has provided immediate relief to local interests. Initial cash payments were received from local interests in FY 1977 and they have expressed their appreciation of the plan.

j. General - Because of the widespread interest which had been expressed with regard to the Barrier portion of the project, the Sub-Committee of Water Resources for the House Public Works and Transportation Committee held a hearing in New Orleans on 5 February 1978. The purpose of the hearing was to obtain information on the hurricane protection plan for the project and to give interested parties an opportunity to make their views known.

k. Chalmette Unit Economic Analysis. Since the Chalmette Unit is a separate entity from an engineering, hydrological, and economic standpoint, the court has required that a separate economic reanalysis for this unit be conducted separate and apart from the Lake Pontchartrain Hurricane Protection project economic reanalysis. This reanalysis will be performed jointly with the EIS revision which, when completed, will reflect two benefit/cost ratios (one for the Chalmette Unit and one for the remainder of the project).

l. Tentatively Selected High Level Plan. A public meeting was held in New Orleans on 21 Nov 81 to seek public comment on the tentatively selected high level plan. The high level plan would eliminate the proposed barrier complexes at Rigolets Pass, Chef Menteur Pass and Seabrook, and would substitute, in their place, higher protection levees along the south shore of Lake Pontchartrain. The public response was heavily in favor of the high level plan.

ADDITIONAL INFORMATION: (Continued)

l. Tentatively Selected High Level Plan. (Continued)

The draft Reevaluation Study (including a draft EIS) recommending the tentatively selected high level plan was submitted by New Orleans District for higher level review on 3 December 1982. This report is currently being held within the Corps of Engineers at the direction of the Secretary of the Army (Civil Works).

m. Reevaluation - Barrier Plan.

A reevaluation report containing a review of alternative plans and cost estimates was completed and submitted for approval on 16 December 1982. In preparing estimates for cost-to-complete for the currently authorized plan (Barrier Plan), the latest and best information available was utilized. Four elements of the Barrier Plan were found to be at wide variance with the corresponding estimates in the project cost estimate. The new estimates when compared to the approved GDM estimates disclosed that repetitive price leveling has, over time, produced cost estimates which no longer adequately reflect the probable costs of construction. The four items are as follows: Seabrook Complex; Rigolets Complex; Chef Menteur Complex; and New Orleans Lakefront, West of IHNC. Permission was requested to increase the project cost estimate by $255,568,000 on 22 December 1982. The authority to change the project cost estimate for the Barrier Plan was received on 27 April 1983 pending resolution of comments.

ENVIRONMENTAL INFORMATION:

a. Status of Environmental Impact Statement. - The final statement was filed with CEQ on 17 January 1975. By court order dated 30 December 1977, a new environmental impact statement has been ordered. Preliminary alternative plan studies and environmental investigations indicate that the "high level" alternative to the authorized Barrier Plan of protection merits further consideration. The draft EIS and reevaluation report which documents the proposal to abandon the Barrier Plan and adopt a high level plan is being retained within the Corps of Engineers in accordance with instructions from the ASA (CW).

b. Changes in Environmental Impact Statement Scheduling. See a. above.

c. Environmental Opposition. - The known environmental opposition to the Lake Pontchartrain, Louisiana, and Vicinity Hurricane Protection project is summarized below:

(1) The Orleans Audubon Society opposes the disposal and ponding of dredged material in the marshes along the Chef and Rigolets Passes, along the MR-GO and in New Orleans East, and the proposed borrow area on Apple Pie Ridge along US Highway 90. They believe these disposal and borrow plans will destroy valuable marshland that Louisiana cannot afford to lose. They also recommend that levees be built around populated areas only and the Barrier Plan be eliminated.

(2) The Louisiana Wildlife Federation recommends that the St. Charles Parish segment be eliminated from the project plan because it will instigate further encroachment and deterioration of a rapidly dwindling and fragile marsh ecosystem. They feel that the placing of the barrier structures as proposed on the Rigolets and Chef Menteur Pass may have severe, irreversible consequences on the delicate balance which differentiates between the fine line which constitutes a fresh and a saline marsh ecosystem.

ADDITIONAL INFORMATION: (Continued)

c. Environmental Opposition. (Continued)

(3) The Sierra Club, Delta Chapter, believes that wetlands represent economic, environmental, and recreational values which are far more important to the public interest than the claimed benefits from developing such lands for increased taxes. For this reason they recommend that the project should be used to protect existing settlement, and not to encourage intensive development in one of the large flood plains between the Mississippi River and the Gulf of Mexico.

(4) The Bonnet Carre' Rod and Gun Club and the St. Charles Environmental Council oppose the St. Charles Parish levee segment as it is now proposed. They favor a hurricane protection levee generally along Airline Highway (US Hwy 61) in St. Charles Parish. They believe this alinement would be environmentally acceptable and would still protect the presently developed areas in St. Charles Parish.

(5) The Clio Sportsman's League of New Orleans' position is that they favor hurricane protection but oppose the "so called" policy of unnecessary private land enhancement at the expense of the public and the environment. They opine that the barriers with its borrow, disposal and ponding areas, and accompanying future developments will play a leading role in the destruction of Lake Pontchartrain and, eventually, the entire Maurepas, Pontchartrain, Catherine and Borgne estuary system.

(6) The St. Tammany Environmental Council is of the opinion that the acknowledged and potential adverse environmental and economic impact of the Lake Pontchartrain, Louisiana, and Vicinity hurricane protection plan far outweighs the benefits our population may receive in the form of hurricane protection.

(7) The St. Tammany Sportsman's League is opposed to the "Floodgates" at the Rigolets because they say it will destroy the interplay between the lake and the marshes which supplies 50 percent of all nutrients that feed the flora and fauna in Lake Pontchartrain. "The loss of these nutrients will result in the death of the lake," they opine.

(8) The Environmental Defense Fund has expressed concern regarding the whole project, more specifically the New Orleans East Area. They consider the wetlands in the New Orleans East Area are still viable and could be restored to a high level of productivity given appropriate redesign of the levees; provision for tidal flows and water circulation; and stringent regulation of dredge, fill, and drainage activities in accordance with the Corps' regulations and wetland policy.

d. Other Environmental Opinions.

(1) The US Fish and Wildlife Service and the National Marine Fisheries Service have fully cooperated in developing a plan for hurricane protection for the metropolitan area of New Orleans that will alleviate, to the fullest extent feasible, any project impacts on the fish and wildlife resources in the area. Both have opposed the St. Charles Parish levee, as presently proposed, and have made specific recommendations in the other segments of the project to help minimize the destructive features of the project.

ADDITIONAL INFORMATION: (Continued)

d. Other Environmental Opinions. (Continued)

(2) The Environmental Protection Agency has also fully cooperated in helping us to develop an environmentally feasible plan. In their review of the statement of findings for the plans for placement of dredged material for this project they stated that tidal interchange should be allowed into the New Orleans East area until developed areas are threatened and that the Seabrook Lock should be constructed as soon as possible in order to reduce salt water intrusion into Lake Pontchartrain.

(3) The Louisiana Wild Life and Fisheries Commission expressed concern regarding damages to productive oyster beds near the Chef Menteur Barrier Structure. In the spirit of full cooperation, they have requested that the design of the ponding areas and wing walls for the Chef structure be coordinated with them and that a periodic review and evaluation regarding the effects of the other project works on fish and wildlife resources be scheduled during the entire construction period. This will insure the minimum destruction of the fish and wildlife resources. They have stated that the Seabrook Complex will provide the capability for managing salinities within the lake.

e. Environmental Studies.

(1) The effects of flood control barriers in passes of Lake Ponchartrain obtained in a study completed in September 1982 by L. Eugene Cronin, Ph. D, Professor at John Hopkins University, were that the combined recreational and commercial fisheries of Lake Pontchartrain and the portion of th Gulf of Mexico System which it supports will be reduced by an amount estimated to average at least $176,800 annually at present prices. This estimate is considered to be conservative since many data are incomplete on recreational activities, on shrimp production and catch, on the replenishment of rangia clams, and other economically significant effects of construction and operation of the Barriers.

(2) Phase I of the biological transport studies contract entered into with the Louisiana State University along with a preliminary Phase II scope study based on Phase I data have been completed. The remaining portions of the contract have been terminated at the request of LMVD due to the preference for the high level plan.

(3) The EPA in their review of the 404 proceedings have requested us to study whether the drainage structures in the South Point to GIWW levee can be changed with regards to their operation. They would like to see the structures remain open during normal tidal conditions to nourish the marsh in New Orleans East with the lake water. The Louisiana Wildlife Federation and the US Fish and Wildlife Service are supportive of this recommendation. We are coordinating with the Orleans Levee District, the Sewerage and Water Board, the Mosquito Control Board, and the City Planning Commission to obtain their views on this recommendation. A report on this matter will be presented in the revised EIS.

(4) The New Orleans City Planning Commission has requested us to study the possibility of purchasing wetlands outside the protected area to mitigate the loss of wetlands included in the project.

ADDITIONAL INFORMATION: (Continued)

(5) In addition to the contracts in para e(2) above, the Louisiana State University (LSU) and the University of New Orleans (UNO) were contracted to study tidal transport in the Chef Menteur and Rigolets Passes and at the site of Seabrook Lock. LSU was responsible for physical and biological transport studies and UNO for chemical transport studies. The contracts were broken down into two phases: Phase I, which is complete, consisted of study design, and phase II was to consist of a one year sampling program and data analysis. Prior to initiation of phase II work, the LSU and UNO contracts were terminated.

f. Status and Impact of Compliance with Section 404, Clean Water Act of 1977. The provisions of Section 404 of the Clean Water Act have been met by a Section 404(b)(1) Evaluation Report signed by the District Engineer on 22 August 1975 for the majority of the project. The provisions of Section 404 of the Clean Water Act for work after 1 October 1981 have been met for the Chalmette Unit by a Supplemental Section 404(b)(1) Evaluation Report, signed by the District Engineer on 15 November 1982. The provisions of Section 404 of the Clean Water Act for the high level plan will be met by a Supplemental Section 404(b)(1) Evaluation Report for the New Orleans East Unit signed by the District Engineer in December 1983.

The provisions of Section 404 of the Clean Water Act for the high level plan for the New Orleans West/Mandeville Unit will also be met by a Supplemental Section 404(b)(1) Evaluation Report in December 1983, a Public Notice issued in December 1983, certification from the State of Louisiana in March FY 1984, and the District Engineer's signature on the Section 404 Evaluation Report in December 1983.

The provisions of Section 404 of the Clean Water Act for the barrier plan could be met by a Section 404(b)(1) Evaluation Report in September 1986, Public Notice issued in September 1986, certification from the State of Louisinaa in December 1987, and the District Engineer's signature on the Section 404 Evaluation Report in September 1986.

15 September 1983
New Orleans District

DATA FOR TESTIFYING OFFICERS ON FY 1985 CIVIL WORKS BUDGET

LAKE PONTCHARTRAIN, LA., AND VICINITY

AUTHORIZATION:

Authorization Documents.

Authorizations		Estimated Cost and Year of Price Level
FC Act of 1965 dated 27 October 1965 (PL 89-298) (HD 231/89/1)	A program for protection from hurricane flood levels at New Orleans, LA., and surrounding areas by means of levees, floodwalls, control structures, navigation structures, locks, dams and drainage structures.	$56,235,000 (1961) 1/
Water Resources Development Act of 1974 dated 7 March 1974 (PL 93-251) Section 92	A modification of the FC Act of 1965 (PL 89- 298) to provide that non-Federal public bodies may agree to pay the unpaid balance of the cash payment due with interest, in yearly installments.	

1/ This is net cost to the Federal Government. The gross cost is $60,185,000. The difference is $3,950,000, which is capitalized value at 3 1/8 percent interest over 100 years for O&M on Rigolets Lock which is to be contributed by local interests and used by the Federal Government for project construction.

Monetary Authorization. Full monetary authorization was provided in the Flood Control Act of 27 October 1965.

NEED FOR THE PROJECT: The project is located in southeastern Louisiana in the vicinity of Lake Pontchartrain and includes the city of New Orleans and surrounding areas. The project area is susceptible to flooding from wind-driven hurricane tides from Lake Pontchartrain, Lake Borgne, and the Gulf of Mexico. Historical hurricanes have produced recorded stages up to 13 feet on the southwest shore of the lake, 6.2 feet at the south shore, 7.1 feet at the southeast shore, and 7.7 feet at the north shore. The protective works have been overtopped and developed areas flooded by surges from hurricanes several times in recent years.

In 1915, the 7.7 foot stage on the north shore and the 13 foot stage on the southwest shore caused considerable flooding.

The 1947 hurricane caused extensive flooding in Jefferson Parish when a lakeshore embankment proved inadequate to prevent overtopping, even though the stage was only about 5 feet. Considerable overtopping of the New Orleans seawall occurred during this storm and about 9 square miles of residential area were flooded.

NEED FOR THE PROJECT: (Cont'd)

In 1956 the New Orleans seawall was again overtopped, resulting in the flooding of about 2.5 square miles of residential and commercial area in the lakefront area.

Hurricane Betsy in September 1965 caused extensive flooding of urban areas of the New Orleans area to depths of up to 10 feet.

Hurricane Camille in August 1969 caused flooding of low lying areas adjacent to the IHNC.

Although Hurricane Carmen in September 1974 caused little flooding in the project area, it was rated by the National Weather Service as more dangerous than Hurricane Betsy. Had Carmen continued its northerly course or shifted slightly to the east, it would have passed thru the vicinity of New Orleans and would have caused extensive flooding within the project area.

Wave action during moderate to high lake stages has undermined the existing seawall at Mandeville, causing it to become ineffective as a hurricane protective structure.

On several occasions the area between Lake Pontchartrain and Lake Borgne has been flooded by stages up to 11 feet.

Much of the developed area in New Orleans and in Jefferson Parish is below normal lake level; some land being as low as 7 feet below national geodetic vertical datum, with a considerable portion lower than 2 feet below national geodetic vertical datum. Stages attending a standard project hurricane would cause overtopping of all existing protective works by several feet and ponding as deep as 16 feet in the developed areas and the pumping system on which removal of all flood waters is dependent would be inoperable for an extended period of time. This prolonged inundation would cause enormous damage to private and public property, would create serious hazards to life and health, would disrupt business and community life, and would require an immense expenditure of public and private funds for evacuation and subsequent rehabilitation of local residents.

Prior to construction of the Mississippi River-Gulf Outlet navigation project, tidal flow between Lake Pontchartrain and Lake Borgne was interchanged through the Rigolets, Chef Menteur Pass, and the Gulf Intracoastal Waterway-Inner Harbor Navigation Canal channel. Salinities of the incoming tides from Lake Borgne were reduced primarily by fresh water flows from the Pearl River basin, and from the northern tributary inflow to Lake Pontchartrain. However, the Mississippi River-Gulf Outlet project now permits tidal flows from Breton Sound and the Gulf of Mexico to enter Lake Pontchartrain directly through the Inner Harbor Navigation Canal via its enlarged channel. As a result, salinities in the lake have increased significantly. Also, increased current velocities in the Inner harbor Navigation Canal caused by the Gulf Outlet navigation project have resulted in an increase in navigation difficulties and the creation of major scour problems along existing bridges and harbor developments. The restricted section through the Seabrook Bridge has enlarged greatly since construction of the Gulf Outlet project.

15 September 1983
New Orleans District

PLAN OF IMPROVEMENT:

The most suitable plan for protection from hurricane flood level consists of the following:

a. A barrier is to be constructed generally along United States Highway 90 from the eastern most existing levee to high ground east of the Rigolets, together with a control structure and a navigation lock in the Rigolets and a control structure and navigation gates in Chef Menteur Pass. The purpose of the barrier is to limit hurricane tides from entering Lake Pontchartrain through the natural passes and over the low lying areas. This plan is under review with the preparation of a revised EIS.

b. A new lakeside levee is to be constructed in St. Charles Parish extending from the Bonnet Carre Spillway east guide levee to the Jefferson Parish line. This is deferred indefinitely due to environmental problems.

c. Existing riprap slope protection is to be enlarged along the Jefferson Parish lakefront levee.

d. The New Orleans lakefront levee landward of the seawall is to be enlarged.

e. A lock, rock dike, and control structure are to be constructed at Seabrook. The Seabrook complex is to serve the purposes of (1) eliminating navigation difficulties due to current velocities in the Inner Harbor Navigation Canal, (2) reduction of hurricane stages along the lakefront by controlling the surge entrance into Lake Pontchartrain through the Mississippi River-Gulf Outlet and Inner Navigation Canal, (3) prevention of excessive salt water intrusion into Lake Pontchartrain, and (4) assuring satisfactory riparian flow requirements.

f. Enlargement of existing levees, construction of new levees, and a concrete-capped sheetpile wall are to be constructed along the east and west levees of the Inner Harbor Navigation Canal in New Orleans.

g. A new levee and floodwall are to be constructed along the lakefront extending from the floodwall at the New Orleans Airport to South Point.

h. The levee from South Point to the GIWW is to be enlarged.

i. The levee along and north of the Mississippi River-Gulf Outlet and Gulf Intracoastal Waterway from the Inner Harbor Navigation Canal to the beginning of the barrier is to be enlarged and floodwalls constructed where necessary.

j. A new levee is to be constructed to protect the area generally referred to as the Chalmette area and will extend from the Inner Harbor Navigation Canal levee along and on the south bank of the Mississippi River-Gulf Outlet to a point approximately 2-1/2 miles northeast of Verret and then in a generally westerly direction to the Mississippi River Levee near Caernarvon.

k. The existing Mandeville seawall on the north shore will be strengthened at its present height.

l. A new pumping station and vertical lift gates for the Florida Avenue Complex are to be constructed. This will complete the protection provided in the Inner Harbor Navigation Canal System. (See above.)

CHANGE IN SCOPE:

Year	Change in Scope since Authoriztion	Estimated Cost
1967	The authorized alinement of protective works in the vicinity of Chef Menteur Pass was modified and the New Orleans East Levee was extended to Chef Menteur Pass under the discretionary authority of the Chief of Engineers to provide protection for an additional 1,533 acres. The letter report recommending this modification was submitted to OCE 28 March 1967.	$4,775,600
1967	The project was also modified under the discretionary authority of the Chief of Engineers to delete from the Lake Pontchartrain project as a mitigating measure the costs of protecting a portion of the foreshore along the Mississippi River-Gulf Outlet project. Construction of the Mississippi River-Gulf Outlet project exposed levees of substantial size and the foreshore between them and the project channel along both banks of the project navigation canal in the City of New Orleans to direct attack with resultant damages from waves generated by seagoing vessels utilizing the waterway. The navigation project should have included adequate provisions for protecting these levees and their foreshore from damage. The new levees in this project located adjacent to the ship channel will also require protection. The costs deleted from this project have been added to the Mississippi River-Gulf Outlet project. (There are about 6 miles along the north bank and 18 miles along the south bank of the navigation project that require protection.) GDM No. 2, Supplement No. 4, Mississippi River-Gulf Outlet, La., Foreshore Protection was submitted to OCE 29 May 1968.	-3,495,000
1967	In accordance with the desires of local interests the project was again modified under the discretionary authority of the Chief of Engineers to provide protection to a larger area in the vicinity of New Orleans known as the Chalmette area. This change incorporated the need to increase levee heights to accomodate the new hurricane parameters. This modification will provide protection for an additional 18,800 acres. The letter report recommending this modification was submitted to OCE on 12 December 1966.	$12,938,700

The Director of Civil Works by letter of 27 November 1967 informed the Chairmen of the Committees on Appropriations of the House and Senate that the above changes in scope had been approved by the Chief of Engineers.

The Office, Chief of Engineers, by letter report dated 17 December 1968 informed the Bureau of the Budget of an increase in cost from $136,200,000 to $166,000,000 in accordance with ER 1165-2-305 dated 25 Sep 68, "Significant Post-Authorization Changes in Corps of Engineers Projects". This change was approved by the Office of Management and Budget on 25 March 1969.

MAJOR CHANGES IN DESIGN:

a. The net grades of all the protective levees and structures, except for the levees and structures adjacent to the Chef Menteur Pass and the Rigolets, were revised upward by 1 to 2 feet in accordance with the results of tidal hydraulic studies utilizing more severe hurricane parameters developed by the U.S. Weather Bureau subsequent to project authorization.

b. The controlling elevation of the rock dikes at the Seabrook Complex was changed from elevation 13.2 feet to 7.2 feet MSL to provide a greater stage relief from surges in the Inner Harbor Navigation Canal. This was done to reduce flood damage to industrial developments along the Inner Harbor Navigation Canal on the floodside of the levees by permitting some lakeward flow in the canal to overtop the dikes.

c. The size of the Chef Menteur Complex navigation structure was increased from 56' wide by El.-12.0 M.L.G. (sill elevation) to 84' wide by El.-16.0 M.L.G. This change resulted from a reevaluation of marine user requirements and was based on information received from local shipbuilding and related industries in the project area. This post-authorization change was approved by LMVD on 16 December 1977.

d. The size of the Rigolets lock was increased from 84 feet wide to 110 feet wide. This change resulted from a reevaluation of marine user requirements and was based on information received from local shipbuilding and related industries in the project area and on a system analysis of the GIWW system. This post-authorization change was approved by LMVD on 16 December 1977.

e. A pumping plant was added to the Florida Avenue Complex to provide uninterrupted drainage relief during hurricane conditions.

f. The feasibility of providing tainter gates in lieu of vertical lift gates at both the Chef Menteur and Rigolets control structures has been investigated. The main advantage of tainter gates is the much shorter operating time of 45 minutes compared to 6 hours for the vertial lift gates. Also, the tainter gates could be operated from a remote station, whereas vertical lift gates would have to be operated by people on the structures during bad weather conditions on the approach of a hurricane. A recommendation to use tainter gates instead of vertical lift gates was included in the 5 August 1977 letter to LMVD requesting the changes in the sizes of the Rigolets and Chef Menteur Control Structure. This was approved by LMVD and is included in the Post-Authorization Change report approved by LMVD on 16 December 1977.

BENEFIT-COST RATIO:

a. Period of Economic Analysis. - The economic life of the project, excluding Seabrook Lock, is 100 years based on our estimate that protection from hurricane tidal overflow to this area will be needed long beyond the life of the project. The economic life of Seabrook Lock is 50 years based on the navigation life of the lock.

b. Derivation of B/C Ratio. - The Chalmette Area Plan and the Barrier Levee Plan function as two separable units. Preproject levees provide the area a degree of protection from headwater and tidal overflow and no benefits are claimed for this protection. Benefits credited to the total project consist of reduction of flood damage from hurricane overflow including that damage caused by overtopping existing levees, intensified land use and area redevelopment of otherwise underemployed labor resources.

c. Composite B/C Ratio. - Although the Chalmette Area Plan will function as a separable unit, the B/C ratio is presented for the total project plan. The benefit-cost ratio was derived by measuring the total benefits credited to these hurricane barrier plan components against their total costs.

STATUS AND SCHEDULE, PLANNING:

a. Design Memorandums. -

Item	% Complete 15 Sep 83	Est % Complete 30 Sep 84	Actual (A) or Scheduled (S) Submission Date to LMVD
Reevaluation Report Supplement (draft)	100	100	16 Dec 82 (A) 3/
Reevaluation Report Supplement (final)	50	100	Indefinite 3/
GDM - Supp. No. 5-Orleans Parish Lakefront Levees W. of IHNC to Orleans Marina	70	100	Mar 84 (S)
Supp. No. 5C-Orleans Parish Outfall Canals, West of IHNC	30	100	May 84 (S)
Supp. No. 7-St. Tammany Parish, Mandeville Seawall	70	100	Mar 84(S) 2/
Supp. No. 10-Jefferson Parish Lakefront Levees	30	100	Aug 84 (S)
DDM-6 Rigolets Control Structure & Closure	0	0	Indefinite 1/
DDM-7 Chef Menteur Pass Control Structure & Closure	0	0	Indefinite 1/
DDM-9 Chef Menteur Pass Navigation Structure	0	0	Indefinite 1/

1/ Indefinite due to court order delaying work until a new environmental impact statement has been prepared.
2/ Completion of report has been delayed until local interests can reach a decision as to plan of improvement to be used for seawall restoration. The voters of the town of Mandeville, La. will select a plan on 22 October 1983.
3/ Being retained within the Corps of Engineers in accordance with instructions from ASA (cw). A new submission date will be established upon release and approval of the draft report.

STATUS AND SCHEDULE, PLANNING: (Cont'd)

b. Plans and Specifications.

Item	% Complete 15 Sep 83	% Complete 30 Sep 84	Actual (A) or Scheduled (S) Submission Date to LMVD	Scheduled Award (A) Date
BARRIER UNIT				
Seabrook Lock and Outlet Structure	60	100	Sep 84	Oct 85
NEW ORLEANS EAST UNIT				
Citrus BackLevee Station 176-574 (3rd lift)	10	100	Jul 84	Oct 84
Citrus Lakefront Levee IHNC-Paris Road (FSP)	75	100	Oct 83	Jan 84
New Orleans East Lakefront-Paris Road to South Point (FSP)	10	100	Jul 84	Oct 84
New Orleans Lakefront Levee West of IHNC	0	75	Nov 84	Mar 85
CHALMETTE UNIT				
Station 278-355-2nd Lift	85	100	N/A	Jun 84
Final Enlgt. Station 370-682	0	100	Sep 84	Jan 85
MANDEVILLE UNIT				
Mandeville Seawall	0	100	Apr 84	Jul 84

PHYSICAL DATA:

a. Land Requirements.

(1) Scope, Status and Schedule of Acquisition: Acquisition of lands, easements, R/W and disposal areas is the responsibility of local interests.

b. Recreation Facilities. Not applicable.

c. Disposal Areas. Easements for disposal areas are the responsibility of local interests.

d. Operator's Quarters. None.

JUSTIFICATION:

a. Flood Damages. The duration of flooding within the project areas extends up to 2 weeks. Wind-driven hurricane waters overtopping the levees become entrapped behind the levees. If the levee is seriously eroded, the water will slowly recede with the reduction in tides, but it must also be pumped; if the levee remains intact, portions of it are degraded to facilitate removal of flood waters along with supplementary pumping. Depth of flooding caused by Hurricane Betsy of September 1965 varied to a maximum of approximately 10 feet in urban areas; this storm is also considered the flood of record.

The project including barriers is designed to protect against a hurricane with a frequency of about once in 250 years. The 1965 hurricane approached the design hurricane in magnitude in part of the area. The high order protection was selected because of the urban character of much of the region and the hazard to life.

Description of Flood Area	Design Flood 1/	Protected by Authorized Works Against Design Flood
Number of Acres:	(501,780)	(501,780)
Residential	33,530	33,530
Commercial, Industrial	14,510	14,510
Open Land (Idle)	28,760	28,760
Woods, Swamp, Marsh	414,010	414,010
Other Developed Land	10,970	10,970
Value of Lands and Improvements	($20,556,000,000) 2/	($20,556,000,000)
Lands	7,012,000,000	7,012,000,000
Improvements	13,544,000,000	13,544,000,000
Population (1980)		
Residing	815,000	
Working (Addition to Residing)	80,000	

1/ Based on theoretical design flood which has yet to be experienced.

2/ Escalated to October 1983 price levels.

JUSTIFICATION:

b. Flood History. Legend: Actual Acres Flooded=(c)-(e); Actual $ Damages= (f)-(h); N.O.= Not Operable.

	Area (Acres)				Damages (Dollars)			
Flood Date	Natural Stage	Flooded Without Project	Protected With Project in Full Operation	Protected at Time of Flood	Without Project	Preventive at Time of Flooding With Project in Full Operation	Prevented at time of Flood	Preventable Under Present Condition with Project in Full Operation
					$	$	$	$
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i) 2/
(A) Past 5 Fiscal Years: None.								
(B) Major Floods Prior to 5 Fiscal Years:								
Aug 1969 (Camille)	1/	23,000	23,000	22,000	92,500,000	91,500,000	90,000,000	308,906,000
Sep 1965 (Betsy)	1/	23,000	23,000	N.O.	85,000,000	85,000,000	N.O.	403,954,000
Sep 1956 (Flossy)	1/	8,000	8,000	N.O.	750,000	750,000	N.O.	2,974,000
Sep 1947	1/	33,000	33,000	N.O.	5,300,000	5,300,000	N.O.	48,832,000

	HIGHEST RECORDED STAGE (N.G.V.D.)			
	Aug 1969	Sep 1965	Sep 1956	Sep 1947
Lake Pontchartrain at West End	5.2 ft.	7.6 ft.	5.5 ft.	5.46 ft.
Rigolets Pass near Lake Pontchartrain	9.0 ft.	7.0 ft.	6.49 ft.	7.18 ft.

2/ October 1983 price levels.

c. Power. Not applicable.

LOCAL COOPERATION: (October 1983 price levels)

a. Requirements. Prior to construction, local interests furnished assurances satisfactory to the Secretary of the Army that they will, without cost to the United States:

(1) Provide all lands, easements and rights-of-way, including borrow and spoil disposal areas, necessary for construction of the project;

(2) Accomplish all necessary alterations and relocations to roads, railroads, pipelines, cables, wharves, drainage structures, and other facilities made necessary by the construction works;

(3) Hold and save the United States free from damages due to the construction works;

(4) Bear 30 percent of the first cost of the project, $866,000,000, reduced by the cost of two items of Federal costs, $53,800,000 (one-half the cost of Seabrook Lock), $1,000,000 (Beautification for St. Charles Parish Levees), and further reduced by $230,000 which is an all non-Federal cost for realinement of protective works at the Florida Avenue Containerization Plant. This leaves $810,970,000, which at 30% equals $253,520,000, plus $230,000 for realinement of Florida Avenue Containerization Plant equals $253,750,000 to be paid by local interests. This sum includes $69,456,000 for the fair market value of the items listed in subparagraphs (1) and (2) above and a cash contribution which is presently estimated at $184,294,000 1/:$154,791,000 for the Barrier Plan (which does not include the estimate shown in subparagraph (5) below and $4,750,000 excess equivalent work by local interests above 30% in New Orleans East Unit) and $29,503,000 for the Chalmette Area Plan; to be paid either in a lump sum prior to initiation of construction or in installments at least annually in proportion to the federal appropriation prior to start of pertinent work items in accordance with construction schedules as required by the Chief of Engineers, or as a substitute for any part of the cash contribution, accomplish in accordance with approved construction schedules, items of work of equivalent value as determined by the Chief of Engineers, the final apportionment of costs to be made after actual costs and values have been determined (see WDTO-3, Apportionment of First Costs);

(5) For the Barrier Plan, provide an additional cash contribution equivalent to the estimated capitalized value of operation and maintenance of the Rigolets navigation lock and channel to be undertaken by the United States, presently estimated at $23,500,000, said amount to be paid either in a lump sum prior to initiation of construction of the barrier or in installments at least annually in proportion to the Federal appropriation for the construction of the barrier;

(6) Provide all interior drainage and pumping plants required for reclamation and development of the protected areas;

(7) Maintain and operate all features of the works in accordance with regulations prescribed by the Secretary of the Army, including levees, floodgates and approach channels, drainage structures, drainage ditches or canals, floodwalls, seawalls, and stoplog structures, but excluding the Rigolets navigation lock and channel and modified dual-purpose Seabrook Lock; and

1/ The total non-Federal cash contribution (excluding future reimbursement) of $202,544,000 (shown on WDTO-8) is determined as follows: $184,294,000 + $23,500,000 + $4,750,000 - $10,000,000 = $202,544,000.

a. Requirements. (Cont'd)

(8) Acquire adequate easements or other interest in land to prevent encroachment on existing ponding areas unless substitute storage capacity or equivalent pumping capacity is provided promptly. Local interests are also required to comply with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646) in acquiring real property.

b. Modification to Authorizing Law. Recognizing the increasing burden of providing required matching local funds, the former Representative F. Edward Hebert sponsored Congressional legislation to defer required local payments over an extended period of time. This legislation was enacted in February 1974 as Section 92 of the Water Resources Development Act of 1974. This act modifies the authorizing law by providing that non-Federal public bodies may agree to pay the unpaid balance of their required cash payment due, with interest, in annual installments in accordance with a formula specified by the Act.

c. Requirements of PL 91-611 and PL 91-646. (1) PL 91-611 - not applicable. Construction started prior to 1 January 1972. (2) PL 91-646 - a Constitutional Amendment was provided by the Louisiana Legislature on 1 February 1972 allowing local interests to comply. The estimated cost to local interests is $106,000.

d. Current Status of Assurances. Assurances are required for the two independently justified plans authorized by Congress: the Chalmette Area Plan and the Lake Pontchartrain Barrier Plan. Revised assurances from the Pontchartrain Levee District and the Jefferson Levee District are currently under review within COE channels.

Chalmette Area Plan: The basic assurances for this plan have been accepted.

A. Joint assurances of the St. Bernard Parish Police Jury and the Lake Borgne Basin Levee District were accepted on 28 September 1966. The Lake Borgne Basin Levee District and St. Bernard Parish Police Jury executed a new joint agreement of assurance covering all requirements of local cooperation and a deferred payment plan as authorized by PL 93-251 on 20 April 1976. These assurances were approved on behalf of the United States on 7 December 1977.

B. Assurances from the Board of Commissioners of the Orleans Levee District were accepted on 10 October 1966. The assurances were amended on 16 September 1971 to reflect an increase in cost participation. These amended assurances, which supersede the 10 October 1966 assurances, were approved on behalf of the United States on 29 March 1974. Subsequent to this approval, it became evident that problems would exist in obtaining acceptable assurances from two agencies for the Barrier Plan. For this reason, the original assurances from the Orleans Levee District dated 10 October 1966 are considered in full effect. This 1966 assurance (for Chalmette Plan only) was supplemented to include PL 91-646 on 29 May 1975 and approved on behalf of the United States on 8 July 1975. The Orleans Levee District executed a new agreement of assurances covering all requirements of local cooperation and a deferred payment plan as authorized by PL 93-251 on 30 March 1976. These assurances were approved on behalf of the United States on 7 December 1977.

LOCAL COOPERATION: (Cont'd)

d. Current Status of Assurances. (Cont'd)

C. Supplemental assurances providing for Public Law 91-646: The Louisiana Office of Public Works, coordinating agency under 5 March 1971 designation by the Governor, was requested to have the St. Bernard Parish Police Jury and the Lake Borgne Levee District execute such supplemental assurances and a joint supplemental assurance dated 26 February 1975 was received from the agencies and approved on behalf of the United States on 17 March 1975.

Lake Pontchartrain Barrier Plan. Basic assurances for the plan were obtained from the Board of Commissioners of the Orleans Levee District and accepted on 10 October 1966.

A. The Orleans Levee District requested assistance in carrying out the assurances due to the rising non-Federal cost of participation and the widespread benefits to be derived by the surrounding parishes. The Governor of the State of Louisiana, by Executive Order (5 March 1971), designated the Louisiana Office of Public Works as the local coordinating agency. Through this procedure, the Pontchartrain Levee District, the St. Tammany Parish Police Jury, and the Orleans Levee District are the assurers for the Barrier Plan. See B below.

B. Amended assurances to provide for an increase in cost participation were executed by the Orleans Levee District on 16 September 1971 and approved on behalf of the United States on 29 March 1974. The amended assurances supersede the 10 October 1966 assurances. Subsequent to the approval of the 1971 assurance, it became evident that problems existed in obtaining acceptable assurances from two agencies for this plan. For this reason, the original assurances from the Orleans Levee District dated 10 October 1966 are considered in full effect. The Orleans Levee District executed a new agreement of assurance covering all requirements of local cooperation and a deferred payment plan, as authorized by PL 93-251 on 30 March 1976. These assurances were approved on behalf of the United States on 7 December 1977.

C. Assurances providing for participation pursuant to the action of the Governor have been obtained from the Pontchartrain Levee District. Assurances on behalf of the St. Tammany Parish Police Jury were executed by the Governor on 8 May 1972 under Section 81, Title 38, Louisiana Revised Statutes of 1950 as amended. Neither of the last mentioned assurances has been accepted for lack of supporting documents. However, the Pontchartrain Levee District executed a new agreement of assurance covering all requirements of local cooperation and a deferred payment plan as authorized by PL 93-251 on 20 September 1976. On 19 October 1976, Governor Edwards executed an instrument designating, among other things, the Louisiana Office of Public Works to lend financial assistance in connection with this project. The Louisiana Office of Public Works executed an act of assurance dated 8 November 1976 agreeing: to fulfill all local cooperation requirements for that portion of the project in St. Tammany Parish; and to lend financial assistance after the Pontchartrain Levee District has contributed $100,000 in cash toward that portion of the Barrier Plan, which is the responsibility of that levee district. These assurances were approved on behalf of the United States on 7 December 1977.

LOCAL COOPERATION: (Cont'd)

d. Current Status of Assurances. (Cont'd)

D. Supplemental assurances covering Public Law 91-646:

1. Supplemental assurances were executed by the Orleans Levee Distirct on 21 September 1973.
2. Supplemental assurances were executed by Pontchartrain Levee District on 15 October 1973.
3. St. Tammany Parish Police Jury-the assurances executed by the Governor on 8 May 1972 included Public Law 91-646 requirements.

The assurances listed as items 2 and 3 above have not been accepted on behalf of the Government due to lack of supporting data; however, substitute assurances incorporating the deferred payment plan authorized by PL 93-251 and PL 91-646 have been executed by these levee districts. These assurances were approved on behalf of the United States on 7 December 1977.

The Water Resources Development Act of 1974, PL 93-251, was enacted on 7 March 1974. This act provided among other things, that local assuring agencies for this project (both plans) could, if they so choose, repay their cash obligation using a deferred payment plan. New assurances have been executed by local interests incorporating a deferred payment plan and these assurances were approved by the Secretary of the Army on 7 December 1977. Local interests have been making payments under this plan. First payments were received in FY 1977.

e. Action Being Taken by Local Interests Toward Compliance. Local interests have cooperated in all efforts to date and have given assurance that all requests for additional cooperation will be expedited; however, local interests have delayed granting of rights-of-way as scheduled on certain items. They are constructing items of flood protection works at vulnerable locations as work-in-kind in lieu of cash contribution. Local interests will be given credit only for the portion meeting project requirements.

f. Status of Clearances for Relocations or Other Negotiations Affecting Construction. All negotiations for relocations are the responsibility of local interests. All negotiations with local owners are on schedule.

g. Repayment Contracts. Not applicable.

h. Other Current and Anticipated Difficulties, and Proposed Remedial Action. As of 1 January 1979, the State of Louisiana formed the Jefferson Levee District and assigned to it the responsibility for Jefferson Parish levees on the east bank of the Mississippi River. These levees were previously the responsibility of the Pontchartrain Levee District. Revised assurances are under review for the St. Charles Parish portion of the project (Pontchartrain Levee District) and for the Jefferson Parish portion of the project (Jefferson Levee District).

SUPPORT AND OPPOSITION:

a. Interested Senators and Representatives, and Nature and Extent of Support or Opposition.

Senator J. Bennett Johnston - support
Senator Russell B. Long - support
Representative Lindy Boggs (2d Dist) - support

LOUISIANA
Representative Robert L. Livingston, Jr. (1st Dist) - not known 1/
Representative Henson W. Moore (6th Dist) - not known
Representative Billy Tauzin (3d Dist) - not known

1/ Has expressed support for hurricane protection but not necessarily the barrier plan.

b. Support or Opposition by Local Interests. The Louisiana Office of Public Works, the agency designated to act in such matters in behalf of the Governor of the State of Louisiana, the Board of Levee Commissioners of the Orleans Levee District, and the Board of Commissioners of the Port of New Orleans have concurred with the proposed plan of protection and are assisting in the implementation of the authorized plan. The U.S. Fish and Wildlife Service has been consulted on all aspects of the project and will continue in coordinating future features of the project.

In addition, the following Louisiana State Senators and Representatives have expressed their support or oposition:

Senator Samuel B. Nunez, Jr., District 1 - support (for Chalmette Plan)
Senator Nat G. Kiefer, District 2 - support
Representative Edward C. Scogin, District 76 - opposition
Representative A. Charles Borrello, District 100 - support
Representative Joseph Accardo, Jr., District 57 - not known
Representative Theodore J. Marchand, District 102 - support

c. Attitude of Affected Property Owners. Most property owners support the plan of protection although some minor opposition to specific features of the plan has been encountered.

d. Adverse Effects. Approximately 2,100 acres of marsh and swamp wetlands and 900 acres of lake bottom will be used for construction of the hurricane protection plan. Loss of this habitant will cause a decrease in wildlife and fisheries in the Lake Pontchartrain area.

Turbid water conditions with associated silting due to dredging, pumping, and levee construction, will occur only during construction periods. Temporary turbid water conditions during construction will decrease the amount of primary production in the disturbed area by decreasing the light available to phytoplankton and other aquatic plants.