Walton/ea/583

TC Hil
PD-(
(afte
dispatch)

LMVPD-G

15 August 1984

SUBJECT: Lake Pontchartrain, LA, and Vicinity Hurricane Protection Project

Hollan
PD-

CDR USACE (DAEN-CWP-G)
WASH DC 20314

Gardne
PD-

1. Reference is made to letter, LMVPD-P, 30 Nov 83, subject: Lake Pontchartrain Hurricane Project, LA (Incl 1).

Caldwel
PD-

2. In accordance with para 4 of the referenced letter, we are submitting 18 copies of the subject Reevaluation Report (Incl 2), 18 copies of the Post Authorization Change Notice (Incl 3), and 3 copies of the public meeting documentation for review concurrent with LMVD review (Incl 4).

Rest
EI

3. Upon completion of LMVD review, the Division Commander will make a recommendation on the project documents.

FOR THE COMMANDER:

Hil
C(

4 Incl
as

FRED H. BAYLEY III
Chief, Planning Division

Graha
RI

Nettle
B(

Bayle

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160

REPLY TO
ATTENTION OF:

LMNPD-F

8 AUG 1984

SUBJECT: Lake Pontchartrain, Louisiana, and Vicinity Hurricane Protection Project

Commander, Lower Mississippi Valley Division
ATTN: LMVPD-P

Inclosed are 35 copies of the Final Reevaluation Report and Final Supplement I to the Environmental Impact Statement and appendixes on the subject project (3 volume set) (Incl 1), four copies of the record of the public meeting held on 12 April 1984 (Incl 2), and one copy of the Post Authorization Change Notification Report (Incl 3). The report recommends a design change from the authorized Barrier Plan of protection to a High Level Plan. The High Level Plan is the National Economic Development Plan and is less environmentally damaging than the authorized plan.

LTC CE, DDE

for ROBERT C. LEE
Colonel, CE
Commanding

3 Incl
as

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160

REPLY TO
ATTENTION OF:

LMNPD-F

8 August 1984

Lake Pontchartrain, Louisiana,
and Vicinity Hurricane Protection Project

Post Authorization Change
Notification Report

1. Description of Authorized Project. The project is located in southeastern Louisiana. Portions of five parishes, Orleans, Jefferson, St. Bernard, St. Charles, and St. Tammany, are included in the project area. The authorized project provides protection to 501,780 acres in the New Orleans area from the Standard Project Hurricane by a system of levees, floodwalls, and three barrier structures. The barrier structures would be located at the three main tidal passes into Lake Pontchartrain--The Rigolets, Chef Menteur Pass, and at Seabrook on the lake side of the Inner Harbor Navigation Canal (IHNC). Normally open, the structures would be closed during a hurricane to prevent filling of the lake by hurricane driven tides. This would reduce the water level in the lake and the required levee and floodwall heights along the south shore of Lake Pontchartrain. Acquisition of lands, easements, rights-of-way, and disposal areas is the responsibility of local interests. In addition to the land requirements, the items of local cooperation include hold and save the United States free from damages, accomplish relocations, maintain and operate project features except the Seabrook structure at the IHNC, provide interior drainage, and bear 30 percent of the first cost. The Rigolets lock would be operated and maintained by the Federal Government, but local interests would reimburse this cost.

2. Authorization. The project was authorized by the Flood Control Act of 1965 dated October 27, 1965 (Public Law 89-298) in accordance with House Document No. 231, 89th Congress, 1st Session.

3. Funding Since Authorization.

Fiscal Year	Appropriation
1966	$ 538,000 (Initial AE&D Funds)
1967	1,600,000 (Initial Const. Funds)
1968	4,086,000
1969	6,269,000
1970	8,050,000
1971	11,250,000
1972	10,946,000
1973	17,500,000
1974	0
1975	-2,080,000
1976	10,845,000
1976 T-Qtr.	5,135,000
1977	10,575,000
1978	7,500,000
1979	230,000
1980	13,320,000
1981	8,800,000
1982	13,000,000
1983	13,716,000
1984	8,800,000
Total	$150,080,000

4. Changes in Local Cooperation Requirements. The Reevaluation Study, dated July 1984, recommends the use of the High Level Plan rather than the Barrier Plan. Consequently, some local cooperation items must be changed to correspond with the new plan, and supplemental assurances will be required. The recommended supplemental assurances have been forwarded through LMVD to OCE for approval.

In the supplemental assurance for the Orleans Levee District, changes in items of local cooperation are as follows:

The dollar figures in Item d have been changed to include more recent price levels. Item e, regarding additional cash contributions for the Rigolets Navigation Lock and Channel, has been deleted. Unlike the Barrier Plan, the Rigolets will not be affected by the High Level Plan. Item g, regarding the requirement of maintenance and operation of all features of the project in accordance with regulation, has been shortened to exclude the phrase dealing with the Rigolets navigation lock and navigation channels. The word "seawalls" has also been deleted from Item g because seawalls are not used in the High Level Plan. Item k has been added to require compliance with Section 601 of Title VI of the Civil Rights Act of 1964, Public Law 88-352.

The changes in the assurance for the Pontchartrain Levee District, in conjunction with its coassurer, the Office of Public Works through the Department of Transportation and Development, are the same as the changes in the assurance for the Orleans Levee District except that the dollar figures in Item d address the costs to complete that portion of the project located within the jurisdiction of the Pontchartrain Levee District. Item j has been shortened to exclude cost figures pertaining to the barrier unit so that revised Item j simply reads "Assume the responsibility to pay its share of the non-Federal project costs." Item m is the inclusion of the Civil Rights Act of 1964.

The Jefferson Levee District was carved out of a portion of the territory that was once within the jurisdiction of the Pontchartrain Levee District, effective 1 January 1979. Thus, the previous assurances given by the Pontchartrain Levee District are binding on the Jefferson Levee District as to the land in Jefferson Parish under Levee Board jurisdiction. As a result, the changes in the proposed supplemental assurances for the Jefferson Levee District are identical to the changes in the proposed supplemental agreement for the Pontchartrain Levee District except that the dollar figures in Item d are tailored for the Jefferson Levee District.

No supplemental assurance, and consequently, no changes in items of local cooperation, were submitted for the Lake Borgne Basin Levee District/St. Bernard Parish Police Jury because previous assurances, dated September 28, 1966 and December 7, 1977, were deemed sufficient. No assurance was submitted for the St. Tammany Parish Police Jury due to deferred status.

5. Change in Location of Project. The location of the levee in St. Charles Parish has been changed from a lakefront alignment to an alignment just north of and parallel to U. S. Highway 61 (Airline Highway). The new location results in a substantial cost reduction, is much less environmentally damaging, and provides protection to existing development. The north of Airline Highway alignment requires less acreage for rights-of-way and eliminates the large land requirement for ponding areas. The barrier structures and their associated levees would also be eliminated.

6. Design Changes. The reevaluation of the project resulted in the recommendation of a design change from the authorized Barrier Plan of protection to a High Level Plan without barrier structures. Under the High Level Plan the design height of the levees and floodwalls proposed for the Barrier Plan would be increased to contain the higher lake levels that would occur without the barrier structures. The barrier structures would have had an unquantified negative impact on the biological and nursery values of Lake Pontchartrain through restricting the tidal passes. Deleting the barrier structures reduces the adverse environmental impacts of the project. The direct construction impacts of the High Level Plan are also less than the direct construction impacts of the Barrier Plan. In addition, the High Level Plan would cost over $100 million less to complete than the Barrier Plan.

7. Changes in Total Project Costs.

COST COMPARISON
($1,000)

	Recommended High Level Plan (Oct 84 price levels 1/)	Authorized Plan Project Document Cost	Project Document Cost at Oct 84 price levels	Last Presented to Congress (Oct 83 price levels)
Incremental	$ 743,000	$ 98,100	$ 367,000	$ 573,000
Fully Funded	$ 820,000			$ 598,000

1/ First year for which a total project cost for the High Level Plan was developed.

The total cost changes between the authorized project ($98,100,000) and the recommended project ($820,000,000) are listed below.

a.	Price Escalation	$ 492,860,000
b.	Design Changes	232,253,000
c.	Authorized Modifications	-19,127,000
d.	Post-Contract Awards and Estimating Adjustments	-5,123,000
e.	Sundry	3,794,000
f.	Real Estate	17,243,000
		$ 721,900,000 (Total Changes)

As part of the reevaluation study, a revised estimate of the cost to complete the Barrier Plan was prepared. The estimate of total cost based on these revisions is considerably larger than the project estimate last presented to Congress and the cost estimate for the High Level Plan. Repetitive price leveling has, over time, produced cost estimates which no longer adequately reflect the probable cost of

construction. Using the latest and best information yields a total construction cost (incremental) for the authorized Barrier Plan of $823,000,000 (Oct 83 price levels). The revised estimate was not presented to Congress.

8. Changes in Project Benefits.

COMPARISON OF BENEFITS

($1,000; Oct 83 price levels except as noted)

Category	Project Document 1/	Last Reported to Congress 2/	Reevaluation Report 2/ Recommended High Level Plan	Reevaluation Report 2/ Barrier Plan
Flood damage prevented				
Agricultural		40		
Urban		232,170		
Total	52,432	232,210	104,294	94,684
Enhancement-Intensification	729	12,798	-	-
Area redevelopment (ARA)	-	3,043	-	-
Total	53,161	248,051	104,294	94,684

1/ Dec 61 price levels.

2/ Remaining benefits.

Benefits shown for the project document and those last reported to Congress (LTC) are based on implementation of the Barrier Plan. Differences between these values result from price level increases, changes in the discount rate, inclusion of employment (area redevelopment) benefits, relatively minor changes to reflect growth in the Chalmette extension area, and periodic adjustments to reflect both sunk costs and sunk benefits attributed to completed works. The differences are based largely on office studies and reflect a minimum of substantive reevaluation. A detailed explanation of the change is presented in the annual budget documents.

Benefit and cost data for the Barrier Plan and High Level Plan as presented in the July 1984 Reevaluation Report reflect a complete reanalysis of values remaining to be accrued as of October 1979. This reanalysis extended to complete revision of fundamental base data and consideration of many changes both in the study area and in agency regulations which became applicable subsequent to publication of the project document. Since many of the major and minor variables which were revised in the reevaluation study are interactive, attribution of specific portions of the changes in the benefit values is not possible, except in the case of the benefit categories which were deleted entirely (intensification-enhancement, agriculture, ARA). Each of these variables has been identified in the following paragraphs, however, and a qualitative estimate of the effect on the benefits resulting from revisions to the variables is provided.

The variables are organized into two main categories: methodological changes, including revisions to policy and regulations; and study area and base data changes, such as revisions to contour data and structure values. Each category is discussed separately below.

Methodological Revisions

a. The project document and the LTC data include substantial intensification and location benefits on large numbers of acres which were deemed undevelopable or developable only at low intensity without the project. Many of these acreages have developed subsequently, however, without apparent regard to flood proneness; thus only inundation reduction benefits have been claimed in the reevaluation report.

b. The project document and LTC data reflect the authorized but deferred St. Charles Parish lakefront protection levee alignment. This protection generated substantial benefits based on enhancement

of wetlands between U. S. Highway 61 and Lake Pontchartrain. This alignment is not a recommended feature of the reevaluation report plan, nor are benefits and costs for such protection included. Only inundation reduction and emergency benefits on existing and minor future development south of Highway 61 or immediately adjacent to the highway to the north are included in the reevaluation report data.

c. In the reevaluation report, future development was assumed to occur at floor elevations consistent with FIA requirements. The previous analysis was based on floor elevations of 1.5 feet above nominal ground elevation, which is generally much lower than FIA requirements. This also impacts a portion of the benefits categorized as "existing benefits" in the reevaluation report, which are related to structures which were developed per FIA regulations subsequent to the previous study.

d. Employment benefits (area redevelopment benefits) were not included in the reevaluation report because the study area no longer qualifies under Department of Commerce criteria as suffering from "substantial and persistent unemployment."

e. Growth rates (OBERS-based) on remaining undeveloped acreages are lower in the reevaluation report.

f. A portion of the benefits included in previous documents were discounted as "future benefits" while in the reevaluation report the passage of time has resulted in some of these benefits becoming "present benefits", i.e. undiscounted benefits.

g. Last reported to Congress remaining benefits are proportioned based on costs remaining. This has tended to overstate remaining benefits as remaining costs were inflated compared to sunk costs.

h. Agricultural benefits claimed in prior data were not analyzed or claimed in the reevaluation report due to the relative unimportance of this category.

i. Business losses claimed in the previous studies were not calculated for the reevaluation report due to the extreme complexity involved and the lack of consensus over acceptable methods of netting out the NED impacts from the regional effects.

j. No losses to vehicles were analyzed in the reevaluation report.

k. Benefits to areas on the North Shore of Lake Pontchartrain were of course also subject to various of the above factors. In addition, the recommended plan contained in the reevaluation report, i.e., the High Level Plan, provides no protection for the North Shore; therefore, no benefits to that area are claimed.

Base data Revisions and Changes in the Study Area

a. Residential and non-residential depth of flooding-damage relationships have been revised in accordance with actual field surveys conducted for the reevaluation study. This is also true for the value of contents/value of structure relationship.

b. Revised stage-frequency curves were used for the reevaluation report.

c. The reevaluation report is based on completely revised contour maps of the study area.

d. Structure and contents values used in the reevaluation report analysis are actual appraised values (1980) based on sample surveys

as opposed to the indexed values used for the budget data submissions.

9. Benefit-Cost Ratio.

BENEFIT-COST RATIO COMPARISON
(3 1/8 percent interest rate; Oct 83 price levels)

Last Reported to Congress	Reevaluation Report	
	Recommended High Level Plan	Barrier Plan
16.5	4.2	3.3

The interest rate used in the project document was 2 7/8 percent. The project was reevaluated using a discount rate of 3 1/8 percent, the rate in effect at the time construction funds were first appropriated. Section 80 of the 1974 Water Resources Development Act allows the use of this discount rate for this project. The benefit-cost ratios at the current interest rate of 8 1/8 percent as calculated for the reevaluation report are 1.6 to 1 for the recommended High Level Plan and 1.05 to 1 for the Barrier Plan.

10. Changes in Cost Apportionment.

COST APPORTIONMENT

($1,000, Fully Funded)

	Authorized Project	Recommended Project
Ultimate Federal Cost	$ 401,000	$ 574,000
Non-Federal Cost		
Reimbursement	56,000	45,000
Cash Contribution	99,036	114,860
Other (Lands & Relocations)	41,964	86,140
Total	$ 197,000	$ 246,000
Total Federal Appropriation	$ 457,000	$ 619,000

11. Environmental Considerations in Recommended Changes. The recommended change in plans will reduce the adverse environmental impacts of the project. The Barrier Plan would cause unquantifiable negative impacts to the Lake Pontchartrain ecosystem. The impacts would primarily result from reductions in the lake's productivity and in export to other systems due to restriction of the passes. The Barrier Plan would also impact 2,363 acres of marsh, 164 acres of cypress tupelo swamp, 28 acres of lake bottom, 870 acres of bayou/canal, and 41 acres of bottomland hardwoods. The High Level Plan would impact 213 acres of cypress tupelo swamp, 54 acres of marsh, and 984 acres of lake bottoms.

A supplement to the EIS has been prepared. The draft was filed with EPA in December 1983 and coordinated in accordance with ER 200-2-2. The final supplement was furnished to OCE in August 1984 for review and filing with EPA.

12. Public Involvement. Public opposition to the environmental impacts of the Barrier Plan resulted in the court-ordered reevaluation study. Two public meetings were held during the course of the study to apprise the public of our decision to recommend the High Level Plan and to receive public comment. Both meetings were held in New Orleans, Louisiana; one on November 21, 1981 and one on April 12, 1984. In general the High Level Plan satisfies the public's desire for a less environmentally damaging plan, while reducing costs. There is still some dissatisfaction with levee alignments which enclose wetland areas and the use of Lake Pontchartrain for borrow material. However, studies indicate the impact on wetland areas will be negligible, and the cost of obtaining borrow material from alternative sites is prohibitive. Some environmental groups have requested a mitigation plan be included in the reevaluation report. However, the mitigation report will be submitted as a separate document. A number of conceptual mitigation plans have been developed. These plans were presented to the public for their review and comment at a scoping meeting held on June 28, 1984. The draft mitigation report and draft EIS are scheduled for public review in March 1985. The final report and EIS are scheduled to be filed with EPA in January 1986.

13. Project History. The project was authorized in 1965 and construction began upon receipt of funds in 1966. In response to the National Environmental Policy Act of 1969, an EIS was prepared in 1974 and filed with the Council on Environmental Quality in January 1975. Local environmental interests subsequently filed suit challenging the adequacy of the EIS. On December 30, 1977, major portions of the project were enjoined from further construction by United States District Court, Eastern District of Louisiana, New Orleans Division. In March 1978, after presentation of additional information by the Corps, the injunction was modified to allow continued construction of all portions of the project except the barrier complexes at Chef Menteur Pass and The

Rigolets. The court ordered the Corps to prepare a supplement to the EIS which adequately addressed the impacts of the barrier structures and to investigate alternative plans of hurricane protection. This request for post authorization design changes is a result of the court ordered alternative plans study.