LAKE PONTCHARTRAIN AND VICINITY
HURRICANE PROTECTION PROJECT

Questions by LMVD on Barrier Plan

QUESTION 1: Is opposition to the barrier plan sufficiently widespread and of sufficient tenacity to postpone its construction?

RESPONSE: It is our opinion that opposition the barrier is not widespread, and is actually quite narrow. The predominant source of opposition is St. Tammany Parish and such opposition has been expressed by public officials, governmental and municipal agencies, media, industrial groups, and individuals of that parish. The bases for this opposition relate to environmental damages caused by the barrier complex and are for the most part, ill-founded. Despite numerous attempts by NOD to reconcile apparent differences, the opposition persists.

Expressions of opposition from sources outside of St. Tammany Parish are scarce and random and in such cases, have been resolved by direct correspondence.

QUESTION 2: What are tha main objections to the barrier?

RESPONSE: The major objections to the barrier are as follows:

a. It will destroy the ecological balance of Lake Pontchartrain by restricting the flow area through Chef Menteur Pass and the Rigolets.

b. The barrier will destroy the industrial potential of the north shore by limiting dimensions of navigation structures and thereby limiting the size of future marine craft.

c. The necessity to lock vessels through at Seabrook and the Rigolets will seriously inconvenience recreational boating in the lake.

d. The barrier will be a tax burden to the public.

e. It will not work.

f. It was rejected three times by the people of the area in elections.

g. Competent engineers disagree with the justification and responsiveness of the project.

h. It serves to enhance the lands of very few owners

i. It will not provide the intended protection.

j. It will endanger lives and property, particularly in St. Tammany Parish.

k. It is a waste of taxpayers money.

l. It will take 10 years to complete and some form of seeding or other means will be found to subdue hurricanes.

m. It will cause extensive flooding in the Slidell area and St. Bernard area and will wipe out the industries along the IHNC.

n. Loose barges and other floating equipment will be driven through the floodwalls causing flooding of protected areas.

QUESTION 3: <u>What ecological damage is anticipated to Lake Pontchartrain and Lake Maurepas due to the barrier?</u>

RESPONSE: The construction of the barrier complex would involve both beneficial and adverse impacts on the natural environment. On balance, we believe the impact would be beneficial, primarily because the Seabrook Lock, an essential element of the barrier complex, will permit the maintenance, in Lake Pontchartrain, of a salinity regimen more favorable to the natural environment that now exists. Background information for this conclusion is summarized in the following paragraphs.

a. Results from an extensive hydraulic model investigation at the US Army Engineer Waterways Experiment Station in Vicksburg, Mississippi, show that existing lake salinities would not be altered significantly by control structures in Chef Menteur and Rigolets Passes. The channels and control structures are designed to be hydraulically equal to the natural passes; hence, their effects on the salinity regimen and tidal heights of Lake Pontchartrain would be negligible. The gated control structures should not interfere with the seasonal migration of larval, young, and adult organisms and the exchange of food materials and nutrients, except during hurricane conditions.

b. Environmental changes at the Chef Menteur and Rigolets construction sites will include the destruction of brackish marsh by the construction of protective levees, new channels, and control structures. Turbid water conditions, with associated silting due to dredging, pumping, and levee construction would occur only during construction periods. Temporary turbid water conditions during construction will decrease the amount of primary production in the distrubed area by decreasing the light available to phytoplankton and other aquatic plants.

c. Land affected by the barrier, as right-of-way, including the barrier levee and the Chef Menteur, Rigolets, and Seabrook Complexes, would be about 2,000 acres.

d. Construction at the Chef Menteur and Rigolets sites would result in the formation of ponds for duck hunting and fishing in land area borrow excavations and the formation of deep fishing holes by removing borrow materials from the bottom of Lake Pontchartrain and other waterways.

e. The Seabrook Lock outlet structure would be operated to provide a desirable salinity regimen in Lake Pontchartrain to the end that deleterious alterations in lake ecology would be avoided. This complex would allow salinities in Lake Pontchartrain to be adjusted as may be necessary for the maintenance of fish and wildlife resources. Since the outlet gates are to be of the vertical lift type and since the available flow area far exceeds the flow area needed for riparian users and for salinity control, the gates would be regulated to meet any flow requirements necessary to satisfy these purposes.

If the Seabrook structure is to be build irrespective of whether the barrier plan or the high level plan is adopted, the ecological consequences of the two plans would be generally similar in nature and magnitude, except in the area of lands committed for project construction and maintenance. Much of the 2,000 acres required for the barrier complexes and levee would be unnecessary under the high level plan. On the other hand, the higher design elevations of the high level plan would

increase the demands for adjacent land, and, in the case of the Citrus and New Orleans East Lakefront levees, would probably require that the levees be built on productive waterbottoms in Lake Pontchartrain rather than on areas already leveed and drained. If the Seabrook structure is considered to be an integral part of the barrier, and would not be provided with the high level plan, that plan would involve ecological consequences much more severe than the barrier plan in that opportunities for beneficial ecological management would be lost.

QUESTION 4: If the barrier plan is to be abandoned, how much money already spent for design and construction would be lost?

RESPONSE: Slightly over $3 million would be lost. Approximately $2,300,000 would be lost for design of the Seabrook, Chef Menteur, and Rigolets Complexes, including A-E and NOD expenses, and approximately $765,000 would be lost for construction of the GIWW relocation at Chef Menteur Pass.

QUESTION 5: Without a barrier, is protection for St. Charles Parish feasible and what would be the B/C ratio for that item?

RESPONSE: Assuming that the barrier is eliminated and considering a high level plan, the cost of providing the same degree of protection to St. Charles Parish along the lakefront would be $50,000,000. Annual costs for this plan would be $1,900,000, and annual benefits afforded by the levee would be $4,100,000. Over 99% of these annual benefits are due to land enhancement. The resultant B/C ratio would be 2.2 to 1.

If the St. Charles Parish lakefront levee were eliminated from the high level plan, it would be necessary to enlarge the Jefferson-St. Charles Parish line return levee from the lakefront to Airline Highway. The cost of this improvement would be approximately $10 1/2 million.

QUESTION 6: If the barrier is not constructed, would the EIS require revision? If so, what would be the additional cost?

RESPONSE: Assuming that the high level plan would be substituted for the barrier plan, and that Seabrook Lock would be provided as part of the high level plan, rewriting and recoordination of the EIS would be required. This required revision would take about 1 year after the basic information on the high level plan is made available. The estimated Planning Division cost would be $20,000. We estimate that Engineering Division input would require an additional 6 months and cost approximately $15,000.

QUESTION 7: Do you consider that the Chief of Engineers has the authority to abandon the barrier plan and substitute a high level levee plan without reference to Congress?

RESPONSE: No.

QUESTION 8: As an alternative to the presently proposed gated structures in the barrier plan, have uncontrolled or automatically controlled structures in the Chef Menteur and Rigolets been investigated to eliminate the need for local interests to operate these structures?

RESPONSE: As a cursory study, we did investigate the feasibility of constructing ungated control structures in the Chef Menteur and Rigolets in lieu of the presently designed structures. We determined that an ungated structure would have to have a smaller opening than a gated structure would have to have. The ungated opening would have to be at most, half as large, but preferably smaller than the currently designed control structures in order to function as a barrier. At least two serious drawbacks exist with this kind of plan:

a. Because the structures would be only half as large as the presently designed structures, they would impede the normal exchange of tides and also increase the average stage in Lake Pontchartrain, making it a fresh water lake during normal weather. Any design of structures which would upset the hydrological balance that now exists would result in serious ecological impacts.

b. Because the structures would not be closed during a hurricane, whenever hurricanes, such as Carla in 1961, or Delia in 1973, lingered in the Gulf of Mexico for a week or more, the structures would have little effect on controlling the average level of the lake and the flood potential for those hurricanes would be essentially the same as exists now, and only slightly improved for others.

In view of these drawbacks, no further investigations were made into the feasibility of uncontrolled or ungated structures.

We are not certain as to what is meant by automatically controlled structures. We will assume that this implies either (1) structures that are operated by gates monitoring water levels, or (2) remotely

controlled structures. We further have excluded operation of the navigation structures from such a mode.

Structures which operate by water level gages would not be reliable since operation could be effected during extreme tidal conditions not associated with hurricanes. Clodures during such cases would be undesirable ecologically and for vessel safety due to lack of warning.

Remotely controlled operation would also be undesirable because of vessel safety and also because of the absence of backup systems in case of operation malfunctions. We believe that operations personnel must be at hand during closures to assure positive operation and so that necessary modifications to routine procedure can be immediately implemented.

QUESTION 9: Assuming that the barrier plan were to be abandoned and that a high level plan is used to provide the same degree of protection, discuss the following:

a. Additional height of levees required.

RESPONSE: Refer to the project display map.

Feature	Barrier Plan Elev. (ft m.s.l.)	High Level Plan Elev. (ft. m.s.l.)
St. Charles Parish	12.0-12.5	17.5-19.5
Jefferson Parish	10.0	16.0
Orleans Parish Lakefront	12.0	17.5
Citrus Lakefront	13.5	18.5
N.O. East Lakefront	13.5	18.0
So. Point to U.S. Hwy 90	12.5	15.0
U.S. Hwy 90 to GIWW	14.0	17.5

use 20.0 for Mandeville

All remaining authorized levee grades will not be affected and are adequate, assuming that the area protected by the high level plan is limited to the Metropolitan New Orleans area. If the high level plan was assumed to provide protection to all the areas around Lake Pontchartrain that now derive protection from the barrier structures, then it would be necessary to construct levees north and west of the city as shown on the large display map.

b. Need for replacing or modifying the existing pumping station in Jefferson and Orleans Parishes.

RESPONSE: If the barrier were eliminated, the 5 pumping stations which discharge into the lake in Jefferson Parish would have to be replaced.

New pumping stations would have to be built at three locations along the Orleans Parish lakefront. However, we have assumed that these stations would have to be built for either the barrier plan or a high level plan. These stations would have to be built to higher elevations for a high level plan and would accordingly be more expensive for such a plan.

c. Serious engineering problems related to this plan: such as levee stability and the impact on Moisant Airport, Southern railway tracks in the New Orleans East area, and existing protection along the IHNC.

RESPONSE: We do not anticipate any serious engineering problems relating to levee stability. Moisant Airport would derive equivalent flood protection under either plan. The lakefront levee from the IHNC to South Point will have to be built on the lakeside of the railroad embankment due to ROW restrictions and the extensive relocations required and to protect ~~to protect the railroad track from flooding.~~ The works along the IHNC the RR embankment are adequate for either a high level plan or the barrier plan.

d. Rights-of-way and relocation problems.

RESPONSE: A high level plan for Greater New Orleans would require considerably more rights-of-way in St. Charles Parish and in Orleans Parish along the lakefront from Jefferson Parish line to Seabrook and from South Point to the GIWW. Commitment of lands in Orleans Parish will involve considerable expense in terms of first cost, severance where floodwall is required, and loss of property values behind higher levees and floodwalls. Levees from the IHNC to South Point will be constructed in the lake. Jefferson Parish levee would be topped with floodwall and will result in costs for severence and loss of property values behind the protection. Extensive relocations will be required, including major ramping at U. S. Highway 11, Highway 90, Interstate Highway 10 and Causeway Blvd.

A comprehensive high level plan would require commitments of vast amounts of R/W for levees on the north side of the lake as well as extensive relocations, including numerous roads, major highways and numerous pipelines. Additionally, many streams and rivers would have to be controlled with structures and this would involve considerable urban and rural drainage modifications.

e. Feasibility of protecting Mandeville and other areas along the lakeshore in parishes other than Orleans and Jefferson.

RESPONSE: A high level plan for Mandeville and the north shore was developed which would provide the same degree of protection as the barrier plan would afford. The additional cost for this plan would be $254,000,000 and is shown on the display map. Although an estimate of the benefits for such a plan have not been determined, due to the predominantly rural character of the affected areas, it is highly improbably that incremental justification could be demonstrated for such a plan.

f. Project cost estimate, project benefits, B/C ratio, annual funding requirements from FY 76 till completion, and estimated project completion date.

RESPONSE: The estimated cost for a high level plan to protect Metropolitan New Orleans is $463,000,000. Estimated annual charge for this plan is $18,600,000 and annual benefits are $145,000,000. The B/C ratio would be 7.8 to 1.

Summary costs are broken down as follows (amounts are expressed in thousands of dollars):

	High Level Plan
St. Charles Parish	50,000,000
Jefferson Parish	92,200,000
N.O. Lakefront	28,400,000
Citrus Lakefront	54,700,000
N.O. East Lakefront	60,000,000
South Point to GIWW	23,400,000
Subtotal	308,700,000
Chalmette Area Unit	69,800,000
IHNC, N.O. East Bank Levee	
Citrus Back Levee	55,500,000
Seabrook Lock	26,000,000
Subtotal	$460,000,000
Lost Effort on Barrier	3,000,000
Total cost	$463,000,000

Annual finding requirements are assumed to be $20 million starting in FY 76. Project completion date would be in FY 94.

The estimated cost for providing a high level protection plan to Mandeville and the north shore area to the same degree afforded by the barrier is $254,000,000. This would mean that a comprehensive high level plan providing the same degree of protection as the authorized plan would

be $717 million. Estimated annual charge for this plan is $28,800,000 and estimated annual benefit is $147,000,000. The B/C ratio would be 5.1 to 1. A $20 million annual funding level starting in FY 76 would be required. Estimated completion would be FY 2006.

g. Local support for and opposition to this plan.

RESPONSE: Though the answer to this is for the most part speculative, we would not expect local interests to support any plan more costly than the present plan. Three past special referendums to increase taxes to pay for local fund requirements toward this project have failed. Local interests have expressed their inability to provide all the funds required for the authorized plan and have pursued congressional legislation to modify their present obligations by reducing their costs and providing for installment payments of their obligations.

h. Would the protection along the south shore of Lake Pontchartrain for such a plan create serious esthetic problems?

RESPONSE: A high level plan would undoubtedly cause severe esthetic problems. These problems would be most pronounced along the Jefferson Parish Lakefront where floodwall is required and along the Orleans Parish lakefront between West End and Seabrook. Such a plan would impair the view of the lake from the residences in that area and for the many people who frequent Lakeshore Drive and the park-like facilities of the area.

i. What modifications to Seabrook lock and control structure would be required?

RESPONSE: Seabrook lock would only require minor modification which consists of raising the operating machinery above higher flood levels. This would cost approximately $1 million. The control structure need not be modified.

QUESTION 10: Assuming that the barrier plan were to be abandoned and a a low level plan is used, describe the following:

a. Degree or level of protection provided.

RESPONSE: Elimination of the barrier will result in a reduction in the degree of protection (expressed by return frequency) from 300 years to 40 years for the south shore of the lake, and from 300 years to 35 years on the north shore of the lake.

b. Project cost estimate, project benefits, B/C ratio, annual funding requirements from FY 76 to completion and estimated completion date.

RESPONSE: The project cost estimate for such a plan is $210,000,000. Annual costs are $8,400,000 and annual benefits are $117 million and the B/C ratio is 13.9 to 1. Funding requirements are as follows:

FY 76	$25,000,000
FY 77	17,000,000
FY 78	15,000,000
FY 79	13,000,000
FY 80-83	10,000,000/yr.

Estimated completion in FY 83.

c. Any significant R/W and relocations problems.

RESPONSE: There will be no significant problems for areas that will be improved beyond those of the present plan. R/W and relocations requirements which directly relate to the barrier complexes at the Chef Menteur Pass and the Rigolets would be eliminated.

d. Local support for and opposition to the plan.

RESPONSE: We could not validly speculate as to the feelings of local interests due to the beneficial influence of a reduced project cost and the detrimental influence of a lesser degree of protection.

QUESTION 11: Have plans other than the barrier plan and a high level plan been studied?

RESPONSE: Although modifications of the barrier plan and the high level plan have been studied, we have not formulated any plans which reflect variation in the concepts of protection, ie., a barrier concept and a ring levee concept.