

LMNPD-F (23 Mar 81) 1st Ind

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

DA, New Orleans District, Corps of Engineers, PO Box 60267,
New Orleans, LA 70160 3 June 81

TO: Division Engineer, Lower Mississippi Valley, Attn: LMVPD-P

1. As discussed in our meeting of 29 Apr 81, I am prepared to make some definite recommendations regarding the direction of our future study efforts.
2. You suggested three possible future study scenarios - complete our on-going contract transport studies and revising the EIS in support of the authorized plan (option 1), terminating the contract transport studies and revising the EIS in support of the authorized plan (option 2), or terminating the contract transport studies and revising the EIS in support of a "high-level plan" (option 3). In the way of general information, I would like to discuss our latest data concerning the relative feasibility of plans vis-a-vis a barrier plan providing SPH protection versus a high-level plan providing SPH protection. Inclosure 1 reflects the latest levee alinements, designs and cost data related to the two-plan options under serious consideration. Inclosure 2 is a letter from the US Fish and Wildlife Service regarding the potential environmental impacts of the two plans, indicating preference for a high-level plan. The data reflected in inclosures 1 and 2 confirm our previous preliminary findings that at this point in time, strictly on the basis of economic feasibility and environmental impacts, construction of a high-level plan is preferable to construction of a barrier plan. I will now individually address options 1, 2 and 3.

a. Option 1 will require the greatest commitment of study resources, and take longest to accomplish of any of the three options. Based on experience of delays resulting from the complexities of transport studies and contractual problems, we can reasonably anticipate future delays in addition to those already experienced. The studies are designed to adequately respond to the court injunction of 30 December 1977. According to our consultant, Dr. Eugene Cronin (inclosure 3), the studies are the minimum we can get by with and still be in compliance with the court injunction. Further, we have reservations regarding the accuracy of the impact analyses which will be necessary subsequent to completion of the transport studies; that is, after extensive efforts, the results of our transport studies may be subject to successful legal challenge.

b. Option 2, because of the legal problems discussed under option 1, is not considered viable. It is highly improbable that we could file a legally adequate EIS with EPA under this option.

c. Option 3 offers the opportunity to complete our studies in the shortest time frame. Also, the standard methods of construction proposed under this plan pose no esoteric problems with regard to environmental impact analyses. That is, if we propose a high-level plan, we feel that preparing a legally adequate EIS is easily within our technical capabilities.

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d. Because of its superior economic and environmental feasibility and our certainty of study capability, I recommend pursuing option 3. My recommendation includes termination of the transport study contracts at the earliest practicable date(s) for several valid reasons; their completion will no longer be required if we follow option 3, and we are now paying \$40,000 a month in delay costs to LSU. Finally, phase 1 of the contract, which is the study design, is complete; we can put the study "on the shelf" and restart it at any time without a loss of accuracy and we can let future work out for competitive bids (if we proceed with construction of Seabrook Lock, we may need to complete portions of the proposed phase 2 of the transport studies).

3. There are several additional study considerations which deserve mention at this time: Seabrook Lock, the St. Charles Parish Levee, Jefferson Parish cost sharing, North Shore benefits, and New Orleans outfall canals.

a. Under the authorized plan the Seabrook Lock would serve three basic functions: it could be operated as a hurricane barrier structure, it could be operated to control currents hazardous to navigation, and it could be operated to control salinities in Lake Pontchartrain. The first function is attributable to the hurricane protection project, and the latter two functions are attributable to the Mississippi River - Gulf Outlet (MR-GO) navigation project. A reading of the hurricane protection project's authorization indicates that while Seabrook Lock is a feature of the MR-GO project, 50 percent of its first costs shall be borne by the Lake Pontchartrain project because of its hurricane control capability. However, a high-level plan will not require operation of Seabrook Lock as a barrier structure; hence, I feel it would be unfair to local sponsors of the hurricane protection project to cost-share this item. Accordingly, I propose that we eliminate Seabrook Lock as a cost-sharing item of the high-level plan in the revised EIS and propose a change in cost-sharing authorization by a separate document. As previously mentioned, prior to the lock's construction, we may need to re-initiate some portions of the transport studies. It should also be noted that if the locks were to be constructed strictly as an MR-GO feature, it is unlikely that it would be justified. Its first cost is estimated to be about \$80,000,000 and its annual O&M is estimated to be \$470,000 (Dec 80 price levels). The problem of hazardous currents could be eliminated by relocating a restrictive railroad bridge; a "ball park" estimate of the cost of this bridge relocation is \$5,000,000. Therefore, the incremental costs of the lock's salinity control function are \$75,000,000 first costs and \$470,000 annual O&M. In order to be economically justified at a 3 1/8 percent interest rate, the lock would have to generate about \$3,000,000 a year in benefits (enhancement of commercial fisheries etc.). Also, there is disagreement between US Fish and Wildlife and the National Marine Fisheries Service as to how the structure should be operated, i.e., to increase or decrease lake salinities.

b. Our preliminary data indicates that under either plan, the levee in St. Charles Parish would not be economically justified. Under our latest criteria, we can claim very little in the way of location benefits; this

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category previously provided the bulk of the levee's justifying benefits. Price escalation has also operated to reduce the benefit-to-cost ratio. Preliminary data also indicate that lower levels of protection such as a 100-year levee would not be justified either. We plan to complete this incremental analysis shortly, so that a final position on the St. Charles levee can be taken.

c. Jefferson Parish is the one parish participating in the project which stands to incur greater expenses under a high-level plan than under a barrier plan. We met with Jefferson officials and representatives from the State of Louisiana at New Orleans District on 8 May 1981 to discuss our findings. The Office of Public Works, State of Louisiana, will brief the Governor as soon as possible in order to determine the state's position on the high-level plan. Subsequent to the briefing of the Governor, we anticipate holding a public meeting as soon as practicable thereafter to present our findings and solicit public views.

d. The barrier plan would provide protection to the North Shore area of Lake Pontchartrain; and about \$1,000,000 in annual benefits are attributable to this protection; the high-level plan would not provide protection to the North Shore area. However, the annualized costs of the barrier plan exceed the costs of the high-level plan by much more than \$1,000,000; thus the barrier plan is not economically incrementally justified over the high-level plan. Plate A-6 of inclosure 1 depicts the differences between the protected areas under the two plans.

e. Another unresolved study issue is the New Orleans outfall canals. Major New Orleans drainage is accomplished by three pumping stations (much of the city is below sea level) which are set back from Lake Pontchartrain up to 4,000 feet. The pumping stations receive runoff from the city drainage collection system and lift the runoff into outfall canals which in turn convey the runoff into Lake Pontchartrain. Return levees flank the outfall canals to prevent overflow. When the hurricane protection project was initially authorized, the return levees were found to have sufficient grade and stability to withstand lake stages resulting from a SPH with a barrier plan in place. Subsequent to authorization, a 1-foot change in the vertical datum plus a change in design hurricane parameters which caused a 1-foot revision to the design hurricane surge elevations resulted in the determination that the return levees were deficient. A number of alternatives were investigated, and it was found that the cheapest way of preventing hurricane overflow of the outfall canals would be to provide closure gates at the mouth of the outfall canals at a cost of about \$20,000,000. Based on previous OCE policy decisions, it was assumed that we would not interrupt drainage; therefore, the cost estimates of both plans include the cost of pump stations at the lakefront adjacent to the outfall canal closure gates equal in capacity to the existing pumping stations. The cost of the pumping stations is about \$100 million. However, surge problems in the outfall canals would result if two pumping stations were operated in tandem. While the issue is as yet unresolved, costs of \$120,000,000 (gates and pump stations) are included under the New Orleans Lakefront Levee items of cost estimates of both plans for the sake of comparability.

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4. At our 29 April 1981 meeting, you were provided with several alternate study schedules. The schedule pertaining to option 3, high-level plan indicated a final EIS on file with EPA in August 1983. That schedule, as was pointed out, is already dated. Preparation of a firm detailed schedule will probably not be possible until after the public meeting. A reasonable estimate of filing a final EIS with EPA would be 28 months after this early public meeting. A priority study effort would be maintained considering the constraints of available resources and commitments to other priority work in the study program.

5. Approval to pursue option 3 is requested.



THOMAS A. SANDS
Colonel, CE
District Engineer

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