DEPARTMENT OF THE ARMY
MEMPHIS DISTRICT, CORPS OF ENGINEERS
167 NORTH MAIN STREET B-202
MEMPHIS, TENNESSEE 38103-1894

REPLY TO
ATTENTION OF:

January 9, 2001

Project, Programs, and Project Management Division
Project Management Branch

Mr. Randy Fitzgerald
Reader's Digest Contributing Editor
Post Office Box 1536
Cobb, California 95426

Dear Mr. Fitzgerald

Thank you for the opportunity to respond to your questions regarding the Grand Prairie Area Demonstration Project. The groundwater situation in Eastern Arkansas is becoming more critical each year. We believe that it is essential that accurate information be presented to inform the public about this important project. Prior to responding to your questions, I would like to provide you with some general information about the project.

The aquifer depletion problems in the Grand Prairie have been recognized for years. Studies were conducted as far back as the 1940's. The area is underlain by two principal fresh water aquifers, the Mississippi Valley Alluvial Aquifer, and the Sparta Aquifer. The Alluvial Aquifer is a regional aquifer and is the principal source of irrigation water. The Sparta Aquifer is much deeper, has higher quality of water, and much less water per equal volume, and much slower recharge than the alluvial. The Sparta Aquifer is the source of most of the area's drinking water. The Alluvial Aquifer is being rapidly depleted and agriculture is now using the Sparta more. Both aquifers meet the criteria for being designated "critical" under Arkansas state law of having declines of at least one foot per year for the last five years or a saturated thickness of less than 50% of the original saturated thickness.

What are the impacts of allowing the aquifers to deplete? Water would only be available to irrigate 77% of the cropland currently irrigated. This translates into a loss in 1996 dollars of $46 million annually in the value of agricultural production in the Grand Prairie as 187,000 of the area's 241,000 acres of irrigated cropland revert to dry land agricultural practices. This loss would devastate the local economy which is based on agriculture, and would be felt by everyone in the area because of lower land values, lower tax revenues, and much less money in the general economy. Federal participation is based on protecting both the Sparta Aquifer and the Alluvial Aquifer and maintaining the production value to the national economy. In addition to the protection of the aquifers, national benefits are $1.24 returned to the national economy for every $1.00 invested, of which 35% is non-Federal contributions. Not counted in national economic benefits are the regional benefits of preventing the devastating losses to the agricultural based economy, agribusiness, agricultural processing facilities, and other related activities that would impact all segments of the regional and local economy.

Many alternatives have been analyzed in the development and optimization of the project. The project contains the maximum feasible amount of additional conservation and storage features, using groundwater at the long-term safe yield of the alluvial aquifer, and only relies on import water for the remaining demands. The project doubles the acre-feet of on-farm storage in the project area by creating an additional 8,800 acres of storage reservoirs and provides a 10% increase in irrigation efficiencies. Much of the rainfall is currently caught and stored. With additional conservation features, but without a supplemental source of irrigation water, only 1,400 additional acres of storage would be justified to catch existing rainfall. Without a source of supplemental water, water would not be available for 178,000 acres of the currently irrigated cropland. An import source of water is necessary to protect both the alluvial and Sparta aquifers and to provide for continued irrigated agriculture in the Grand Prairie.

I have enclosed a project brochure, information on the need for an import system, an article about the project from the *Arkansas Wildlife Magazine*, and a compact disk containing the General Reevaluation Report. Now to your questions, I have coordinated the response among the project team and hope the answers assist you in your article.

What is the current status of the project and how much has been spent on it so far? Is the estimate of $25 million spent on studying the Eastern Arkansas Irrigation Projects still correct?

Construction has been initiated on the on-farm storage and irrigation efficiency features of the project with contracts with local landowners executed in October 2000. Development of design plans and specifications for the delivery system are continuing.

The estimate of $25 million spent studying the Eastern Arkansas Irrigation Projects never was correct. $11,583,000 was spent on studies prior to authorization of the project. This included development of all feasibility studies of alternatives, economic analysis, and environmental studies summarized in the EIS. Development of plans and specifications has been initiated and through fiscal year 2000, an additional $7,924,000 has been spent on processing the report, plans and specifications for the project, and initiation of the on-farm efficiency and storage features of the project.

Congress appropriated $20.3 million for fiscal year 2001. This appropriation included $2 million to be used for an engineering review of the water sources required by the compromise engineered by former Congressman Dickey. The remaining sums will be used to continue studying additional aquifer protection and environmental features for the project, continue developing design plans and specifications, and continue construction of the on-farm efficiency and storage features included in the project.

Is the estimated cost of the project $319 million, with $128 million in water taxes being used as the local share of funding?

The baseline initial project cost estimate (in 1996 dollar values) is $270.5 Million. The fully funded cost estimate of the project, including the costs already spent on studying the project and estimated inflation for the entire construction period of the project, is $319 million. Cost

estimates in 1996 and 1999 price levels are presented in the General Reevaluation Report (GRR) along with the fully funded costs.

The local share of the project is $111 million, or 35% of the total project cost. A break down of the cost allocation is provided in the report on Table 14 of the GRR. The financing plan is included in the GRR. The Arkansas Soil and Water Conservation Commission and the White River Region Irrigation Water Distribution District, the local sponsors for the project, will determine how the local share is financed.

In May, during peak usage under the Grand Prairie plan, would the combination of rainfall and irrigation water result in damage to lands in at least four areas of Arkansas County?

No, this statement is not correct. Under worst case conditions without turning the pumps off during peak demands coinciding with major rainfall events, an insignificant, likely immeasurable in the field, increase in flow lines could occur in two small areas, but the benefits provided by the project even in those two areas far exceed the worst case possible damages, damages that can be eliminated simply by turning the pumps off when it rains.

Peak usage is not in May but in July and August. With normal demand, on average the system operates at less than 50% capacity in May.

In order to ascertain the possibility of induced flooding under worst-case conditions, whenever they may occur, the assumption was made that the system was running at full capacity during the range of possible rainfall events and was not shut off during the event. Flood elevations were examined both with and without project. These assumptions are worst case and assume that the farmers would be accepting delivery of water during the major flood events. This type of analyses was prudent to determine if a potential problem could occur, but would not be reflected in actual system operation. Additional studies on the control system have established that the system response time is approximately six hours. In other words, if the system were operating at full capacity, the last water that would flow out of the system into a natural channel would be six hours from the time the system was halted. Most major area-wide rainfall events occur with some warning. The major rainfall events during peak irrigation season of July and August are typically the result of hurricanes. Enough warning of such major events would occur that farmers would quit taking irrigation water in preparation for the natural rainfall and the system pumping station would be shut down well before the rainfall event started. Because of the system controls being designed into the project, induced flooding will not be significant or widespread.

The Economic Appendix identifies two areas that may experience very minor increased flood problems if the flows are not controlled operationally. These are on Little LaGrue and Mill Bayous. Both areas may under absolute worst case conditions experience increased flood damages of $4,000 annually, if it is assumed that the system operates at capacity through the rainfall events and pumping is not halted due to the system failure. This possible increased flood problem, a problem that could be prevented by simply turning off the pumps, comes from a possible increase in water surface profiles of 2 to 4 tenths of a foot. However, it must be realized

that the $8,000 in damages will be more than offset by the $43,000 in irrigation benefits that will occur on these same affected lands with a net positive gain of $35,000 annually.

All crossings under the irrigation delivery system are designed for the 100-year flood event to ensure that the system does not induce flooding. Even though this greatly exceeds the carrying capacity of the channels coming to the canal, this criteria was chosen to eliminate the possibility that the system could limit any future flood control improvements.

The operating system was tested under various scenarios including gate failure with the 100-year flood event. The system levees were not overtopped even assuming failure of one control structure.

In the Economic Justification, Section 10, table D-3, soybean and rice prices are predicted to triple to pay for this project by the year 2015. Isn't this a rather optimistic prediction? How was it made?

Your statement is incorrect. Table D-II-5 in the Economic Appendix clearly shows that the prices used for soybeans and rice are $5.94 per bushel and $6.90 per hundredweight, respectively, over the life of the project. All price levels for both economic benefits and economic costs are held constant over the life of the project.

The economic analysis of the proposed project used Normalized Prices developed by the Economic Research Service (ERS). The ERS is one of four agencies in the Research, Education, and Economics Mission Area of the U.S. Department of Agriculture (USDA). The ERS provides economic analysis on efficiency, efficacy, and equity issues related to agriculture, food, the environment, and rural development to improve public and private decision-making. Normalized Prices have been used by Federal agencies in water and related land resources planning, since implementation of the Water Resources Planning Act of 1965 which required their use. The ERS annually calculates Normalized Prices for evaluating alternative development and management plans for water and related land resources. Normalized Prices smooth out the effects of short-term price fluctuations so that plans can be evaluated on a more realistic basis rather than using current prices, which may be lower or higher than normal because of short-lived phenomena. The ERS estimates these prices based on 5-year moving averages of actual market prices. It is imprudent to plan and develop projects with 50-year functional lives based on short-term economic circumstances. The history of agricultural prices has been filled with numerous instances of both high and low prices. It is no more proper or appropriate to plan flood control investments based on today's depressed agricultural conditions, as it would be on yesterdays or tomorrows prosperous agricultural conditions. Clearly, the economic analysis used prices which are based on long-term trends and not on single year prices.

As previously stated, the crop prices used in the analysis are not projected to increase over time. In accord with current Corps regulations and policies, all benefits and costs used in the benefit-to-cost analysis are based on "constant" price levels. The price level used in the analysis was 1996. The 1996 Normalized Prices for most of the major field crops were the lowest of the last 7 years for which Normalized Prices are available. Most of the project's agricultural benefits come from soybeans and rice. The prices for soybeans were $6.23, $6.14,

$5.95, $5.94, $6.15, $6.39, and $6.67 per bushel for the years 1993 through 1999. Quite obviously, the 1996 price of $5.94 per bushel is the lowest. The same can be said for rice with prices of $7.24, $6.98, $7.15, $6.90, $7.38, $7.83, and $8.83 per bushel for the same time period. Again, the 1996 price of $6.90 is the lowest in the 7-year timeframe.

What is the Corps analysis of Rep. Dickey's plan for tailwater recovery systems and recycling of irrigation water? Does the plan offer any benefits either in water conservation or savings to the taxpayers? Would the plan conserve the aquifers and still irrigate the same amount of farmland as the Grand Prairie?

No plan has been submitted that would preserve the aquifers and still irrigate the same amount of farmland as the Grand Prairie Area Demonstration Project.

Tailwater recovery systems and recycling of irrigation water have always been included in the authorized Grand Prairie Area Demonstration Project as part of the on-farm efficiency and storage features and are currently being implemented. Studies conducted by the Natural Resources Conservation Service have identified cost effective irrigation features that will increase efficiency by approximately 10%. Approximately one-fourth of the costs of the authorized project are for on-farm efficiency and storage features and is part of the compromise reached by former Congressman Dickey.

Additional efficiency and storage features were examined without an import system to provide supplemental water. The results of this scenario were that water would not be available to irrigate 178,000 acres of currently irrigated cropland, a loss of approximately 77% of the currently irrigated cropland. The current water demands at approximately 60% irrigation efficiency are 481,000 acre-feet with over 400,000 acre-feet coming from groundwater. The long-term safe yield of the aquifer is 35,600 acre-feet. Efficiency and storage alone cannot make up for the huge difference in the safe yield and aquifer use. A source of supplemental water is needed to protect the aquifers and maintain irrigated agriculture.

The Corps is conducting an engineering review of the water sources for the project, constructing the on-farm efficiency and storage features that are part of the project, and have not started construction of the features to withdraw water from the White River in accord with the compromise arranged by former Congressman Dickey. The Corps has been working closely with an oversight committee reporting to a water resources task force appointed by the Governor of Arkansas. This committee included two of the three you mentioned on the phone as working with you on the story, Mr. Jerry Lee Bogard and Mr. David Carruth. A draft report containing the findings of the engineering review was sent to the members of this committee on December 7, 2000. The wording of a press release made after the April compromise was agreed to, is attached. Also attached is a press release from the Arkansas Soil and Water Conservation Commission made upon presentation of the draft results of the engineering review required by the compromise.

The Corps has complied with the compromise in every way. We are not aware of any other plan for tailwater recovery systems and recycling of irrigation water proposed by former

Congressman Dickey. Any plan must include import water to protect the aquifers and maintain the current level of irrigated agriculture in the Grand Prairie.

If you have questions or require additional information, please feel free to contact me at (901) 544-3639. To get a complete picture of the project, you should talk with Mr. Randy Young, Director of the Arkansas Soil and Water Conservation Commission at (501) 682-1611, Mr. Gene Sullivan, Executive Director of the White River Regional Irrigation Water Distribution District at (870) 673-8836, or Mr. Tony Stevenson of the Natural Resources Conservation Service at (501) 676-2176 extension 120. If you would like to discuss the project with project team members, we would be happy to arrange for a meeting in our offices or in the project area.

Sincerely,

James A. Bodron, P.E.
Project Manager

Joint Statement
Grand Prairie Project Meeting
April 11, 2000

released by former Congressman Dickey's office

"After a lengthy dialogue regarding the Grand Prairie and White River Irrigation Project, we as a group, have come to a compromise for this coming fiscal year in order to move together in an effort to conserve groundwater and wildlife resources.

We will ask for funding this year, only for designated on-farm storage of water and to facilitate International Paper Company in withdrawing from the Arkansas River. We will seek a law that will state that not one penny will be spent for pumping water from the White River in FY 2001.

As this irrigation project moves forward, the future of the project will be studied and re-evaluated by all of the interested parties."

RANDY FITZGERALD
Contributing Editor

TELEPHONE: (707) 928-6201
FAX: (707) 928-6202

Dec. 5, 2000

Mr. Jim Bodron
Project Manager
Army Corps of Engineers
Memphis District (fax: 901-544-3955)

Dear Mr. Bodron:

As we discussed over the phone, The Digest is in the research phase of an article looking at various Corps projects, including the Grand Prairie Demonstration Project. In this regard we need to raise the following questions.

--What is the current status of the project and how much has been spent so far on it? Is the estimate of $25 million spent on studying the Eastern Arkansas Irrigation Projects still correct?

--Is the estimated cost of Grand Prairie about $319 million, with $128 million in water taxes being the local share of funding?

--In May, during peak useage under the Grand Prairie plan, would the combination of rainfall and irrigation water result in damage to lands in at least four areas of Arkansas County?

--In the Economic Justification, Section 10, table D-3, soybean and rice prices are predicted to triple to pay for this project by the year 2015. Isn't this a rather optimistic prediction? How was it made?

--What is the Corps analysis of Rep. Dickey's plan for tailwater recovery systems and recycling of irrigation water? Does the plan offer any benefits either in water conservation or savings to taxpayers? Would the plan conserve the aquifers and still irrigate the same amount of farmland as Grand Prairie?

Our thanks in advance for your kind attention to our request. Responses can be faxed to me at the above number, or mailed.

Sincerely,
Randy Fitzgerald

P.O. BOX 1536
COBB, CA 95426