

BUNGE  CORPORATION

Francis L. Barkofske, Vice President and General Counsel

January 28, 2000

Via Facsimile and Federal Express

Mr. Ed Lambert
U.S. Army Corps of Engineers
Memphis District
167 N. Main Street
Memphis, TN 38103

Re: Grand Prairie Area Demonstration Project

Dear Mr. Lambert:

Enclosed for filing and consideration by the Corps in the above Project are Bunge Corporation's final Comments to Grand Prairie Area Demonstration Project Final Environmental Impact Statement.

Respectfully Submitted,



Francis L. Barkofske

FLB/pas
Enclosure
flbltr.108
cc: Brian Rosenthal, Esq.

BUNGE CORPORATION'S COMMENTS
TO
GRAND PRAIRIE AREA DEMONSTRATION PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

Bunge Corporation ("Bunge") submits these comments in response to the Grand Prairie Area Demonstration Project Final Environmental Impact Statement ("FEIS"). Bunge has reviewed the FEIS and the current status of the Grand Prairie Area Demonstration Project (the "Project") as provided in the General Reevaluation Report (the "Report"). Bunge has several concerns, which are included in these comments:

Comment 1. On September 24, 1998, Bunge officers and counsel met with Corps of Engineers ("Corps") officials as referenced in the Corps' responses to Bunge's draft environmental impact statement ("DEIS") comments. During the meeting, the Corps unequivocally stated that the governing pump cutoff parameters to be incorporated in the Project operation plan at the Clarendon gauge were the following monthly cfs levels:

January	19,610	July	10,670
February	22,700	August	9,650
March	27,610	September	9,650
April	36,940	October	9,650
May	36,640	November	11,050
June	21,220	December	17,590

(the "Project Flows")¹ The Project Flows are the figures used in the Corps' final analyses.²

¹ The Project Flows are from the 1988 Arkansas State Water Plan ("ASWP").

² See e.g. Report, Volume 1, Main Report, p. 45 and p. 50; Report, Volume 3, Appendix B, Tables IV-C.1.2-C.1.6. 14909-1

The Corps' responses to numerous comments confirm such use.³ In responding to Bunge, the Corps states:

The 1986 Arkansas State Water Plan is the basis for determination of allocation limits and permit issuance. The ASWCC is the state agency which has jurisdiction over implementing the provisions of the water plan. The Water Plan minimum stream flows were used in the analyses of the costs, impacts, and benefits of the selected plan. These cutoffs are provided in Volume 3, Section I, Part D-(4), pp. IV-19 thru IV-21. These cutoffs were the basis of all analyses and the basis for the NEPA compliance. These cutoffs will be included in the operation plan that is referenced in the Project Cooperation Agreement (PCA). The PCA is the contract between the Federal Government and the project sponsor governing the project. The PCA gives the Federal Government the right to enter onto project lands to insure that the project is being operated and maintained in accordance with the operations manual and also gives the government the right, without relieving the sponsor of the responsibility, to operate and maintain the project.⁴

The Report, however, contains inconsistent language that the Corps has advised Bunge is inaccurate. The inaccurate provisions are found in the Operation Manual.⁵ This section inaccurately provides, "For White River discharges greater than 9650 cfs, flow may be diverted." This sentence would only be accurate for the months of August through October, and therefore, is wrong.

Also, the immediately preceding sentence is unclear. It reads, "When the White River discharge at the Clarendon gauge falls to 9650 cfs (based on the rating curve at Clarendon, Arkansas), no flow is available." We are concerned this language could be misinterpreted in a month with a higher stop pump flow, such as all months other than August, September and October.

³ See Response 1 to State of Arkansas, Report Volume 1, Response, p.1; Response 5 to Wildlife Management Institute, Report Volume 1, Response p.7; Response 3(f) to Rose Law Firm (Bunge), Report Volume 1, Response p.19; Response 9 to Rose Law Firm (Bunge), Report Volume 1, Response p.23.

⁴ Corps Response 1 to Rose Law Firm (Bunge), Report Volume 1, Response pp. 16-17.

In December of 1999, the Corps stated it would provide an addendum or amendment to correct the Operation Manual error. We responded by suggesting some draft language. That language is attached hereto as Exhibit A.

Comment 2. Bunge is confused by Responses 7 and 10 to its DEIS comments. These responses reference the Arkansas Soil and Water Conservation Commission's ("ASWCC") Draft Allocation Plan and not the Project Flow numbers, contrary to the Corps' position announced to Bunge, in person, in September 1998; contrary to the Corps' quoted response set out in Comment 1 hereinabove; and contrary to the entire basis of support for NEPA analysis in the Project Report. The ASWCC has also acknowledged the Project Flows are the governing Project pump cutoff numbers.⁶

Comment 3. As part of its DEIS comments, Bunge's DEIS Comment 9 included certain language to confirm the Corps' representations, and requested that the language be included in the Project Cooperation Agreement ("PCA"). In response to Bunge's meeting with the Corps and these comments, the Corps forwarded to Bunge a draft insert the Corps proposed to use as part of its PCA. See Exhibit B.

Since November 5, 1999, Bunge has attempted to confirm with the Corps that the draft PCA language remains a part of the proposed PCA. Bunge has made a Freedom of Information Act request to this effect to the Corps and has followed up on several occasions with correspondence and calls. See Exhibit C. The Corps has not provided a copy of such language because the document is "being reviewed at headquarters." Therefore, Bunge is unable to verify that the draft PCA language provided to Bunge by the Corps to address the Corps' commitments

⁵ Report Volume 3, Appendix B, Engineering Investigations and Analyses, Section 1, Hydraulics & Hydrology, Part G-(7), Operation Manual, Item No. 15, Water Shortage Procedures, p. 20.

⁶ White River Minimum Streamflow subcommittee meeting at ASWCC, January 20, 2000.

made at the September meeting, as well as in response to Bunge's comments, remain a part of the Project PCA.

Comment 4. Bunge Comment 3(c) to the DEIS stated, "How will compliance be enforced regarding minimum flows"? The Corps' response was, "The PCA will give the federal government the authority to assume operation and maintenance to ensure that the operation plan and the PCA are followed."

What specific language is included in the PCA to this effect and what is the guidance or authority for enforcing this provision?

Comment 5. In its draft PCA language and throughout the Report, the Corps references the 1986 ASWP. Please confirm this reference is to the levels included in the (sic) 1988 ASWP, specified in Report Volume 3, Hydraulics and Hydrology, Appendix B, Section 1, Part D-(4), Water Balance, pp. IV-3-IV-4. See Exhibit D. In 1989, the ASWCC adopted the White River minimum streamflow levels set out in the 1988 Eastern Arkansas Basin Report at the White River mouth as the ASWP. Please confirm the Project Flow will be used at the Clarendon gauge as follows:

January	19,610	July	10,670
February	22,700	August	9,650
March	27,610	September	9,650
April	36,940	October	9,650
May	36,640	November	11,050
June	21,220	December	17,590

These are the numbers analyzed under the Report for NEPA compliance. Please confirm Bunge's understanding of the Corps' position that as to pump cutoff levels, the Project Flow shall govern, notwithstanding any future update or change to the ASWP or any lower minimum streamflow setting made by the ASWCC.

Comment 6. The FEIS notes diversions from the White River will provide an average 243,900 acre feet of irrigation water annually. The current application filed by the subject irrigation district seeks, under its preliminary operation plan, authority to import 650,000 acre feet. In addition, the non-federal sponsor and agency that must provide a diversion permit, the Arkansas Soil and Water Conservation Commission, lists the proposed project diversion for irrigation at 650,000 acre feet during each year. This higher level is a 267% discrepancy with the FEIS. We seek clarification on this discrepancy.

Comment 7. The Commander's Assessment of the non-federal sponsor's financial capability includes a finding that a portion of on-farm features will not be built in a timely manner. Bunge is concerned that this change in the Project will lead to continued pressures on the White River as the main source of Project water and groundwater recharge.⁷

Comment 8. The basis for assumptions on water depths is fundamentally flawed. The fourth basis states: "River flows of 9,650 cfs and below would halt navigation completely."⁸ Suggesting navigation would cease at river flows of 9,650 cfs is inaccurate. In Bunge's experience, a nine-foot draft requires river flows of 17,500 cfs at Clarendon. See Exhibit E.⁹ The Corps' 1992 rating table correlating gauge readings and cfs flow levels is attached as Exhibit F.

What gauge readings and flow levels did the Corps use in its analysis regarding 9 foot and 8 foot barge movement, respectively?

⁷ Query whether the alternative of managed recharge during high flows for later use was considered. Such an alternative might alleviate many of the affected parties' concerns.

⁸ Report Volume 3, Section 111, D-111-8e.(3), p. D-111-46.

⁹ This statement was previously provided in comments made to ASWCC's 1994 rulemaking on White River minimum streamflows.

Comment 9. The cumulative impact additions to the FEIS note that reservoir operations may be changed to reallocate some amount of storage for low flows. Why not take this current opportunity to address the parameters of the reservoir's ability to help White River low flow issues or to define what would constitute a qualifying low flow?

EXHIBIT A

ATTACHMENT TO LETTER DATED
DECEMBER 30, 1999, FROM BRIAN ROSENTHAL TO JIM BODRON

In the General Reevaluation Report, Volume 3, Appendix B of the Engineering Investigations and Analysis, Section I, Part G-(7), Operation Manual, Item No. 15, Water Shortage Procedures, White River Availability, page 20, two sentences should be deleted that provide as follows:

“When the White River discharge at the Clarendon gauge falls to 9,650 cfs (based on the rating curve at Clarendon, Arkansas), no flow is available for diversion. For White River discharges greater than 9,650 cfs, flow may be diverted.”

The following should be inserted as the second sentence of this paragraph: “When the White River discharge at the Clarendon gauge falls to the following cfs levels (based on the rating curve at Clarendon, Arkansas), no flow is available for diversion:

The following are monthly cfs levels for use at the Clarendon gauge.

January	19,610	July	10,670
February	22,700	August	9,650
March	27,610	September	9,650
April	36,940	October	9,650
May	36,640	November	11,050
June	21,220	December	17,590”

EXHIBIT B

any costs for the services provided by such a third party as such costs are incurred. The existence of a dispute shall not excuse the parties from performance pursuant to this Agreement.

ARTICLE VIII - OPERATION, MAINTENANCE, REPAIR, REPLACEMENT, AND REHABILITATION (OMRR&R)

A. Upon notification in accordance with Article II.C. of this Agreement and for so long as the Project remains authorized, the Non-Federal Sponsor shall operate, maintain, repair, replace, and rehabilitate the entire Project or the functional portion of the Project, at no cost to the Government, in a manner compatible with the Project's authorized purposes and in accordance with applicable Federal and State laws as provided in Article XI of this Agreement and specific directions prescribed by the Government in the OMRR&R Manual and any subsequent amendments thereto. Pumping from the White River will be governed by the 1986 draft Arkansas State Water Plan as analyzed for the decision document and for National Environmental Policy Act compliance. The operation and maintenance plan will include the additional flooding of harvested rice fields in the long term agreements and the sponsor will assure that the additional flooding of harvested rice fields will be performed, subject to the availability of excess water in the White River.

B. The Non-Federal Sponsor hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon property that the Non-Federal Sponsor owns or controls for access to the Project for the purpose of inspection and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the Project. If an inspection shows that the Non-Federal Sponsor for any reason is failing to perform its obligations under this Agreement, the Government shall send a written notice describing the non-performance to the Non-Federal Sponsor. If, after 30 calendar days from receipt of notice, the Non-Federal Sponsor continues to fail to perform, then the Government shall have the right to enter, at reasonable times and in a reasonable manner, upon property that the Non-Federal Sponsor owns or controls for access to the Project for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the Project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Government shall operate to relieve the Non-Federal Sponsor of responsibility to meet the Non-Federal Sponsor's obligations as set forth in this Agreement, or to preclude the Government from pursuing any other remedy at law or equity to ensure faithful performance pursuant to this Agreement.

ARTICLE IX - INDEMNIFICATION

The Non-Federal Sponsor shall hold and save the Government free from all

EXHIBIT C

ROSE LAW FIRM
A PROFESSIONAL ASSOCIATION

ATTORNEYS

120 East Fourth Street
Little Rock, Arkansas
72201-2853

501-375-9131
501-375-1309 FAX

WRITER'S ELECTRONIC MAIL

brosenthal@roselawfirm.com

WRITER'S TELEPHONE

501-377-0340

November 5, 1999

VIA TELECOPY 901-544-3336

Charles Briggs, Esquire
United States Army Corps of
Engineers, Memphis District
Public Affairs Office
167 North Main B-202
Memphis, Tennessee 38103-1894

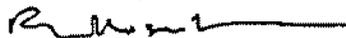
Re: Freedom of Information Act Request

Dear Charles:

Recently, in a Freedom of Information Act request, we were provided a copy of the most recent draft language for the Project Cooperation Agreement between the Corps of Engineers and the interim non-federal sponsor, the Arkansas Soil and Water Conservation Commission. In a follow-up conversation with Jim Bodron, we inquired whether the draft was final. Jim Bodron advised that the draft has been forwarded for review in Washington. As we believe the draft, as proposed by the Corps, is a public record, could you please provide us a copy of same under the Freedom of Information Act so we can confirm we have the final copy? I would appreciate your call to me regarding your reply.

I hope all your girls and you are well.

Sincerely yours,



Brian Rosenthal

jl

11308-1

ROSE LAW FIRM
A PROFESSIONAL ASSOCIATION

ATTORNEYS

120 East Fourth Street
Little Rock, Arkansas
72201-2893

501-373-9131
501-373-1309 FAX

WRITER'S ELECTRONIC MAIL

brosenthal@roselawfirm.com

WRITER'S TELEPHONE

501-377-0340

November 17, 1999

VIA TELECOPY

Charles Briggs, Esquire
United States Army Corps of
Engineers, Memphis District
Public Affairs Office
167 North Main B-202
Memphis, Tennessee 38103-1894

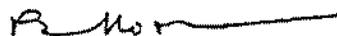
Re: Freedom of Information Act Request

Dear Charles:

Thank you for discussing our November 5, 1999 request. To clarify our request, the Corps of Engineers has previously provided us a copy of the draft Project Cooperation Agreement. A copy of the first page of that document is enclosed (Exhibit A). The Arkansas Soil and Water Conservation Commission ("ASWCC") provided us an updated draft when the non-federal sponsor was changed to the ASWCC. A copy of the first page of that draft is enclosed (Exhibit B). These copies were provided to us pursuant to follow-ups to Freedom of Information Act requests and final comments. Our current request is to insure that we have the document that incorporates the current status of the agreement between the Memphis Corps of Engineers and the ASWCC. This request is consistent with our prior requests, both of which were honored.

Thank you for your time.

Sincerely yours,



Brian Rosenthal

j1
Enclosures
11308-1

ROSE LAW FIRM
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ATTORNEYS

120 East Fourth Street
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December 22, 1999

VIA TELECOPY

Charles Briggs, Esquire
United States Army Corps of
Engineers, Memphis District
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167 North Main B-202
Memphis, Tennessee 38103-1894

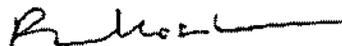
Re: Freedom of Information Act Request

Dear Charles:

We made a Freedom of Information Act Request on November 5, 1999, and followed up with a call and a letter to you on November 17, 1999. I will call you next week to inquire when we can expect the document.

I hope you have a happy holiday.

Sincerely yours,



Brian Rosenthal

jl

12930-1

EXHIBIT D

5,250 cfs	7q10 Water Quality Flow Criteria
7,125 cfs	5.0 Gage Reading at Clarendon, AR and Navigation Maintenance Key Stage
9,650 cfs	Minimum Navigation Requirement from the ASWP (1986)
11,350 cfs	12.0 Gage Reading at Clarendon, AR and Authorized Channel Key Stage
12,850 cfs	13.0 Gage Reading at Clarendon, AR and 9 foot channel depth with Authorized Channel Maintenance
17,500 cfs	16.0 Gage Reading at Clarendon, AR and No Depth Restrictions to Navigation
ASWP (1986)	Monthly Minimum based on the highest flow of three criteria: Water Quality, Navigation, and Fish and Wildlife as shown in Table 3-11 of the Arkansas State Water Plan

Month	Estimated Mean Monthly Discharge (cfs)	Instream Flow Requirement			Current Available Stream Flow (cfs)
		Water Quality (cfs)	Fish and Wildlife (cfs)	Navigation (cfs)	
January	32,680	5,250-5,720	19,610	9,650	13,070
February	37,840	5,250-5,720	22,700	9,650	15,140
March	46,010	5,250-5,720	27,610	9,650	18,400
April	52,770	5,250-5,720	36,940	9,650	15,830
May	52,340	5,250-5,720	36,640	9,650	15,700
June	30,320	5,250-5,720	21,220	9,650	9,100
July	21,340	5,250-5,720	10,670	9,650	10,670

Table IV-A-02 Arkansas State Water Plan (1986) TABLE 3-11

Month	Estimated Mean Monthly Discharge (cfs)	Instream Flow Requirement			Current Available Stream Flow (cfs)
		Water Quality (cfs)	Fish and Wildlife (cfs)	Navigation (cfs)	
August	18,180	5,250-5,720	9,060	9,650	8,530
September	15,040	5,250-5,720	7,520	9,650	5,390
October	13,840	5,250-5,720	6,920	9,650	4,190
November	18,420	5,250-5,720	11,050	9,650	7,370
December	29,310	5,250-5,720	17,590	9,650	11,720

b. Rainfall. Rainfall is generally abundant in the Grand Prairie with an annual average amount of 49.2 inches (1948 to 1986) at the National Weather Service gage in Stuttgart, Arkansas¹. Average monthly rainfall for 1948 through 1986 is shown in Figure IV-A-02 and average annual rainfall is shown in Figure IV-A-03. Typically, the months of greatest rainfall do not coincide with the months of peak agricultural water demand. The uneven distribution results in excess water during the winter and early spring months and a deficit during the summer and early fall months. The deficit through the summer and early fall significantly affects crop yields. Surface reservoirs have been constructed to capture a portion of the excess runoff, especially during late winter and early spring. Tailwater recovery systems have been installed to further enhance capture of runoff and to re-capture water released from irrigated fields. Surface diversions from natural streams have increased dramatically in recent years. Evaporation for the Grand Prairie is high with an average annual value of 52.0 inches. Average annual pan evaporation was available at the Stuttgart experiment station for 1948 through 1986. Figure IV-A-04 shows average annual evaporation (potential) for 1948 to 1986.

The water balance used daily rainfall and daily evaporation in calculating available water. Available rainfall depths were adjusted for 1) falling on the ground surface or for 2) falling on the surface of an on-farm reservoir. Rain falling directly on the surface of a reservoir was considered fully available. Rain falling on the ground surface was adjusted to estimate seasonal infiltration and effective runoff. Effective runoff was further adjusted to reflect the amount that could be captured and stored. The stored amount of runoff was considered as available for water

¹ Average based on daily observed precipitation from 1948 through 1986 at NWS gage in Stuttgart, Arkansas.

EXHIBIT E

STATEMENT
OF
BUBBA CORDER
CLARENDON, ARKANSAS

I am Bubba Corder, an employee of Bunge Corporation since November, 1964. I was named the Manager of the company's Clarendon, Arkansas grain elevator sometime during 1969.

I am very much aware of the Arkansas Soil & Water Conservation Commission's recommended minimum stream flows here at Clarendon. They want the minimum flow to be 5,250 CFS. Based on recent Corps of Engineers rating tables for Clarendon, that would be a stage reading of about 7.5 feet on the Clarendon gage. In order to load barges to 9-feet of draft I need 16.0 feet on the Clarendon gage. At the Commission's suggested flow rate we here at Clarendon would be unable to load barges for the company. I think the Arkansas Soil & Water Conservation Commission's recommendations are too low for navigation purposes.

4-4-94

Date

Bubba Corder

Signature

EXHIBIT F

EXHIBIT K-1
(4 of 8)

PRELIMINARY

RATING TABLE			DATES TABLE IS APPLICABLE				FILE NO.							
STREAM White River			PERIOD JAN. 1, 1992 - Dec. 31, 1992				NO. 116							
LOCATION Clarendon, Ark.														
NO. OF MEASUREMENTS			PERIOD MEASUREMENTS MADE											
THIS TABLE IS NOT APPLICABLE FOR ICE OR OBSTRUCTED CHANNEL CONDITIONS														
GAGE HT. Feet	DISCHARGE CFS	DIFFER- ENCE CFS	GAGE HT. Feet	DISCHARGE CFS	DIFFER- ENCE CFS	GAGE HT. Feet	DISCHARGE CFS	DIFFER- ENCE CFS	GAGE HT. Feet	DISCHARGE CFS	DIFFER- ENCE CFS	GAGE HT. Feet	DISCHARGE CFS	DIFFER- ENCE CFS
4.00	1825	90	6.00	3650	105	8.00	5850	128	10.00	8460	142	12.00	11350	150
.10	1915	↑	.10	3755	↑	.10	5978	127	.10	8602	141	.10	11500	↑
.20	2005		.20	3860		.20	6105	128	.20	8743	142	.20	11650	
.30	2095		.30	3965		.30	6233	127	.30	8885	141	.30	11800	
.40	2185		.40	4070		.40	6360	128	.40	9026	142	.40	11950	
.50	2275		.50	4175		.50	6488	127	.50	9168	141	.50	12100	
.60	2365		.60	4280		.60	6615	128	.60	9309	142	.60	12250	
.70	2455		.70	4385		.70	6743	127	.70	9451	141	.70	12400	
.80	2545	↓	.80	4490	↓	.80	6870	128	.80	9592	142	.80	12550	↓
.90	2635	90	.90	4595	105	.90	6998	127	.90	9734	141	.90	12700	150
5.00	2725	93	7.00	4700	115	9.00	7125	134	11.00	9875	148	13.00	12850	150
.10	2818	92	.10	4815	↑	.10	7259	133	.10	10023	147	.10	13000	↑
.20	2910	93	.20	4930		.20	7392	134	.20	10170	148	.20	13150	
.30	3003	92	.30	5045		.30	7526	133	.30	10318	147	.30	13300	
.40	3095	93	.40	5160		.40	7659	134	.40	10465	148	.40	13450	
.50	3188	92	.50	5275		.50	7793	133	.50	10613	147	.50	13600	
.60	3280	93	.60	5390		.60	7926	134	.60	10760	148	.60	13750	
.70	3373	92	.70	5505		.70	8060	133	.70	10908	147	.70	13900	
.80	3465	93	.80	5620	↓	.80	8193	134	.80	11055	148	.80	14050	↓
.90	3558	92	.90	5735	115	.90	8327	133	.90	11203	147	.90	14200	150
												14.00	14350	

THIS TABLE IS WELL DEFINED BETWEEN 139.91 FEET AND 139.91 FEET

PERCENT LIMITS, USE HALF PERCENTS BETWEEN FEET AND FEET, HUNDRETHS BETWEEN TENTHS ABOVE.

REMARKS
1992 Rating tables are based on the 1988 Rating Curve.
Sheet 1 of 4

DATE: Mar. 5, 1993
COMPUTED BY: R. C. Walker
CHECKED BY: [Signature]

RATING TABLE

DATE THIS TABLE IS APPLICABLE

FILE NO.

JAN. 1, 1992 Dec. 31, 1992 WR 116

STREAM **White River**

LOCATION **Clarendon, Ark.**

NO. OF MEASUREMENTS

PERIOD MEASUREMENTS MADE

THIS TABLE IS NOT APPLICABLE FOR ICE OR OBSTRUCTED CHANNEL CONDITIONS

GAGE HT. FEET	DISCHARGE CFS	DIFFER. FEET CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFER. FEET CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFER. FEET CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFER. FEET CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFER. FEET CFS	
14.00	14350	155	16.00	17500	170	18.00	21200	210	20.00	25400	220	22.00	29900	260	
	14505	↑		17670	↑		21410	↑		25620	↑		30160	↑	
	14660			17840			21620			25840			30420		
	14815			18010			21830			26060			30680		
	14970			18180			22040			26280			30940		
	15125			18350			22250			26500			31200		
	15280			18520			22460			26720			31460		
	15435			18690			22670			26940			31720		
	15590	↓		18860	↓		22880	↓		27160	↓		31980	↓	
	15745	↓		19030	↓		23090	↓		27380	↓		32240	↓	
	15900	155		19200	170		23300	210		27600	220		32500	260	
15.00	16060	160	17.00	19400	200	19.00	23510	210	21.00	27830	230	23.00	32840	340	
	16220	↑		19600	↑		23720	↑		28060	↑		33180	↑	
	16380			19800			23930			28290			33520		
	16540			20000			24140			28520			33860		
	16700			20200			24350			28750			34200		
	16860			20400			24560			28980			34540		
	17020			20600			24770			29210			34880		
	17180			20800			24980			29440			35220		
	17340	↓		21000	↓		25190	↓		29670	↓		35560	↓	
		160			200			210			230		2400	35900	340

THIS TABLE IS WELL DEFINED BETWEEN CFS AND CFS DATE DATUM N.G.V.D. 139.91 FT. MSL

PERCENT LIMITS, USE HALF TENTHS BETWEEN FEET AND FEET, HUNDREDTHS BELOW AND TENTHS ABOVE.

REMARKS 1992 Rating tables are based on the 1988 Rating Curve.
Sheet 2 of 4

DATE Mar. 5, 1993 COMPUTED BY R. C. Walker CHECKED BY [Signature]

ENC FORM 3205

REPLACE ALL SIMILAR LOCAL FORMS WHICH ARE OBSOLETE

PRELIMINARY

RATING TABLE		DATE TABLE IS APPLICABLE		FILE NO.
		FROM	TO	
STREAM		LOCATION		
White River		Clarendon, Ark.		WR116
NR. OF MEASUREMENTS		PERIOD MEASUREMENTS MADE		

THIS TABLE IS NOT APPLICABLE FOR ICE OR OBSTRUCTED CHANNEL CONDITIONS

GAGE HT. FEET	DISCHARGE CFS	DIFFERENCE CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFERENCE CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFERENCE CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFERENCE CFS	GAGE HT. FEET	DISCHARGE CFS	DIFFERENCE CFS
24.00	35900	600	26.00	49200	880	28.00	69800	1570	30.00	102000	1800	31.00	139000	2000
	36500	↑		50080	↑		71370	↑		103800	↑		141000	↑
	37100			50960			72940			105600			143000	
	37700			51840			74510			107400			145000	
	38300			52720			76080			109200			147000	
	38900			53600			77650			111000			149000	
	39500			54480			79220			112800			151000	
	40100			55360			80790			114600			153000	
	40700			56240			82360			116400			155000	
	41300	↓		57120	↓		83930	↓		118200	↓		157000	↓
	41900	600		58000	880		85500	1570		118200	1800		157000	2000
25.00	42630	730	27.00	58000	1180	29.00	85500	1650	31.00	120000	1900	33.00	159000	2030
	43360	↑		59180	↑		87150	↑		121900	↑		161030	↑
	44090			60360			88800			123800			163060	
	44820			61540			90450			125700			165090	
	45550			62720			92100			127600			167120	
	46280			63900			93750			129500			169150	
	47010			65080			95400			131400			171180	
	47740			66260			97050			133300			173210	
	48470	↓		67440	↓		98700	↓		135200	↓		175240	↓
		730		68620	1180		100350	1650		137100	1900		177270	2030
													179300	

THIS TABLE IS WELL DEFINED BETWEEN FEET AND FEET, HUNDRETHS BELOW

PERCENT LIMITS, USE HALF TENTHS BETWEEN FEET AND FEET, HUNDRETHS BELOW AND TENTHS ABOVE.

REMARKS: 1992 Rating tables are based on the 1988 Rating Curve.

Sheet 3 of 4

DATE	COMPUTED BY	CHECKED BY
Mar. 5, 1993	R. C. Walker	<i>[Signature]</i>

RATING TABLE

DATED TABLE IS APPLICABLE

FILE NO.

FROM JAN. 1, 1992 TO Dec. 31, 1992 WR 116

STREAM **White River** LOCATION **Clarendon, Ark.**

NO. OF MEASUREMENTS PERIOD MEASUREMENTS MADE

THIS TABLE IS NOT APPLICABLE FOR ICE OR OBSTRUCTED CHANNEL CONDITIONS

GAGE HT. Feet	DISCHARGE Cfs	DIFFER. ENCS Cfs	GAGE HT. Feet	DISCHARGE Cfs	DIFFER. ENCS Cfs	GAGE HT. Feet	DISCHARGE Cfs	DIFFER. ENCS Cfs	GAGE HT. Feet	DISCHARGE Cfs	DIFFER. ENCS Cfs	GAGE HT. Feet	DISCHARGE Cfs	DIFFER. ENCS Cfs
34.00	179300	2190	36.00	223500	2250	38.00	269000							
	181490	↑		225750	↑									
.20	183680		.10	228000		.10			.10			.10		
.30	185870		.20	230250		.20			.20			.20		
.40	188060		.30	232500		.30			.30			.30		
.50	190250		.40	234750		.40			.40			.40		
.60	192440		.50	237000		.50			.50			.50		
.70	194630		.60	239250		.60			.60			.60		
.80	196820		.70	241500		.70			.70			.70		
.90	199010	↓	.80	243750	↓	.80			.80			.80		
	201200	2190	.90	246000	2250	.90			.90			.90		
35.00	203430	2230	37.00	248300	2300									
	205660	↑		250600	↑									
.10	207890		.10	252900		.10			.10			.10		
.20	210120		.20	255200		.20			.20			.20		
.30	212350		.30	257500		.30			.30			.30		
.40	214580		.40	259800		.40			.40			.40		
.50	216810		.50	262100		.50			.50			.50		
.60	219040		.60	264400		.60			.60			.60		
.70	221270	↓	.70	266700	↓	.70			.70			.70		
		2230	.80		2300	.80			.80			.80		

THIS TABLE IS WELL DEFINED BETWEEN CFS AND CFS GAGE DATUM N.G.V.D. 139.91 FT. MARK

PERCENT LIMITS, USE HALF TENTHS BETWEEN FEET AND FEET, HUNDRETHS BELOW

REMARKS
1992 Rating tables are based on the 1988 Rating Curve.

Sheet 4 of 4

DATE **Mar. 5, 1993** COMPUTED BY **R. C. Walker** CHECKED BY *[Signature]*

ENG FORM 1 JUN 68 3205

REPLACES ALL SIMILAR LOCAL FORMS WHICH ARE OBSOLETE