Report to Congress for Future Water Resources Development (WRRDA 7001) Submission Package

Proposal Name: Addition of Water Supply as Ouachita-Black Authorized Project Purpose

Submission Date: 08/27/2019

Proposal ID Number: 78d1219a-1118-4131-be4b-df64b3ba6323

Purpose of Proposal: Adding water supply as a project purpose will further protect the 77' pool that provides Union County's alternative surface water, allowing the once threatened, over-pumped Sparta aquifer to recover and replenish itself naturally. Section 101 of the River and Harbor Act of 1960 (Public Law 86-645; 74 Stat.481) does not include water supply as an authorized purpose, yet it is H.K. Thatcher Lock and Dam that holds the 77' pool from which the Board draws its alternate, affordable surface supply to deliver to customers, including three major industries that until 2004, relied solely on the once-threatened underground Sparta aquifer. In 1997, the Sparta was declining as much as 7' per year in some parts of Union County. As of April 2019, one groundwater monitoring well's water level closest to the deepest cone of depression h as risen 101.4'. The Board's Mission is to conserve and protect the Sparta formation by providing an affordable alternative source of fresh water - that source is the Ouachita River. The President's 2003 budget lined out Ouachita River funding. Funding was restored in the final budget, but stakeholders have been on alert and working to further protect water supply. Congress directed the Corps to use limited funds to maintain the Pearl River and placed it in caretaker status, which gives the Board cause for concern should some thing similar be in store for Thatcher. Providing industrial water and protecting groundwater is in "service of the public and partnering in peace to strengthen the nation's security, energize the economy and reduce risks from disasters." Sparta aquifer collapse would have proved disastrous to Union and the surrounding counties' and parishes' economies. The Corps is already a partner in "effecting a solution for one of the nation's toughest challenges"- ensuring an adequate safe supply of drinking and industrial water for current and future generations.

1. Administrative Details

Proposal Name: Addition of Water Supply as Ouachita-Black Au thorized Project Purpose

by Agency: Union County (Arkansas) Water Conservation Board

Locations: AR

POC Name:

POC Phone:

POC Email:

Date Submitted: 08/27/2019

Confirmation N umber: 78d1219a-1118-4131-be4b-df64b3ba6323

Supporting Documents

File Name	Date Uploaded
LetterSupportBoard2019.pdf	08/27/2019
ANRC Letter of Support- Union County Water Conservation Board-Corps 7001 Request.pdf	08/27/2019
Arkansas Waterways Ltr. Support.pdf	08/27/2019
LaSparta 7001 SupportLetter.pdf	08/27/2019
ORVA VICKSBURG LETTER.pdf	08/27/2019
OuachitaRiverCommission.pdf	08/27/2019
7001 Countywide Map.pdf	08/27/2019
1997toTodaySlide 8.21.19 101'.pdf	08/27/2019
Act1050 1999.pdf	08/27/2019
Amendment Act632of2017 HB1982.pdf	08/27/2019
AmendmentAct1774of2005.pdf	08/27/2019
ANRC 8.25.00 AllocationPlan-Brazil.pdf	08/27/2019
ANRC ASWCC Resolution 5.29.03.pdf	08/27/2019
ANRC CriticalGWAreasMap.pdf	08/27/2019
ANRCNonRiparianPermit2.4.00.pdf	08/27/2019
AR-LA D'ArcyResponse10.21.14Ltr.pdf	08/27/2019
AR-LA Joint Ltr to Sec Darcy FINAL.pdf	08/27/2019
B&M 2010 SpartaMakingComeback.pdf	08/27/2019
Clapp CorpsAgree NewsTimes 1.10.04.pdf	08/27/2019
Comments FedReg 3.7.18.pdf	08/27/2019
ConservFeeThruJune2008.pdf	08/27/2019
CorpsCivilWorksBriefWaterSupplyValueToNation.pdf	08/27/2019
CountyWideMapFINALSept2012.pdf	08/27/2019
CustomerCostOfWater.pdf	08/27/2019
DeptInterior CooperativeConservationAward 4.21.08.pdf	08/27/2019
EDEFWaterRelatedGrantsToTeachers2009.pdf	08/27/2019
EntergyUCWCB$50KEnvStewardship3.18.08.pdf	08/27/2019
Funding Partners $65Million.pdf	08/27/2019
InfrastructureOwnershipStatement 8.9.19.pdf	08/27/2019
IntakeWithAuthorizationLanguage.pdf	08/27/2019
MRC 8.21.19.pdf	08/27/2019
MRC Comments 4.18.18.pdf	08/27/2019
MRC200YearVision DrinkAnyAquifer2016.pdf	08/27/2019
NRCS P3 Build Resiliency.pdf	08/27/2019
ProjectDescriptionJan2006.pdf	08/27/2019
PromisesFulFilled NT 12.21.05 TurnOnTap.pdf	08/27/2019
RipRapPics.pdf	08/27/2019
SalesTaxVoteFactSheet.pdf	08/27/2019
Sparta Change Graph 2004-19 RT.pdf	08/27/2019
Sparta Change Map RT & ADL 2019.pdf	08/27/2019
Thatcher At-A-Glance 8.8.19.pdf	08/27/2019
Thatcher Field Trip Report Updated 4.25.18.pdf	08/27/2019
ThatcherHingedCrestGateLeak.pdf	08/27/2019
WaterLevelChangeRTWellsOnePage2004-2019.pdf	08/27/2019
WaterSupplyBasisOfDesign.pdf	08/27/2019

2. Provide the name of the primary sponsor and all non-Federal interests that have contributed or are expected to contribute toward the non-Federal share of the proposed feasibility study or modification.

Sponsor	**Letter of Support**
Union County Water Conservation Bo ard(Primary)	The Union County Water Conservation Board cannot con tinue its Mission to conserve and protect the deep, confin ed Sparta aquifer in Union County, Arkansas, without the abundant supply of alternative surface water above Thatc her Lock & Dam, the uppermost of four locks and dams i n the Ouachita-Black Navigation System, and therefore fu lly supports this proposal to add water supply as an autho rized project purpose.
Arkansas Dept Ag - Natural Resources Commission	Attached
Arkansas Waterways Commission	Attached
Ouachita River Commission	Attached
Ouachita River Valley Association	Attached
Louisiana Sparta Groundwater Commi ssion	Attached

3. State if this proposal is for new feasibility study authority, a modification to an existing feasibility study authority, a modification to an existing USACE project authority, or a modification to an existing USACE Environmental Infrastructure Program authority. If it is a proposal for a modification to an existing study, project or program authority, provide the authorized water resources development feasibility study or project name.

[x] Modification to a USACE Project Authority : Ouachita-Black River Navigation Project

4. Clearly articulate the specific project purpose(s) of the proposed study or modification. Demonstrate that the proposal is related to USACE mission and authorities and specifically address why additional or new authorization is needed.

Adding water supply as a project purpose will further protect the 77' pool that provides Union County's alternative surface water, allowing the once threatened, over-pumped Sparta aquifer to recover and replenish itself naturally. Section 101 of the River and Harbor Act of 1960 (Public Law 86-645;74 Stat.481) does not include water supply as an authorized purpose, yet it is H.K. Thatcher Lock and Dam that holds the 77' pool from which the Board draws its alternate, affordable surface supply to deliver to customers, including three major industries that until 2004, relied solely on the once-threatened underground Sparta aquifer. In 1997, the Sparta was declining as much as 7' per year in some parts of Union County. As of April 2019, one groundwater monitoring well's water level closest to the deepest cone of depression has risen 101.4'. The Board's Mission is to conserve and protect the Sparta formation by providing an affordable alternative source of fresh water - that source is the Ouachita River. The President's 2003 budget lined out Ouachita River funding. Funding was restored in the final budget, but stakeholders have been on alert and working to further protect water supply. Congress directed the Corps to use limited funds to maintain the Pearl River and placed it in caretaker status, which gives the Board cause for concern should something similar be in store for Thatcher. Providing industrial water and protecting groundwater is in "service of the public and partnering in peace to strengthen the nation's security, energize the economy and reduce risks from disasters." Sparta aquifer collapse would have proved disastrous to Union and the surrounding counties' and parishes' economies. The Corps is already a partner in "effecting a solution for one of the nation's toughest challenges"- ensuring an adequate safe supply of drinking and industrial water for current and future generations.

5. To the extent practicable, provide an estimate of the total cost, and the Federal and non-Federal share of those costs, of the proposed study and, separately, an estimate of the cost of construction or modification.

	Federal	**Non-Federal**	**Total**
Study	$0	$0	$0
Construction	$0	$0	$0

Explanation (if necessary)

There is no additional cost to designate water supply an authorized project purpose. The Ouachita navigable channel is 77' deep above Thatcher. Minimal staffing is already in place, M-F, 5 a.m. - 3 p.m. The water level is controlled remotely by the Vicksburg District. Currently the hinged crest gate on the dam side leaks, and if it fails, the dam won't hold pool at 77'. According to Lock Master Temple, should the gate fail, there is a concrete apron below the hinged crest gate that would hold pool at 71'. But the Board doe sn't want to test its infrastructure - 65 mgd intake at the Ouachita River near Calion. The engineers' 2000 Basis for Design assumes a minimum 77' depth. The Board depends on the pool above Thatcher. There w as no reason in 1999-2000 to anticipate a pending threat to Thatcher. Cross Oil in Smackover barged its product regularly, and the Board's Ouachita River Alternative Water Supply project design, construction, and 2003 start-up preceded the 2009 IMTS launch and subsequent lock operation standards (2015 implementation) based on tonnage. There is no infrastructure modification nor new construction needed and although the Board and Union County stakeholders are sensitive to fiscal demands, lock and dam maintenance is assumed whether the Board's infrastructure existed or not.

6. To the extent practicable, describe the anticipated monetary and nonmonetary benefits of the proposal including benefits t o t he p rotection o f h uman l ife a nd p roperty; i mprovement to transportation; the national economy; the environment; or the national security interests of the United States.

Human life - No life exists without water. The project has enhanced public health by halting aquifer saltwater intrusion. Sparta water is pure enough to drink without treatment, and the Project protects this naturally potable water by providing an alternative industrial surface source and allowing major industries to re duce aquifer pumping, resulting in fresh water overlaying the formation above the heavier salt water. Once drinking water salt content reaches so many ppm, a utility must notify the public because of health threats to vulnerable populations. The Board has sampled 12 public water supply wells for Chlorides from 2002 to date. Chloride levels have remained static. Property - All property-residential, business, industry, recreation -- is worthless without a water supply. National economy & security -The Board's industrial customer s--oil refinery, brominated products manufacturer, nitrogen fertilizer manufacturer, and 2205 MW power pl ant--contribute to the national economy and security by providing essential products. Their 1300 combine d good paying, direct jobs with benefits create hundreds of indirect jobs and an ongoing demand for goods and services. The Board's infrastructure provides 35 direct and direct jobs to operate, maintain, and provide the facility's services and supplies. Conjunctive use means Union County has something many communities don't-reliable, safe drinking water and an abundant supply of industrial water. Confined aquifer groundwater is safer and less susceptible to contamination than surface water, and less expensive to treat. Our utilities add chlorine Health Department requirements. However, Ouachita River water is better for industrial use and irrigation. No salt, and some Sparta mineral content is not as good as river water for cooling towers nor process water. Environment-Although launched as an economic development priority, the Project is often assumed to be environmental and has received numerous environmental awards.

7. Does local support exist? If 'Yes', describe the local support for the proposal.

[x] Yes

Local Support Description

Widespread support has existed since 1997, perhaps best evidenced by two pieces of legislation resulting in Union County residents paying 24¢ per 1000 gallons conservation fee on groundwater pumped and the other a temporary 1¢ countywide sales tax, passed February 2002 by a 61-39 margin. During public meetings leading up to Act 1050 of 1999 and the 24¢ conservation fee, residents said, "We're willing to pay to get industry out of the Sparta as long as it's fair." County Judge Bobby Edmonds expressed it best during public meetings leading up to the February 2002 sales tax vote, "We're buying back our aquifer." Union County embraced the problem and actively sought the solution. People volunteered to support the effort. Landowners donated rights-of-way. In signing the agreement to perform bank stabilization near the intake at Calion, Col. Frederick L. Clapp, Jr., Vicksburg District Commander said, "I want to congratulate you on doing a project for which you actually have people donate land. We do a lot of projects around the Vicksburg District ... where we have to acquire rights-of-way, but I don't think we've ever had anybody give us any," he said. Educators supported the effort, and students K-12 could, to some degree, describe Union County' s water problem. Cooperative Extension and the local Conservation District launched Sparta education programs and a local foundation awarded $28,000 in water-related grants to teachers for projects that enhanced groundwater education. Local support continues and the project instills confidence in the county's drinking and industrial water supply. Everyone countywide knows that Union County has done something unique: There is to our knowledge no other project in the country that is measuring groundwater recovery. In 2016, Entergy bought Union Power Station, confident it would have abundant Ouachita River water-its ONLY source of water--indefinitely. El Dorado Chemical recently expanded and converted entirely to river water.

8. Does the primary sponsor named in (2.) above have the financial ability to provide for the required cost share?

[x] Yes

Primary Sponsor Letter of Support

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LetterSupportBoard2019.pdf

UNION COUNTY WATER CONSERVATION BOARD

Roger Landes
President
roger_landes@murphyoilcorp.com
870-864-6487

Ken Rudder
Vice-President

Pete Parks
Secretary/Treasurer

Les Chandler
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Johnny Loftin
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~

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~

Mission Statement

The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.

~

441 West Cedar
El Dorado, Arkansas 71730
870 862-1244
www.ucwcb.org

August 27, 2019

Col. Robert A. Hilliard, Commander
Vicksburg District, U. S. Army Corps of Engineers
4155 Clay Street
Vicksburg, MS 39183

Dear Col. Hilliard,

The Union County Water Conservation Board (Board) fully supports this proposal and could not continue its Mission to conserve and protect the county's sole drinking water source -- the once-threatened deep, confined Sparta aquifer -- without the abundant alternative surface water supply in the 77' Ouachita River pool above Thatcher Lock & Dam.

The uppermost of four locks and dams in the Ouachita-Black Navigation System completed in the mid-1980s, Thatcher holds a required 77' pool depth creating a 9' navigable channel. That pool holds enough excess surface water to meet Union County's current and future surface water supply demands. However, water supply is not a Ouachita-Black federally authorized project purpose under Section 101 of the River and Harbor Act of 1960 (Public Law 86-645;74 Stat.481) , which provided for raising the navigation channel's depth from 6 ½' to 9'.

In June 1999 and following over two years of intensive countywide collaboration, cooperation, coalition building, public policy creation, funding sources identification, and other problem-solving actions, the Board formed under the authority of Act 1050 of 1999, State of Arkansas 82nd General Assembly Regular Session. This Critical Groundwater Counties Remediation Act addressed a water crisis in certain Arkansas counties by enabling creation of Sparta aquifer Critical Groundwater Conservation Boards with unprecedented authority over groundwater. The first and so far only such Board – the Union County Water Conservation Board -- first met on June 24, 1999 and adopted its Mission Statement July 21, 1999:

"The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas."

That alternate source is the abundant pool above Thatcher Lock & Dam. In February 2000 the Arkansas Natural Resources Commission, then Arkansas Soil & Water Conservation Commission, issued a Non-Riparian Permit allowing the Board to withdraw 56,050 acre-feet per year (50 mgd) through 2041 for ". . . continued supply of water to El Dorado and Union County, industry in Union County, and the Union Generating Station . . . ."

The Board completed the necessary infrastructure, and on October 2004, began delivering lightly treated Ouachita River water to the first of three major industries that by the fall of 2005 had converted from using solely Sparta aquifer

groundwater to the alternate, affordable surface source. Groundwater levels began to rise measurably in the five Critical Groundwater Counties and three North Louisiana Parishes, and by April 2019, one groundwater monitoring well's water level near the deepest cone of depression in Union County had risen 101.4' since conversion from Sparta groundwater to Ouachita River water began in October 2004.

In addition, the Board's first and largest customer, Entergy/Union Power Station, has always relied solely on Ouachita River water. The 2205 MW electric generating plant does not have nor has it ever had Sparta aquifer wells. Dallas-based developers Panda Energy knew when they first approached Union County in January 1999 that the Sparta aquifer could not provide the plant's water needs, and that the plant must get its water from the nearby Ouachita River. The resulting symbiotic public-private partnership began immediately.

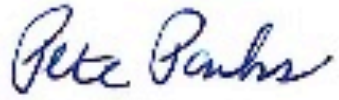
The power plant built and paid for infrastructure from the Ouachita River to its property boundary five miles south on Highway 167, and in 2003 deeded the $52 million facilities – 65 mgd intake at the river, water treatment plant, and five miles of pipeline -- over to the Board for $14 million, the incremental cost of oversizing the infrastructure to accommodate both the power plant's and Union County's current and future water needs.

Solidly behind the Sparta Recovery Initiative/Ouachita River Alternative Water Supply Project, Union County residents, businesses, potential industrial customers, elected officials, educators, economic development leaders, and government agencies coalesced to support legislation creating the Board and including a 24¢ per 1000 gallons on Sparta groundwater pumped.

Three years later, in February 2002, Union County taxpayers voted by a 61 – 39 margin to tax themselves a 1¢ temporary (seven year) sales tax to finish the infrastructure. The Board kept and in fact exceeded its commitment to Union County by paying off debt and removing the sales tax from the books 3 ½ years early, and in a December 2005 jubilant event, drowned the mortgage and ceremoniously turned on the river water tap to industry. Three years later in May 2008 the Board voted to cease conservation fee collections, and today funds infrastructure operation and maintenance through water sales to customers.

The Board strongly supports the 7001 Proposal to add water supply as an authorized project purpose and a path to further protect the abundant pool above Thatcher Lock and Dam for industrial and irrigation uses. Providing the alternative surface source and relieving groundwater over-pumping is allowing the county's sole source of drinking water, the Sparta aquifer, to recover naturally. The abundant alternative Ouachita River surface water source is absolutely essential to sustaining Union County's current and future water needs.

Sincerely,



Pete Parks
Founding Secretary Treasurer

copy: Union County Water Conservation Board
Robert Reynolds, Founding President 1999-2015/Volunteer Advisor 2015-Present
Congressman Bruce Westerman
U.S. Senators John Boozman & Tom Cotton
State Representatives Sonia Barker & Speaker of the House Matthew Shepherd
State Senator Trent Garner

Other Non-Federal Sponsors Letter(s) of Support

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ANRC Letter of Support_ Union County Water Conservation Board_Corps 7001 Request.pdf

Asa Hutchinson
Governor

ARKANSAS DEPARTMENT OF AGRICULTURE

1 Natural Resources Drive, Little Rock, AR 72205
agriculture.arkansas.gov
(501) 225-1598

Wes Ward
Secretary of Agriculture

Vicksburg District
U.S. Army Corps of Engineers
4155 Clay Street
Vicksburg, MS 39183

I'm writing to convey my support for the Union County Water Conservation Board's (UCWCB) 7001 Proposal to add *water supply* as an authorized purpose of the Ouachita/Black River Navigation System. The recognition of *water supply* as an authorized purpose will align Corps of Engineers efforts with long-standing objectives of the South Arkansas/North Louisiana Sparta Groundwater Recovery Initiative and Ouachita River Alternative Water Supply.

In 1997, Sparta groundwater levels in Union County were declining as much as 7 feet per year in some parts of the county due to 21 million gallons per day (mgd) being withdrawn for industrial and residential use. U.S. Geological Survey groundwater models showed this use to be unsustainable and threatening to irrevocably damage the Sparta Aquifer for future uses.

In response to this water crisis, UCWCB began diverting lightly treated Ouachita River water to supply three industrial users and to reduce groundwater withdrawals from the Sparta Aquifer. These efforts led to significant rises in Sparta groundwater levels and in April 2019, water levels rose over 101 feet in one monitoring well. Today, UCWCB utilizes 15 mgd of lighted treated Ouachita River water to meet industrial and irrigation needs, with less than 8 mgd is being withdrawn from the Sparta Aquifer for potable water use only. UCWCB's surface water supply infrastructure can deliver up to 65 mgd from the Ouachita River.

The successful utilization of Ouachita River water as a viable supply alternative to unsustainable use of the Sparta Aquifer has been made possible by the pool created above Thatcher Lock & Dam near Calion, Arkansas. This pool, as a water supply source, is vital to Union County's future and economic growth. I support UCWCB's request to add *water supply* as an authorized project purpose of the Ouachita/Black Navigation System. Adding this designation will allow full consideration of water supply benefits and surface water utilization strategies in future Corps of Engineers' evaluations of the Ouachita River system.

I request your favorable consideration of UCWCB's request and look forward to your decision.

Sincerely,

Bruce Holland, Director
Natural Resources Commission

cc: Ken Brazil, Engineer Supervisor, Natural Resources Commission, 101 East Capitol, Suite 350, Little Rock, Arkansas 72201

Other Non-Federal Sponsors Letter(s) of Support

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Arkansas Waterways Ltr. Support.pdf

Arkansas Waterways Commission

Asa Hutchinson, Governor

Deidre Smith, Director

August 16, 2019

Colonel Robert A. Hilliard, Commander
USACE – Vicksburg District
4155 Clay Street
Vicksburg, MS 39183

Re: Letter of Support – Union County Water Supply Proposal

Dear Colonel Hilliard,

I am writing in support of the Union County Water Conservation Board's (UCWCB) 7001 Proposal to add water supply as an authorized purpose of the Ouachita/Black River Navigation System. Projects like the South Arkansas/North Louisiana Sparta Groundwater Recovery Initiative and Ouachita River Alternative Water Supply Project are a prime example of how important the inland river systems are to the regions they serve. UCWCB's project demonstrates an extremely beneficial economic development use of a pool created by a navigable Arkansas waterway.

In 1997, Sparta groundwater levels in Union County were declining as much as 7' per year in some parts of the county, and the U.S. Geological Survey advised Union County that it must reduce Sparta consumption by 72% in five years or less or inflict irreparable harm to the aquifer, then the County's only source of drinking and industrial water.

Following significant county-wide conservation efforts in the late 1990s, Sparta groundwater levels began rising dramatically. By April of this year, the water level in one monitoring well has risen 101.4'.

In 1997, Union County was using 21 mgd of Sparta groundwater, its sole source of residential and industrial water. Today Union County is using 7-8 mgd of Sparta groundwater for potable use only, and an average of 15 - 16 mgd of lightly treated Ouachita River water for industrial use and irrigation.

Primarily an economic development project launched by the Chamber of Commerce in 1997, the UCWCB began delivering the Ouachita River Alternative Water Supply's lightly treated river water in 2004 to three major industrial customers that once relied solely on the Sparta for industrial water: Delek (Lion) Refinery, El Dorado Chemical, and Great Lakes/LANXESS Central Plant. Since

then, a golf and residential community, the new El Dorado High School, and a private citizen have begun using the river water for irrigation.

Neither the Sparta's recovery nor the county's now-abundant supply of ground and surface water would be possible without the pool of water above Thatcher Lock & Dam on the upper Ouachita near Calion, Arkansas. In addition to the 65 mgd Ouachita River infrastructure, Union County's efforts have led to millions of additional gallons of fresh water replenished in the Sparta aquifer in South Arkansas and North Louisiana through natural recharge.

The Arkansas Waterways Commission has been a staunch supporter of UCWCB's project for several years and would like to encourage the U.S. Army Corps of Engineers Vicksburg District, Headquarters, and Office of Civil Works, to lend its considerable support to Union County's efforts and add "Water Supply" as a project purpose for the Ouachita/Black Navigation System.

Respectfully submitted,

Deidre Smith, Director
Arkansas Waterways Commission

cc: Governor ASA Hutchinson
Secretary of Commerce, Mike Preston
Marty Shell, Chairman – Arkansas Waterways Commission
Craig Mobley, Arkansas Waterways Commissioner – Ouachita River Representative
Gene Higginbotham, Legislative Director – Senator Boozman

Other Non-Federal Sponsors Letter(s) of Support

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LaSparta 7001 SupportLetter.pdf

SPARTA
Ground Water Commission

P.O. Box 10198 T.S.
Ruston, LA 71272
www.spartaaquifer.com

August 17, 2019

U.S. Army Corps of Engineers Vicksburg District
Col. Robert A. Hilliard, Commander
4155 Clay Street
Vicksburg, MS 39183

It is our honor to be part the South Arkansas/North Louisiana Sparta Groundwater Recovery Initiative and Ouachita River Alternative Water Supply Project, and we are writing in support of the Union County Water Conservation Board's (UCWCB) 7001 Proposal to add Water Supply as an authorized purpose of the Ouachita/Black River Navigation System.

In 1997, Sparta groundwater levels in Union County were declining as much as 7' per year in some parts of county, and the U.S. Geological Survey advised Union County that it must reduce Sparta consumption by 72% in five years or less or inflict irreparable harm to the aquifer. Following significant county-wide conservation efforts beginning in the late 1990s, Sparta groundwater levels began rising dramatically, and by April of this year, the water level in one monitoring well has risen 101.4'. Likewise, groundwater levels in several north Louisiana parishes, for which we monitor and oversee, have risen in response to Union County's efforts.

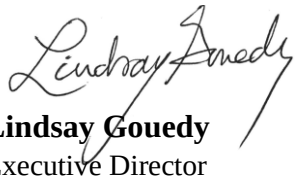
In 1997, Union County was using 21 mgd of Sparta groundwater, its sole source of residential and industrial water. Today Union County is using 7-8 mgd of Sparta groundwater for potable use only, and an average of 15 mgd of lightly treated Ouachita River water for industrial use and irrigation.

Neither regional groundwater recovery nor the county's now-abundant supply of ground and surface water would be possible without the pool of water above Thatcher Lock & Dam on the upper Ouachita near Calion, Arkansas. In addition to the 65 mgd capacity of the UCWCB's Ouachita River infrastructure, Union County's efforts have led to millions of additional gallons of fresh water replenished in the Sparta through natural recharge.

Primarily an economic development project launched by the Chamber of Commerce in 1997, Union County began delivering lightly treated river water in 2004 to three major industrial customers that once relied solely on the Sparta for industrial water: Delek (Lion) Refinery, El Dorado Chemical, and Great Lakes/LANXESS Central Plant. Mystic Creek Golf & Residential Community, the new El Dorado High School, and a private citizen have also begun using the alternative surface water for irrigation.

We encourage the U.S. Army Corps of Engineers Vicksburg District, Headquarters, and Office of Civil Works, to lends its considerable support to Union County's efforts and add "Water Supply" as a project purpose for the Ouachita/Black Navigation System.

Sincerely,



Lindsay Gouedy
Executive Director
Sparta Groundwater Commission

Other Non-Federal Sponsors Letter(s) of Support

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ORVA VICKSBURG LETTER.pdf

"A River Basin of Opportunity, A Century Plus of Commitment"

ORVA

Ouachita River Valley Association

Serving Arkansas and Louisiana

Vicksburg District
U.S. Army Corps of Engineers
4155 Clay Street
Vicksburg, MS 39183

Dear Col. Robert A. Hilliard, Commander:

The Ouachita River Valley Association (ORVA) writes this letter in support of the Union County Water Conservation Board's (UCWCB) 7001 proposal to add Water Supply as an authorized purpose of the Ouachita/Black River Navigation System.

ORVA is proud to be a part of the South Arkansas North Louisiana Sparta Groundwater Recovery Initiative and the Ouachita River Alternative Water Supply Project. Conservation efforts began in the late 1990s in South Arkansas and since that time the Sparta groundwater levels have been rising at a dramatic rate. For an example, the water level in one monitoring well has risen 101.4 feet.

This recovery of the Sparta would not be possible without the pool of water above Thatcher Lock & Dam on the upper Ouachita. Primarily an economic development project launched by the Chamber of Commerce in 1997, the UCWCB begun delivering the Ouachita River Alternative Water Supply's lightly treated river water in 2004 to major industries that once relied solely on the Sparta for industrial water. These efforts have led to millions of additional gallons of fresh water replenishing the Sparta aquifer in South Arkansas and North Louisiana through natural recharge.

The ORVA encourages the U.S. Army Corps of Engineers Vicksburg District and the Office of Civil Works to lend support to Union County's effort and add "Water Supply" as a project purpose for the Ouachita/Black River Navigation System.

Sincerely,

Randy Denmon, President
Ouachita River Valley Association

Other Non-Federal Sponsors Letter(s) of Support

(This is as uploaded, a blank page will show if nothing was submitted)

OuachitaRiverCommission.pdf

The Ouachita River Commission

"To promote the recreational benefits and preserve the integrity of the river"

Vicksburg District
U.S. Army Corps of Engineers
4155 Clay Street
Vicksburg, MS 39183

Dear Col. Robert A. Hilliard, Commander,

This letter is in support of the Union County Water Conservation Board's (UCWCB) 7001 proposal to add Water Supply as an authorized purpose of the Ouachita/Black River Navigation System.

The Ouachita River Commission (ORC) is honored to be a part of the South Arkansas/North Louisiana Sparta Groundwater Recovery Initiative and Ouachita River Alternative Water Supply Project. Following significant conservation efforts begun in the late 1990s in Union County, Arkansas, the Sparta groundwater levels began rising dramatically, and by this year, the water level in one monitoring well has risen 101.4'.

None of this recovery of the Sparta would be possible without the pool of water above Thatcher Lock & Dam on the upper Ouachita near Calion, Arkansas. Primarily an economic development project launched by the Chamber of Commerce in 1997, the UCWCB began delivering the Ouachita River Alternative Water Supply's lightly treated river water in 2004 to major industries that once relied solely on the Sparta for industrial water. These efforts have led to millions of additional gallons of fresh water replenishing the Sparta aquifer in South Arkansas and North Louisiana through natural recharge.

The ORC strongly encourage the U.S. Army Corps of Engineers Vicksburg District, Headquarters, and Office Civil Works, to lend its considerable support to Union County's effort and add "Water Supply" as a project purpose for the Ouachita/Black Navigation System.

Respectfully,

Mike Dumas
Chairman, Ouachita River Commission

Map Document

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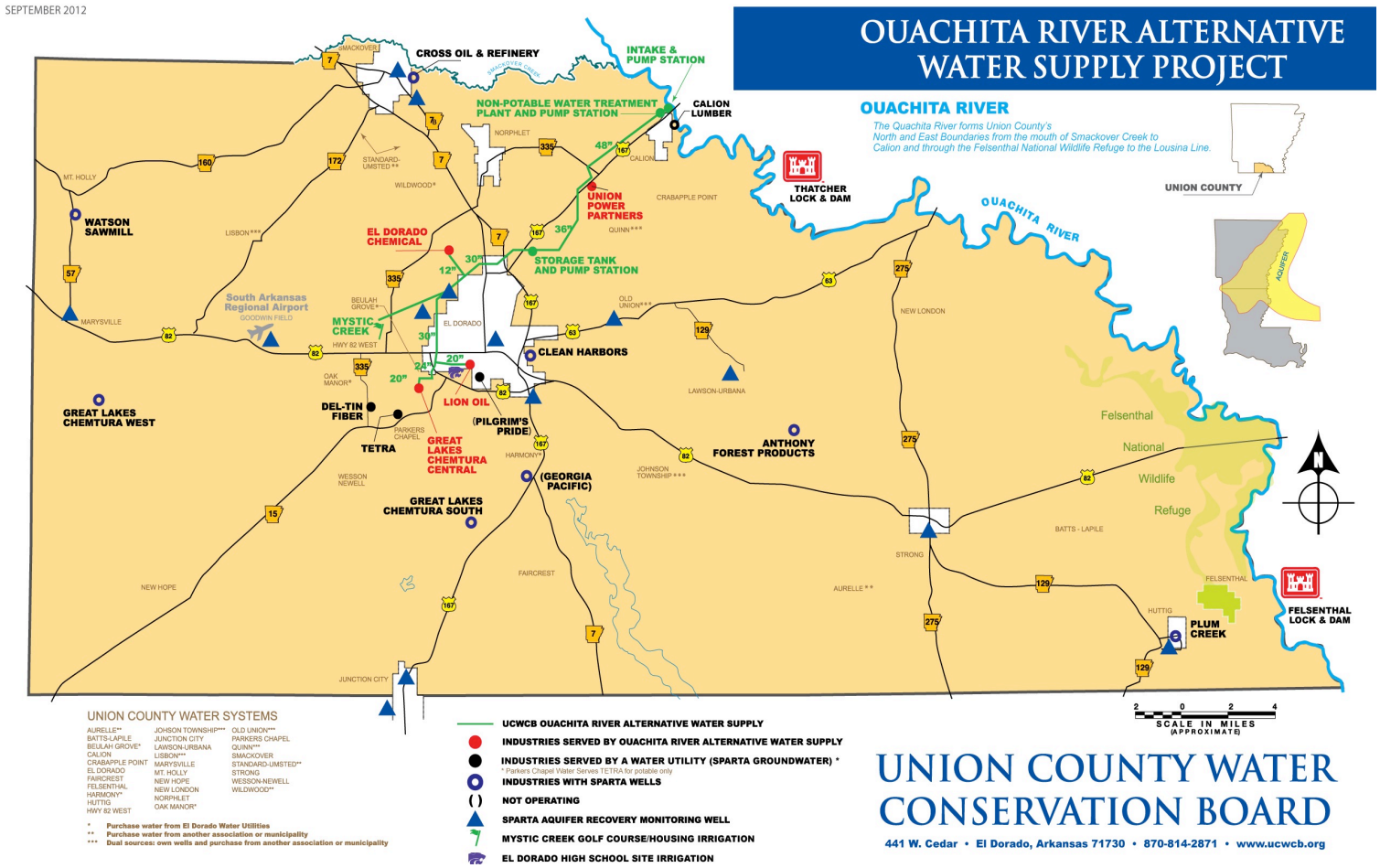
7001 Countywide Map.pdf



South Arkansas Sparta Aquifer Recovery Initiative. Union County (Arkansas) Water Conservation Board's **Ouachita River Alternative Water Supply Project** provides an abundant, alternative surface source to the once threatened underground Sparta aquifer. Completed in the fall of 2004, the $65 million project began delivering lightly treated Ouachita River water to three major industries – Lion Oil (Delek) Refinery, Great Lakes/LANXESS Central Plant, El Dorado Chemical -- which had previously relied solely on Sparta groundwater, Union County's only source of drinking and industrial water. Combined with other conservation measures, this conjunctive use has allowed Sparta aquifer groundwater levels, which in 1997 were declining as much as 7' in some parts of Union County, to begin recovering dramatically. **As of April 2019, the groundwater level in one Sparta monitoring well nearest the deepest cone of depression had risen 101.4'.**

Additional Proposal Information

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1997toTodaySlide 8.21.19 101'.pdf

1997	Today
21 mgd Sparta groundwater	**7-8 mgd avg Sparta, 18 mgd avg Ouachita River**
Groundwater levels declining as much as 7' per year	**Groundwater levels rising, one well has risen 101.4' since 2004 industry conversion; over 134' since its deepest measurement - 379.7' in Oct 2001**
Saltwater encroachment threatened our only source of drinking water	**Saltwater encroachment appears to have been halted**
No single authority over groundwater	**June 1999, Union County Water Conservation Board formed with unprecedented authority in Act 1050 of 1999, including collection of 24¢ per gallons conservation fee from significant* users (everyone) -** **residents paid thru water utility*
No alternative source	**By 2005, the Board had built/paid for $65M infrastructure & was delivering Ouachita River surface water to major Industries that previously relied solely on Sparta groundwater**

AUGUST 21, 2019

Additional Proposal Information

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Act1050 1999.pdf

State of Arkansas
82nd General Assembly
Regular Session, 1999

As Engrossed: S3/3/99 S3/5/99 H3/15/99

A Bill

Act 1050 of 1999
SENATE BILL 726

By: Senator Mahony
By: Representatives Sheppard, M. Smith, Dees

For An Act To Be Entitled

"AN ACT ADDRESSING THE *SPARTA AQUIFER* WATER CRISES IN CERTAIN COUNTIES OF THE STATE OF ARKANSAS; AUTHORIZING THE CREATION OF *SPARTA AQUIFER* CRITICAL GROUNDWATER COUNTY CONSERVATION BOARDS; SETTING FORTH THE PURPOSES AND POWERS OF SUCH BOARDS; AUTHORIZING THE ISSUANCE OF REVENUE BONDS AND THE APPLICATION OF THE PROCEEDS OF BONDS ISSUED BY COUNTIES AND MUNICIPALITIES; FIXING WATER CONSERVATION FEES WITH RESPECT TO CERTAIN REGISTERED AND SIGNIFICANT WATER USERS OF *SPARTA* AQUIFER WATER; DECLARING AN EMERGENCY; QUALIFYING INSTALLATION OF WATER METERS FOR INCOME TAX CREDIT; AND FOR OTHER RELATED PURPOSES."

Subtitle

"THE *SPARTA AQUIFER* CRITICAL GROUNDWATER COUNTIES REMEDIATION ACT ADDRESSES A WATER CRISIS IN CERTAIN ARKANSAS COUNTIES BY CREATING *SPARTA AQUIFER* CRITICAL GROUNDWATER CONSERVATION BOARDS AND FIXING WATER CONSERVATION FEES FOR USERS."

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. <u>This act may be known and cited as the "*Sparta Aquifer* Critical Groundwater Counties' Remediation Act."</u>

SECTION 2. It has been found by the Arkansas General Assembly that *certain counties in the State of Arkansas presently have critical water shortages in the Sparta aquifer where the potentiometric surface has dropped below the top of the Sparta formation in the critical groundwater area containing Union, Ouachita, Columbia, Calhoun, and Bradley counties, and that the potentiometric surface in the critical groundwater area containing Arkansas, Jefferson, Prairie, Pulaski, White, and Lonoke counties has not dropped below the top of the formation, and that the critical groundwater area designation covering Arkansas, Jefferson, Prairie, Pulaski, White, and Lonoke counties is presently being contested in the courts of our State, and that further because of the existing* depletion of the groundwater *from the Sparta aquifer which underlies* such counties, that *this crisis is*, in some instances, aggravated by the *unrestrained direct withdrawal of water from the aquifer and that this crisis is not adequately addressed by any existing law. It is the intent of this act to make available revenues and resources to address this crisis and to discourage the withdrawal of Sparta aquifer water by certain large water users in Union, Ouachita, Columbia, Calhoun, and Bradley counties of Arkansas.*

SECTION 3. As used in this act, unless the context otherwise requires:

(1) "Aquifer water" means water removed from *the Sparta* aquifer;

(2) "Acquire" means acquire by purchase, lease, devise, gift or other mode of acquisition, and by any method selected by a board;

(3) "Commission" means the Arkansas Soil and Water Conservation Commission;

(4) "Conservation fee" means any fee fixed pursuant to this act and levied upon any registered water user or significant water user;

(5) "Construct" means construct, equip, install or otherwise develop by any means selected by a board;

(6) "County" means any Arkansas county:

(A) in which at least *ninety percent (90%)* of the reported *groundwater usage from the Sparta aquifer is for municipal and industrial purposes on the date of the petition; and*

(B) which *has been or is* found and determined by the commission to be within a critical groundwater area*, prior to July 1, 1998,* within the meaning of Arkansas Code Title 15, Chapter 22, Subchapter 9;

1 (7) "Improvement plan" means a plan to carry out the construction and
2 acquisition of water facilities or to provide for the conservation of aquifer
3 water, or both;
4 (8) "Person" means any natural person, firm, association, corporation,
5 trust, partnership, governmental agency, state or political subdivision,
6 county, municipality or other legal entity;
7 (9) "Registered water user" means any person who, whether as owner,
8 lessee, operator or otherwise, operates one or more wells with a *minimum*
9 potential flow rate of fifty thousand (50,000) gallons or more of aquifer
10 water per day, including a board, and is required to register with the
11 commission under Arkansas Code §15-22-302. The withdrawal of water which is
12 expected to be returned to an aquifer by the user thereof does not cause a
13 person to be a registered water user;
14 (10) "Significant water user" means any person who, whether as owner,
15 lessee, operator, or otherwise, operates one or more wells with a maximum flow
16 rate of less than fifty thousand (50,000) gallons of aquifer water per day,
17 including a board, and is determined by the board to be using aquifer water
18 for other than domestic purposes;
19 (11) "Revenues" means revenues derived from any source, including,
20 without limitation, the wholesale or retail sale of water and the
21 conservation fees;
22 (12) "*Sparta Aquifer* Critical Groundwater County Conservation Board" or
23 "Board" means any *Sparta Aquifer* Critical Groundwater Conservation County
24 Board established pursuant to this act; and
25 (13) "Water facilities" means any facilities for the withdrawal,
26 storage, transportation, treatment or distribution of water, together with any
27 properties, real, personal or mixed, tangible or intangible, related or
28 appropriate thereto.
29
30 SECTION 4. This act is complete in itself and shall be the sole
31 authority necessary to carry out the its purposes. This act shall be
32 construed liberally. The enumeration of any object, purpose, power or method
33 shall not be deemed to exclude like objects, purposes, powers or methods.
34
35 SECTION 5. (a) *One hundred (100)* or more qualified electors residing
36 within any county may petition the circuit court for the county to establish a

1 ***Sparta Aquifer*** **Critical Groundwater County Conservation Board for the purposes**
2 **set forth in this act.**
3 **(b) A petition filed pursuant to this act shall contain:**
4 **(1) a brief and concise statement describing the water crisis**
5 **affecting such county;**
6 **(2) a brief and concise statement showing the necessity for**
7 **forming and operating the proposed board and describing the benefits to be**
8 **derived therefrom by the residents and property owners in the county;**
9 **(3) the proposed name for the board;**
10 **(4) a proposed improvement plan; and**
11 **(5) any other and additional information as may be appropriate**
12 **and useful, including without limitation, the proposed names of initial**
13 **members and their terms.**
14
15 **SECTION 6. (a) Upon the filing of the petition in the office of the**
16 **circuit clerk, the clerk shall prepare a certified copy of the petition and**
17 **transmit the certified copy to the commission within five (5) days after the**
18 **date of the filing of the petition.**
19 **(b) Upon receipt of the certified copy, the commission, if it has not**
20 **already done so, shall begin an investigation of the present and future**
21 **availability of aquifer water for the county. The commission shall, within**
22 **sixty (60) days after receipt of the certified copy of the petition, transmit**
23 **a written report of its findings to the clerk of the circuit court.**
24 **(c) The report of the commission shall include, but need not be limited**
25 **to:**
26 **(1) a finding as to whether the water shortage of the county, if**
27 **any, is such that it conforms to the definition of "county" in subdivision (6)**
28 **of Section 3 of this act;**
29 **(2) a finding as to whether the organization of the proposed**
30 **board serves to alleviate any such water shortage and would be conducive to**
31 **the purposes of this act; and**
32 ***(3) a finding that an existing plan is in place, including***
33 ***deadlines for progress, which is reasonably calculated to alleviate the***
34 ***depletion of the Sparta aquifer and reduce the withdrawal of aquifer water to***
35 ***levels below the safe yield in order to protect the Sparta aquifer for future***
36 ***use;***

1 (4) a finding that the proposed improvement plan, if implemented,
2 would *or would not* preserve the groundwater resource for future use; and
3 (5) any conditions or recommendations which the commission
4 regards as necessary to the organization of the board and the purposes and
5 powers of the board.
6 (d) If the commission makes a finding that an existing plan is in place
7 to preserve the actual groundwater use under subdivision (c)(3) of this
8 section, then the petition shall be held in abeyance and the commission shall
9 continuously monitor the plan's progress. However, upon petition of any
10 twenty (20) persons alleging insufficient progress in the plan, the commission
11 shall conduct a hearing in the county and examine the previous findings.
12
13 SECTION 7. (a) Within thirty (30) days after the report of the
14 commission has been filed in the office of the circuit clerk, the petition
15 shall be presented to the judge of the circuit court, either in term or
16 vacation, and the court shall thereupon enter its order:
17 (1) setting a hearing upon the petition for a day certain; and
18 (2) directing the clerk of the court to give notice of the
19 hearing by publication for two (2) consecutive weeks in some newspaper or
20 newspapers having a general circulation in the county.
21 (b) The notice shall contain:
22 (1) a concise statement describing the purpose of the hearing;
23 (2) a concise statement of the findings and conclusions of the
24 commission;
25 (3) a warning to all persons residing or owning property within
26 the county to appear upon the date and at the time and place of the hearing to
27 show cause, if any exists, why the petition should not be granted.
28 (c) Upon the date and at the time and place named in the notice, the
29 circuit court shall meet and hear all persons who wish to appear and advocate
30 or resist the establishment of the board.
31 (d) If the court, after being satisfied as to the sufficiency of the
32 petition and the proceedings thereon, find it to be in the best interests of
33 the persons residing or owning land within the county that the board be
34 established under the terms of this act, the court shall enter its order
35 establishing the board, subject to the terms and provisions of this act, and
36 designating a name for the board.

1
2 SECTION 8. (a) The board shall be composed of one (1) qualified
3 elector residing in each justice of the peace district in the county.
4 (b) The initial members of the board shall be appointed by the circuit
5 court, at the time of establishment of the board, or within a reasonable time
6 thereafter. The court shall fix the terms of the initial members of the board
7 in a manner that the terms of the board members shall expire on December 31 of
8 the year of each general election, and each two (2) years thereafter. The
9 membership of the initial board shall be divided into two (2), four (4) and
10 six (6) year terms in order to set up the every two-year rotation.
11
12 SECTION 9. (a) Other than the initial members of the board, members of
13 the board shall be elected, for terms of six (6) years, by the qualified
14 electors residing in the respective justice of the peace districts included in
15 the county.
16 (b) Nominations for members of the board shall be upon petitions signed
17 by at least ten (10) qualified electors residing in the justice of the peace
18 district from which the member is to be elected. The petition shall be filed
19 with the county board of election commissioners at least sixty (60) days prior
20 to the general election.
21 (c) Election of members shall be held as a part of the general election
22 and under the laws governing the general election.
23 (d) Any member shall be qualified to succeed himself or herself.
24 (e) Any member of the board shall serve until his or her successor is
25 elected and qualified.
26 (f) In the event of an increase or decrease in the number of justice of
27 the peace districts in a county, the circuit court shall, upon petition signed
28 and filed with the circuit clerk by twenty (20) or more qualified electors
29 residing in the county, enter its order making appropriate modifications in
30 the composition of the board.
31
32 SECTION 10. (a) Each member of the board shall take the oath of office
33 required by Article 19, Section 20, of the Arkansas Constitution and shall
34 also swear that he or she will not directly or indirectly be interested in any
35 contract made by the board.
36 (b) All oaths of members of the board shall be executed in writing and

shall be filed in the office of the circuit clerk for the county.

(c) Any member failing to take the oath within thirty (30) days after his or her appointment or election shall be deemed to have declined the office and his or her place shall be filled as other vacancies.

(d) Any vacancy on the board shall be filled by appointment of the board for a term to last until December 31 following the next general election, at which time the vacancy shall be filled by election from the appropriate district for the unexpired term of the position that became vacant. Should there not be time for a candidate to qualify for the next general election, the appointment shall be until December 31 of the next following general election.

SECTION 11. (a) The members of the board shall receive no compensation but shall be entitled to reimbursement for out-of-pocket expenses by the procedure and in the amounts provided for employees of the State of Arkansas under Arkansas Code § 25-16-902.

(b) Members of the board shall be immune from liability for acts and omissions within the scope of their duties as board members, save in cases of gross negligence or wanton misconduct.

(c) boards shall be authorized to acquire liability insurance for the benefit and protection of members of the board and, save in cases of gross negligence or wanton misconduct, to reimburse members of the board in the event of liability.

(d) Promptly upon their appointment, the members of the board shall meet and organize and shall elect a president, vice president and secretary-treasurer and shall adopt bylaws which shall govern their proceedings.

(e) Regular meetings of the board shall be held not less frequently than quarterly, as determined by the board, at the office of the board. All meetings are subject to the open meetings and public meetings requirements of the Arkansas Freedom of Information Act, beginning at Arkansas Code § 25-19-101.

(f)(1) Special meetings of the board may be held at any time upon waiver of notice by all members or may be called by the president or by any two members at any time provided that notice, signed by the person or persons calling any special meeting, shall be mailed to each member of the board at least seven (7) days prior to the time fixed for the special meeting.

1 (2) Emergency special meetings of the board may be held on the
2 call of the president or vice president, in the president's absence, provided
3 a written notice is delivered by a member of the board or designated agent
4 whose name is set out in the notice to each member of the board at least three
5 working days prior to the time fixed for the emergency special meeting.
6 (g) A majority of the members of the board shall constitute a quorum
7 for the transaction of business. In the absence of any of the elected
8 officers of the board, a quorum at any meeting may select a member to act as
9 presiding officer.
10
11 SECTION 12. (a) Each board shall have the power to:
12 (1) sue and be sued, complain and defend, in the name of the board;
13 (2) adopt a seal which may be altered at its pleasure, and use it as it
14 determines;
15 (3) acquire, construct and develop any water facilities;
16 (4) withdraw, store, transport, treat and distribute water and engage
17 in activities related or appropriate thereto;
18 (5) acquire, own, lease and operate any lands, buildings, fixtures,
19 equipment, personalty, and other properties, real, personal or mixed, tangible
20 or intangible, as may be appropriate to its powers and the purposes of this
21 act;
22 (6) sell and issue its bonds secured by and payable from its revenues
23 and enter into such trust indentures and other documents and undertakings as
24 may be appropriate thereto, which bonds shall be payable over a period of not
25 to exceed forty (40) years and shall bear interest at an interest rate or
26 rates not to exceed that set forth in Amendment 65 to the Arkansas
27 Constitution, shall be sold for such price and by such method as shall be
28 determined by the board, and which bonds, and interest thereon, shall be
29 exempt from all state, county and municipal taxes;
30 (7) apply the proceeds of revenue bonds and sales and use tax bonds
31 issued by the county and municipalities within the county for the acquisition,
32 construction and development of water facilities, as may be agreed to by the
33 county and such municipalities;
34 (8) have and exercise the power of eminent domain for the purpose of
35 acquiring lands, rights-of-way and other properties necessary in the
36 construction or operation of any water facilities in the manner now provided

1 by the condemnation laws of this state for acquiring private property for
2 public use;
3 (9) accept gifts or grants of money, services, franchises, rights,
4 privileges, licenses, rights-of-way, easements, or other property, real,
5 personal or mixed, tangible or intangible;
6 (10) make any and all contracts necessary or convenient for the
7 exercise of the powers granted in this act, including, without limitation,
8 contracts with other boards and with municipalities and counties;
9 (11) fix, regulate and collect rates, fees, rents and other charges for
10 water sold by the board and for the use of water facilities and for services
11 furnished by the board, any such rates to be just, reasonable and non-
12 discriminatory;
13 (12) conduct its affairs within and without this state;
14 (13) elect, appoint or employ officers, agents, attorneys, engineers
15 and such other personnel as it shall deem necessary, and to fix their
16 compensation, and to establish the use and application of its revenues;
17 (14) enter upon private premises for the purpose of carrying out the
18 terms of this Act, including a determination of the capacity of *the Sparta*
19 well, and for compliance with the Arkansas Department of Health rules and
20 regulations concerning the health and safety of the water systems;
21 (15) accept appropriations and grants from this State of Arkansas and
22 from the United States upon such terms and conditions as may be imposed by law
23 or regulation;
24 (16) require that anyone drilling a water well into *the Sparta* aquifer
25 *designated critical by the commission shall file a copy of the report required*
26 *to be filed with the Water Well Construction Commission pursuant to Arkansas*
27 *Code 17-50-104 with the board;*
28 (17) require monitoring of all wells determined to be operated as
29 registered water users or significant water users; and
30 (18) exercise *all powers necessary and appropriate to accomplish the*
31 *improvement plan and* such other powers as may be set forth in this act or as
32 may be necessary or appropriate to carry out its purposes and the purpose of
33 this act.
34 (b) Notwithstanding the powers conferred by this section, a board shall
35 comply with the laws of this state regarding the acquisition, storage,
36 transportation, distribution, treatment, or disposal of water.

1 (c) The board shall have the power, pursuant to appropriate agreement,
2 to expend and invest the proceeds of bonds and other obligations, whether
3 secured by revenues or taxes or otherwise, issued by the county or by any
4 municipality in the county.
5
6 *SECTION 13. (a) Each board shall procure an annual financial audit to*
7 *be conducted following each board's fiscal year end.*
8 *(b) Each board shall choose and employ accountants, licensed and in*
9 *good standing with the Arkansas State Board of Public Accountancy, to conduct*
10 *these audits in accordance with Governmental Auditing and Reporting Standards*
11 *issued by the Comptroller General of the United States.*
12 *(c) Each audit report and accompanying comments and recommendations*
13 *shall be reviewed by the board and copies of each audit report shall be filed*
14 *with the commission and the Division of Legislative Audit. In addition, one*
15 *(1) copy of the audit report shall be kept for public inspection with the*
16 *books and records of the board and one (1) copy shall be filed with the clerk*
17 *of the circuit court where the petition was filed to create the board.*
18
19 SECTION *14*. (a) There is hereby levied and fixed upon each registered
20 water user and significant water user of aquifer water a conservation fee at
21 the following rates per 1000 gallons of aquifer water withdrawn:
22 (1) twenty-four cents (24¢) per one thousand (1000) gallons until
23 May 1, 2001; and
24 (2) thirty-six cents (36¢) per one thousand (1000) gallons
25 thereafter.
26 (b) Provided, the board shall have the power to reduce the conservation
27 fee upon issuance of its written findings to the effect that the conservation
28 fee as reduced will continue to discourage the withdrawal of aquifer water by
29 registered water user and significant water users.
30 (c) In like manner, the board may issue its written findings to the
31 effect that it is necessary that the conservation fee be raised, to discourage
32 withdrawal, and increase the fee to any level allowed hereby, whereupon the
33 conservation fee shall be raised to such level.
34
35 SECTION *15*. (a) Each registered and significant water user shall
36 report monthly, on or before the fifteenth (15th) day of the month, to the

1 commission and to the board, on a form or forms prescribed by the commission,
2 the quantity of aquifer water which it withdrew during the preceding month on
3 a well-by-well basis. The board shall set the date on which the conservation
4 fee shall go into effect.
5 (b) Any conservation fee shall be payable each month, with the report
6 provided for in subsection (a) of this section, to the county treasurer of the
7 county. Conservation fees shall be remitted to the board, by the county
8 treasurer, after deduction of an amount equal to one-quarter of one percent
9 (.25%) thereof for payment or reimbursement of administrative expenses, on or
10 before the first day of the month following the month in which received.
11 (c) All proceeds of the conservation fee shall be applied to defray the
12 costs of the Board for operation and maintenance of and debt service in
13 relation to the improvement plan including, but not limited to, the water
14 facilities and to serve the purposes of this act.
15 *(d) Any conservation fees which are determined to be delinquent for*
16 *more than ninety (90) days shall constitute a lien on the real and personal*
17 *property of each delinquent registered and significant water user and may be*
18 *enforced against such property by an action in chancery court.*
19
20 SECTION *16*. (a)(1) Each registered water user shall install and
21 maintain, at its expense, a meter, in conformance with standards and
22 specifications issued by the commission, for the purpose of measuring and
23 recording the quantity of aquifer water drawn by the registered water user.
24 (2) Each significant water user shall maintain at its expense a
25 meter purchased and installed by the board.
26 (b) Each meter shall be accessible to agents of the commission and the
27 board during reasonable business hours.
28
29 SECTION *17*. (a) Any registered water user or significant water user
30 which shall fail to report as set forth in Section *15* hereof shall be subject
31 to a administrative penalty at the rate of twice the conservation fee owed,
32 payable to the board.
33 (b) Any person who intentionally or willfully makes any false report
34 under the provisions of this act or who tampers with any meter required by
35 this act shall be guilty of a misdemeanor and upon conviction shall be fined
36 not less than one thousand dollars ($1,000) nor more than five thousand

1 dollars ($5,000).
2
3 SECTION *18*. Arkansas Code § 26-51-1003(7), regarding the definition of
4 'projects' which are eligible for a income tax credit under the Water
5 Resources Conservation and Development Incentives Act, is amended to read as
6 follows:
7 "(7) 'Project' means:
8 (A) The construction, installation, or restoration of water
9 impoundment or water control structures of twenty (20) acre-feet or more
10 designed for the purpose of storing water to be used for agricultural
11 irrigation or industrial processing;
12 (B) The conversion from groundwater to surface water use by
13 agricultural, commercial industrial, or recreational water users;
14 (C) Agricultural land leveling resulting in water savings due to
15 the more efficient use of irrigation water for which tax credits are claimed;
16 ~~and~~
17 (D) The purchase and installation of water measuring or metering
18 devices used to determine the quantity of water used. Installation of such
19 devices shall be considered a conversion from groundwater to surface water for
20 tax credit purposes; and"
21
22 SECTION *19*. The commission, and each board, is authorized to issue
23 rules and regulations and to conduct investigations for the purpose of
24 implementing and carrying out the terms of this act.
25
26 SECTION *20*. All provisions of this act of a general and permanent
27 nature are amendatory to the Arkansas Code of 1987 Annotated and the Arkansas
28 Code Revision Commission shall incorporate the same in the Code.
29
30 SECTION *21*. If any provision of this act or the application thereof to
31 any person or circumstance is held invalid, such invalidity shall not affect
32 other provisions or applications of the act which can be given effect without
33 the invalid provision or application, and to this end the provisions of this
34 act are declared to be severable.
35
36 SECTION *22*. All laws and parts of laws in conflict with this act are

hereby repealed.

SECTION *23*. EMERGENCY CLAUSE. It is hereby found and determined by the *Eighty Second Arkansas General Assembly* that particular counties in this State face critical water shortages due to depletion of *Sparta* aquifer water and that these shortages are subject to remediation only by the immediate conjunctive use of surface water and groundwater. This act would allow the most critical counties to reduce the use of ground water and substitute available surface water. Therefore, an emergency is declared to exist and this act being immediately necessary for the preservation of the public peace, health and safety shall become effective on the date of its approval by the Governor. If the bill is neither approved nor vetoed by the Governor, it shall become effective on the expiration of the period of time during which the Governor may veto the bill. If the bill is vetoed by the Governor and the veto is overridden, it shall become effective on the date the last house overrides the veto.

/s/ Mahony, et al

APPROVED: 4/1/1999

Additional Proposal Information

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Amendment Act632of2017 HB1982.pdf

State of Arkansas
91st General Assembly
Regular Session, 2017

A Bill

HOUSE BILL 1982

By: Representatives Shepherd, Barker
By: Senator T. Garner

For An Act To Be Entitled

AN ACT TO AMEND THE EXCEPTION TO A CRITICAL GROUNDWATER COUNTY CONSERVATION BOARD'S AUTHORITY TO LEVY A CONSERVATION FEE REGARDING THE SPARTA AQUIFER; AND FOR OTHER PURPOSES.

Subtitle

TO AMEND THE EXCEPTION TO A CRITICAL GROUNDWATER COUNTY CONSERVATION BOARD'S AUTHORITY TO LEVY A CONSERVATION FEE REGARDING THE SPARTA AQUIFER.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 15-22-1214(b), concerning a water conservation levy for the Sparta Aquifer critical groundwater county conservation board, is amended to read as follows:

(b) However, when the board has extended an alternate water source to the property line of a major water user and the major water user does not connect to and begin using the alternate water source, the major water user may be assessed a conservation fee determined by the board, not to exceed ~~ninety six cents (96¢)~~ <u>one and five tenths (1.5) times the board's current rate for the alternate source</u> per one thousand gallons (1,000 gals.) of aquifer water withdrawn, until the major water user connects to and uses the alternate water source.

APPROVED: 03/24/2017

Additional Proposal Information

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AmendmentAct1774of2005.pdf

State of Arkansas *As Engrossed: H3/10/05 S3/28/05*

85th General Assembly

A Bill

Regular Session, 2005 HOUSE BILL 2515

By: Representatives Bradford, Clemons, Flowers, Mahony, *Maxwell, Bolin*

By: Senator J. Taylor

For An Act To Be Entitled

AN ACT TO AMEND VARIOUS PROVISIONS OF THE SPARTA AQUIFER CRITICAL GROUNDWATER COUNTIES' REMEDIATION ACT; AND FOR OTHER PURPOSES.

Subtitle

AN ACT TO AMEND VARIOUS PROVISIONS OF THE SPARTA AQUIFER CRITICAL GROUNDWATER COUNTIES' REMEDIATION ACT.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Arkansas Code § 15-22-1202 is amended to read as follows:

15-22-1202. Legislative findings and intent.

~~(a) It has been found by the General Assembly that certain counties in the State of Arkansas presently have critical water shortages in the Sparta Aquifer where the potentiometric surface has dropped below the top of the Sparta formation in the critical groundwater area containing Bradley, Calhoun, Columbia, Ouachita, and Union counties, and that the potentiometric surface in the critical groundwater area containing Arkansas, Jefferson, Lonoke, Prairie, Pulaski, and White counties has not dropped below the top of the formation, and that the critical groundwater area designation covering Arkansas, Jefferson, Lonoke, Prairie, Pulaski, and White counties is presently being contested in the courts of our state, and that further, because of the existing depletion of the groundwater from the Sparta Aquifer which underlies those counties, that this crisis, in some instances, is~~

~~aggravated by the unrestrained direct withdrawal of water from the aquifer and that this crisis is not adequately addressed by any existing law.~~

~~(b)~~ It is the intent of this subchapter to make available revenues and resources to ~~address this crisis and to~~ discourage the withdrawal of Sparta Aquifer water by certain large water users in Bradley, Calhoun, Columbia, Jefferson, Ouachita, and Union counties.

SECTION 2. Arkansas Code § 15-22-1203 is amended to read as follows:

15-22-1203. Definitions.

As used in this subchapter:

(1) "Acquire" means to acquire by purchase, lease, devise, gift, or other mode of acquisition and by any method selected by a Sparta Aquifer critical groundwater county conservation board;

(2) "Aquifer water" means water removed from the Sparta Aquifer;

(3) "Commission" means the Arkansas Soil and Water Conservation Commission;

(4) "Conservation fee" means any fee fixed pursuant to this subchapter and levied upon any registered water user or significant water user;

(5) "Construct" means to construct, equip, install or to otherwise develop by any means selected by a board;

(6) "County" means any Arkansas county:

(A) In which at least ninety percent (90%) of the reported groundwater usage from the Sparta Aquifer is for municipal and industrial purposes ~~on the date of the petition~~ as of July 1, 2005; and

(B) Which has been or is found and determined by the commission to be within a critical groundwater area prior to ~~July 1, 1998~~ July 1, 2005, within the meaning of the Arkansas Groundwater Protection and Management Act, § 15-22-901 et seq.;

(7) "Improvement plan" means a plan to carry out the construction and acquisition of water facilities or to provide for the conservation of aquifer water, or both;

(8) "Major water user" means any person that, during any month of the year, averages withdrawal from the Sparta Aquifer of one million (1,000,000) or more gallons of aquifer water per day;

~~(8)~~(9) "Person" means any natural person, firm, association,

corporation, trust, partnership, governmental agency, state or political subdivision, county, municipality, or other legal entity;

~~(9)~~(10)(A) "Registered water user" means any person who, whether as an owner, lessee, operator, or otherwise, including a board, operates one (1) or more wells with a minimum potential flow rate of fifty thousand gallons (50,000 gals.) or more of aquifer water per day and is required to register with the commission under § 15-22-302.

(B) The withdrawal of water which is expected to be returned to an aquifer by the user does not cause a person to be a registered water user;

~~(10)~~(11) "Revenues" means revenues derived from any source, including, without limitation, the wholesale or retail sale of water and the conservation fees;

~~(11)~~(12) "Significant water user" means any person who, whether as owner, lessee, operator, or otherwise, including a board, operates one (1) or more wells with a maximum flow rate of less than fifty thousand gallons (50,000 gals.) of aquifer water per day and is determined by the board to be using aquifer water for other than domestic purposes;

~~(12)~~(13) "Sparta Aquifer critical groundwater county conservation board" or "board" means any Sparta Aquifer critical groundwater conservation county board established pursuant to this subchapter; and

~~(13)~~(14) "Water facilities" means any facilities for the withdrawal, storage, transportation, treatment, or distribution of water, together with any properties, real, personal, or mixed, tangible or intangible, related or appropriate thereto.

SECTION 3. Arkansas Code § 15-22-1214 is amended to read as follows:

15-22-1214. Water conservation levy.

~~(a)~~ ~~There is levied and fixed~~ The Sparta Aquifer critical groundwater county conservation board may levy and fix upon each registered water user and significant water user of aquifer water a conservation fee ~~at the following rates per one thousand gallons (1000 gals.) of aquifer water withdrawn:~~

~~(1) Twenty-four cents (24¢) per one thousand gallons (1000 gals.) until May 1, 2001; and~~

~~(2) Thirty-six cents (36¢) per one thousand gallons (1000 gals.)~~

~~thereafter.~~

~~(b) However, the Sparta Aquifer critical groundwater county conservation board shall have the power to reduce the conservation fee upon issuance of its written findings to the effect that the conservation fee as reduced will continue~~ in an amount deemed appropriate by the board to discourage the withdrawal of aquifer water by registered water users and significant water users.

(c) ~~*In like manner, the board may issues its written findings to the effect that it is necessary that the conservation fee be raised to discourage withdrawal and increase the fee to any level allowed hereby, whereupon the conservation fee shall be raised to such a level*~~ *However, when the board has extended an alternate water source to the property line of a major water user and the major water user does not connect to and begin using the alternate water source, the major water user may be assessed a conservation fee determined by the board, not to exceed ninety-six cents (96¢) per one thousand gallons (1000 gals.) of aquifer water withdrawn, until the major water user connects to and uses the alternate water source*.

/s/ Bradford

APPROVED: 4/06/2005

1

Additional Proposal Information

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ANRC 8.25.00 AllocationPlanBrazil.pdf

Arkansas Soil and Water Conservation Commission

J. Randy Young, P.E.
Executive Director

101 EAST CAPITOL
SUITE 350
LITTLE ROCK, ARKANSAS 72201

PHONE 501-682-1611
FAX 501-682-3991

August 25, 2000

Robert Reynolds
President- Union County Water Conservation Board
2300 West Oak
El Dorado, AR 71730

Dear Mr. Reynolds:

My staff has completed preliminary streamflow studies for the Ouachita River and analyzed most all relevant data related to the Ouachita River, i.e. riparian use, lock & dam operation, streamflow recurrence frequency, mussel beds, navigation, water quality, groundwater, etc. We are now completing the draft allocation plan and minimum streamflow report for public review and Commission ratification. The draft plan will contain the staff's recommended allocation scenarios based on completed studies. I've summarized our general study findings related to the Union County Water Conservation Board diversion and requirements necessary to establish allocation levels on the Ouachita River.

Allocation Plan & Minimum Streamflow Determination

It's difficult to estimate a timeline for the public review and ratification process. A best case scenario with no delays would require at least 90 to 120 days.

- Complete draft allocation plan report
- Present the draft plan to the Commission and recommend that it go to public review
- Conduct public review and address legitimate comments from all reviewing entities
- Incorporate draft plan revisions as appropriate
- Present final recommended plan to Commission
- Adopt final Allocation Plan and Minimum Streamflow Levels

Study Finding

Staff investigations have confirmed that the upper Ouachita River from Remmel Dam to Camden is characterized by classic riffle-pool fluvial systems. From Camden to Felsenthal Lock & Dam, the Ouachita River is maintained for navigation through Felsenthal and Thatcher Lock & Dams and mimics lake-like conditions. Thatcher Lock and Dam controls the Calion pool, which extends upstream 56 miles from Thatcher Lock and Dam to Camden. Union County proposes a diversion 5 miles upstream from Thatcher Lock & Dam in the lower end of the pool. Because the pool level is maintained for navigation, staff are proposing that any allocation be based on both the Camden gauge and water levels at Thatcher Lock and Dam. Historical records indicate that when the level at Thatcher Lock and Dam has fallen below 77' elevation (navigation pool level), flow at the

Camden gauge has been well above any conceivable allocation level. This indicates that the drop in pool elevation was due to operations at the dam, not low flow conditions at Camden. Therefore, it is more appropriate to restrict usage from the pool when both the flow input at Camden is low and the pool level is falling below the 77' elevation at Thatcher Lock and Dam.

Our studies indicate that since installation of the Thatcher Lock and Dam, restriction of non-riparian withdrawal from the Calion pool would never have occurred under the most restrictive allocation scenarios. Current registered diversion from the Calion pool is for industrial and municipal use. Therefore, staff will propose only a shut-off level for this pool and not a graduated restriction plan. Based on our studies, it is highly unlikely that the Union County Water Conservation Board project would experience restriction during any season of the year. Flow data suggests that the Calion pool has not experienced conditions requiring allocation since installation of the lock and dam system in 1985.

We conservatively underestimated volume of the Calion pool and determined that at a maximum instantaneous withdrawal rate of 65MGD (assuming no flow into the pool, minus evaporation losses and current withdrawals), it would take approximately 4.3 days to drop the water level one foot at Thatcher Lock and Dam. Another 4.2 days of pumping at this rate would drop the pool another foot at Thatcher Lock and Dam. However, the relevance of this data related to allocation is negligible because zero flow at Camden has not occurred during the period of record from 1972-1997. If zero flow were to occur at Camden and the gauge at Thatcher Lock and Dam was below 77' elevation, then restriction would likely be imminent. But, that type of event would represent catastrophic conditions and political emergency action would likely result.

I've enclosed data tables that depict 1) the relationship between Thatcher Lock and Dam and the Camden gauge, and 2) the range of flow values Commission staff is considering for potential shut-off values. Remember that staff is proposing using both Camden and Thatcher Lock and Dam levels to control allocation in the Calion pool.

Keep in mind that staff recommendations are subject to final Commission ratification and adoption procedures. I hope this information proves helpful to your current efforts. We will complete the Ouachita River draft allocation plan as soon as possible. If I can be of further assistance, please don't hesitate to contact me.

Sincerely,

Kenneth W. Brazil, P.E.
Engineer Supervisor, Water Management

cc. Kyle Woodruff, Panda Energy International, Inc.
Sherrel Johnson, El Dorado Chamber of Commerce
Kevin Day, Panda Energy International, Inc.
Earl T. Smith, Arkansas Soil & Water Conservation Commission

Comparison of Stages at Thatcher Lock & Dam with Camden Flow

Date	Thatcher Stage (')	Camden Flow (cfs)
	77.2	7,840
1/10/85	76.3	7,910
	75.7	8,750
	75.4	8,970
	75.2	8,380
	74.9	7,410
	74.7	6,750
	74.7	6,790
	74.7	8,910
1/18/85	75.5	12,000
	77.1	12,700

	77.6	9,130
1/24/85	76.8	8,340
	76.0	7,740
	75.1	7,120
	74.7	7,110
	74.7	8,280
	74.7	11,600
	75.9	12,900
1/31/85	76.5	12,800
	77.3	12,600

	77.1	10,500
2/6/85	76.8	10,500
	77	12,400

	77.4	5,710
2/19/85	76	4,480
	74.7	4,130
	74.7	4,310
	74.7	3,930
	74.7	3,100
	74.7	6,500
2/25/85	76.4	11,000
	79.1	22,000

Date	Thatcher Stage (')	Camden Flow (cfs)
	78.4	6,160
3/13/85	76.7	6,150
	75.4	6,060
	74.7	7,800
	74.7	9,560
	75.4	9,200
	75.4	8,080
	74.7	7,810
	74.7	8,090
3/21/85	75.6	15,400
	78.9	22,400

	77.6	10,500
4/15/85	76.8	8,380
	76.6	8,040
	74.8	7,800
	74.7	7,550
	74.7	6,820
	74.7	6,730
	74.7	6,710
	74.7	6,810
	74.7	13,100
	75.8	27,700
4/25/85	75.8	39,600
	80.1	56,700

	77.6	8,850
1/7/89	76.7	8,690
	75.2	8,070
1/12/89	75.9	7,290
	77.4	6,300

	77.4	7,810
1/27/89	75.6	5,630
	74.9	5,210
	75.2	4,550
	76.1	5,080
1/31/89	76.4	6,200
	77	7,690

NOTE: For periods when the pool above Thatcher L & D is less than 77' NGVD.

Flow (cfs)	Avgerage Days Less Than or Equal	% Exceeded	Camden 1972-1997
<= 1400	49.5	86.45%	365
<= 1300	43.2	88.19%	365
<= 1200	36.3	90.07%	365
<= 1100	28.2	92.28%	365
<= 1000	19.5	94.67%	365
<= 900	11.2	96.93%	365
<= 800	5.1	98.60%	365

Flow (cfs) Camden	Avgerage Days Less Than or Equal	% Exceeded	Winter Days 1972-1997
1400	7.3	95.2%	151
1300	6.0	96.0%	151
1200	4.7	96.9%	151
1100	3.[illegible]	97.8%	151
1000	1.5	99.0%	151
900	0.2	99.9%	151
800	0.1	99.9%	151

Flow (cfs) Camden	Avgerage Days Less Than or Equal	% Exceeded	Spring Days 1972-1997
1400	6.3	93.1%	91
1300	5.1	94.4%	91
1200	3.8	95.8%	91
1100	2.7	97.1%	91
1000	1.7	98.1%	91
900	1.0	98.9%	91
800	0.3	99.6%	91

Flow (cfs) Camden	Avgerage Days Less Than or Equal	% Exceeded	Summer Days 1972-1997
1400	36.0	70.73%	123
1300	32.0	73.95%	123
1200	27.7	77.45%	123
1100	22.2	81.96%	123
1000	16.2	86.80%	123
900	10.1	91.81%	123
800	4.7	96.22%	123

STATE OF **ARKANSAS**

ARKANSAS SOIL & WATER CONSERVATION COMMISSION
J. Randy Young, P.E., *Executive Director*

CERTIFICATE FOR NON - RIPARIAN INTRABASIN SURFACE WATER TRANSFER

DIVERTER - UNION COUNTY WATER CONSERVATION BOARD

NON - RIPARIAN RIGHT - 00-09

DATE OF ISSUANCE - FEBRUARY 4, 2000

WHEREAS, The undersigned has determined that: (1) excess surface water, being defined as 25% of that amount of water available on an average annual basis for any watershed above that amount required to satisfy all existing and projected water needs, exists; (2) the proposed diversion works will only transport excess surface water; (3) diverted water will be used for beneficial purposes; all in conformity with the conditions of a approval of the application for non-riparian water right under the laws of the State of Arkansas and the Rules and Regulations of the Commission; and, (4) will cause no significant adverse environmental impacts.

NOW, THEREFORE; Be it Known that J. Randy Young, P.E., the duly appointed, qualified and acting Executive Director of the Arkansas Soil & Water Conservation Commission ("Commission"), by authority of Title 15, Chapter 22, Subchapter 3 of the Arkansas Code of 1987 Annotated, and Subtitle IV of Title III of the Commission's Rules for the Utilization of Surface Water, does hereby certify that, subject to excess surface water availability, the diverter is entitled to make use of excess surface water from the Ouachita River diverted by means of a pumping station located in the NE 1/4 of Section 10, Township 16 South, Range 14 West, Union County, Arkansas.

The non-riparian diversion permit shall be subject to the following conditions:

1. The diversion shall be at a rate not to exceed 100 cubic feet per second and shall not exceed 56,050 acre-feet per year. The water shall be for continued supply of water

to El Dorado and Union County, industry in Union County and the Union Generating Station, all within Union County.

2. This permit will expire on September 30, 2041.
3. The diverter shall submit and implement a conservation plan acceptable to the Executive Director.
4. The diverter shall determine, by a method approved by the Executive Director, the quantity of water actually diverted during each water year. Such quantity shall be reported to the Commission prior to March 1 of the following water year.
5. Seasonal variations in stream flow may result in a limitation in the amount of excess surface water that may be withdrawn at any particular time for non-riparian diversion. Any restriction on non-riparian diversions shall be subject to the laws of Arkansas and the Commission's Rules and Regulations including, but not limited to, the development of water allocation plans, compliance with allocation orders, or reductions in withdrawals during shortage or low-flow conditions.

IN WITNESS WHEREOF, I have hereunto set my hand at my office at Little Rock, Arkansas,

this _4_ day of _February_, 2000.

ARKANSAS SOIL AND WATER CONSERVATION COMMISSION

J. Randy Young, P.E. Executive Director
Arkansas Soil & Water Conservation Commission

STATE OF ARKANSAS,
COUNTY OF PULASKI, ss.

On this 4th day of February, 2000, before me a Notary Public duly commissioned, qualified and acting within and for the County and Stateaforesaid, appeared in person the within named J. Randy Young, P.E., Executive Director and Secretary of the Arkansas Soil & Water Conservation Commission, to me well known, who stated that he was duly authorized in his official capacity to execute the foregoing permit. Further, he stated that he had signed, executed and delivered the foregoing permit for the uses and purposes therein mentioned and set forth.

My commission expires 1-14-2004

CAROLE J. HUGHSON NOTARY PUBLIC PULASKI COUNTY, ARK.

Carole J. Hughson
Notary Public

Additional Proposal Information

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ANRC ASWCC Resolution 5.29.03.pdf

RESOLUTION

No. 2003-2

of the

ARKANSAS SOIL AND WATER CONSERVATION COMMISSION

A RESOLUTION RECOGNIZING THE UNION COUNTY GROUND WATER CONSERVATION BOARD, UNION POWER STATION, UNION COUNTY CONSERVATION DISTRICT, SPARTA AQUIFER GROUND WATER USERS, AND THE CITIZENS OF UNION COUNTY, FOR THEIR CONTRIBUTIONS TO THE CONSERVATION AND PROTECTION OF ARKANSAS' GROUND WATER AND THEIR WILLINGNESS TO DEVELOP ALTERNATIVE WATER SUPPLIES.

WHEREAS, the Sparta Aquifer is a major source of high quality ground water for human consumption and industrial use in much of Arkansas;

WHEREAS, the water levels of the Sparta Aquifer in Union County have suffered significant declines over time, including an average decline 22.14 feet between 1997 and 1998;

WHEREAS, the Arkansas Soil and Water Conservation Commission, as the ground water protection agency for the State of Arkansas, designated a five-county area in south Arkansas, including Union County, a critical ground water area for the Sparta Aquifer in 1996;

WHEREAS, the Union County Conservation District, working with the Commission, began a water conservation education program to educate water users and citizens of Union County on the importance of the Sparta and to assist water users in water conservation activities;

WHEREAS, many of the industrial and municipal ground water users of the Sparta made changes to their plant, equipment and processes to implement water conservation, including the reuse of water by transfer of used water to another water user for reuse;

WHEREAS, the State of Arkansas, acting though the Commission and the Department of Finance and Administration, assisted in the implementation of these conservation activities by providing an income tax credit for the costs associated with changes to plant and equipment necessary to implement water conservation;

WHEREAS, the citizens of Union County, including members of the General Assembly, county and municipal officials, and representatives of local industry, were instrumental in the passage of the Sparta Aquifer Critical Groundwater Counties' Remediation Act by the Arkansas General Assembly in 1999;

WHEREAS, the Union County Ground Water Conservation Board is the only board currently formed under the act and has been collecting a water conservation levy on water removed from Sparta;

WHEREAS, the Board undertook to design, finance, construct and operate the Ouachita River pipeline project that will supply many of the county's industrial water users with excess surface water from the Ouachita River and further reduce ground water consumption;

WHEREAS, the citizens of Union Country approved the levy of a countywide sales tax to finance much of the cost of the pipeline project, for which the Commission was willing to provide a portion of the financing at below market rates to allow the financing to be completed;

WHEREAS, the county, municipal and economic development officials continue to recruit new business and industries to the county that provide economic benefit to the county, while ensuring that the new undertakings do not further harm the Sparta;

WHEREAS, the Union Power Station is a good corporate citizen, willing to work with the Board to develop and utilize an alternative surface supply, and to provide interim financing for a portion of the Ouachita River pipeline; and,

WHEREAS, conversion to river water will save eight million (8,000,000) gallons of water a day and facilitate a fifty per cent (50%) reduction in Sparta ground water usage.

NOW THEREFORE, BE IT RESOLVED IN UANANIMOUS ACCORD BY THE MEMBERS OF THE ARKANSAS SOIL AND WATER CONSERVATION COMMISSION, ASSEMBLED IN EUREKA SPRINGS, ARKANSAS, ON MAY 14, 2003, THAT:
the Union County Ground Water Conservation Board, the Union County Conservation District, Union Power Station, other Sparta ground water users, the county and municipal officials, and the citizens of Union County, should be commended for their hard work and determination to protect the Sparta Aquifer for future generations, their farsightedness and willingness to work with the Commission to ensure the long term viability of the Sparta, and their untiring service to the citizens of the county and the rest of the State of Arkansas in protecting the ground water resources;

BE IT FURTHER RESOLVED THAT: the Commission pledges that it will continue to partner with persons within critical ground water areas to take the steps necessary to protect our ground water for future generations.

Adopted this 14th day of May, 2003.

(SEAL)

ARKANSAS SOIL AND WATER
CONSERVATION COMMISSION

By:_____
Dewey Hatcher, Chair

ATTEST:

_____
J. Randy Young, P. E.
Secretary and Executive Director

Additional Proposal Information

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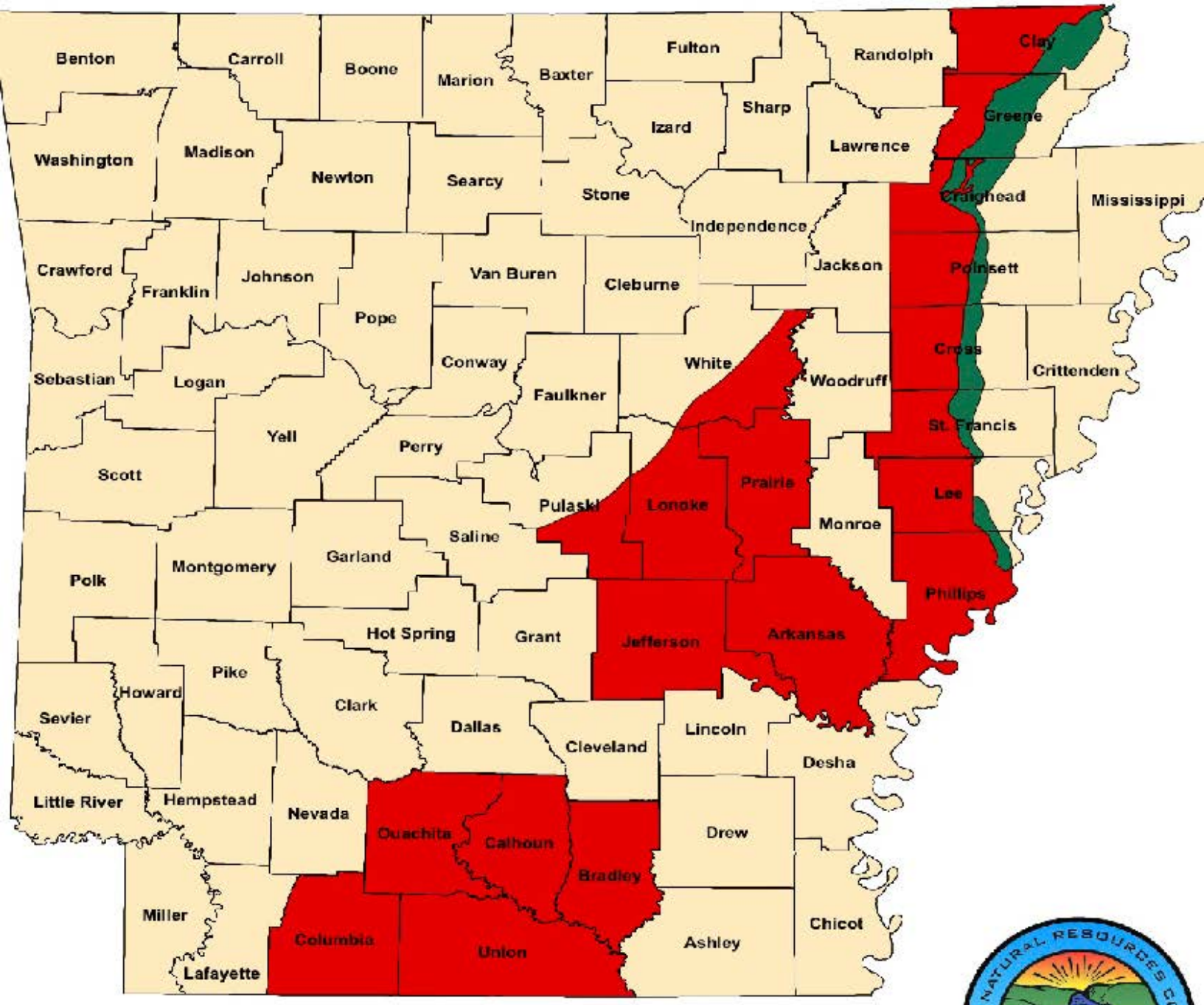
ANRC CriticalGWAreasMap.pdf

Critical Groundwater Areas



South Arkansas for Sparta in 1996
Grand Prairie for Sparta & Alluvial in 1998
Cache for Sparta/Memphis Sand & Alluvial in 2009
Phillips County for Alluvial in 2015

Additional Proposal Information

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FILED AND RECORDED CHERY COCHRAN CLERK

UNION COUNTY, AR

STATE OF ARKANSAS

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ARKANSAS SOIL & WATER CONSERVATION COMMISSION
J. Randy Young, P.E., *Executive Director*

CERTIFICATE FOR NON - RIPARIAN INTRABASIN SURFACE WATER TRANSFER

DIVERTER - UNION COUNTY WATER CONSERVATION BOARD

NON - RIPARIAN RIGHT - 00-09

DATE OF ISSUANCE - FEBRUARY 4, 2000

WHEREAS, The undersigned has determined that: (1) excess surface water, being defined as 25% of that amount of water available on an average annual basis for any watershed above that amount required to satisfy all existing and projected water needs, exists; (2) the proposed diversion works will only transport excess surface water; (3) diverted water will be used for beneficial purposes; all in conformity with the conditions of a approval of the application for non-riparian water right under the laws of the State of Arkansas and the Rules and Regulations of the Commission; and, (4) will cause no significant adverse environmental impacts.

NOW, THEREFORE; Be it Known that J. Randy Young, P.E., the duly appointed, qualified and acting Executive Director of the Arkansas Soil & Water Conservation Commission ("Commission"), by authority of Title 15, Chapter 22, Subchapter 3 of the Arkansas Code of 1987 Annotated, and Subtitle IV of Title III of the Commission's Rules for the Utilization of Surface Water, does hereby certify that, subject to excess surface water availability, the diverter is entitled to make use of excess surface water from the Ouachita River diverted by means of a pumping station located in the NE 1/4 of Section 10, Township 16 South, Range 14 West, Union County, Arkansas.

The non-riparian diversion permit shall be subject to the following conditions:

1. The diversion shall be at a rate not to exceed 100 cubic feet per second and shall not exceed 56,050 acre-feet per year. The water shall be for continued supply of water

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to El Dorado and Union County, industry in Union County and the Union Generating Station, all within Union County.

2. This permit will expire on September 30, 2041. 2041 2007 34
3. The diverter shall submit and implement a conservation plan acceptable to the Executive Director.
4. The diverter shall determine, by a method approved by the Executive Director, the quantity of water actually diverted during each water year. Such quantity shall be reported to the Commission prior to March 1 of the following water year.
5. Seasonal variations in stream flow may result in a limitation in the amount of excess surface water that may be withdrawn at any particular time for non-riparian diversion. Any restriction on non-riparian diversions shall be subject to the laws of Arkansas and the Commission's Rules and Regulations including, but not limited to, the development of water allocation plans, compliance with allocation orders, or reductions in withdrawals during shortage or low-flow conditions.

IN WITNESS WHEREOF, I have hereunto set my hand at my office at Little Rock, Arkansas,

this _4_ day of _February_, 2000.

ARKANSAS SOIL AND WATER CONSERVATION COMMISSION

J. Randy Young, P.E. Executive Director
Arkansas Soil & Water Conservation Commission

STATE OF ARKANSAS,
COUNTY OF PULASKI, ss.

On this 4th day of February, 2000, before me a Notary Public duly commissioned, qualified and acting within and for the County and Stateaforesaid, appeared in person the within named J. Randy Young, P.E., Executive Director and Secretary of the Arkansas Soil & Water Conservation Commission, to me well known, who stated that he was duly authorized in his official capacity to execute the foregoing permit. Further, he stated that he had signed, executed and delivered the foregoing permit for the uses and purposes therein mentioned and set forth.

My commission expires 1-14-2004

CAROLE S. HUGHSON NOTARY PUBLIC PULASKI COUNTY, ARK.

Carole S. Hughson
Notary Public

CERTIFICATE OF RECORD

State of ARKANSAS
County of UNION

I hereby certify that this instrument was FILED FOR RECORD and is RECORDED on the DATE and TIME and in the DOCUMENT # as stamped hereon.

Rat:
Robert Woolsey

DATE: 2-16-2000 TIME: 3:51PM

DOCUMENT # 001378

CHERYL COCHRAN-WILSON
Union County Circuit Clerk
and Ex-Officio Recorder Union County

By: Udell Berry D.C.

Additional Proposal Information

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AR-LA D'ArcyResponse10.21.14Ltr.pdf

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

SEP 15 2014

The Honorable John Boozman
United States Senate
320 Hart Senate Office Building
Washington, D.C. 20510

OCT 22'14 PM 2:16

Dear Senator Boozman:

This is in response to your letter dated April 07, 2014, cosigned with six other Members of Congress, regarding the need for a Section 216 Study (Review of Completed Projects), and the importance of water supply on the Ouachita/Black Waterway. An identical letter will also be provided to each of the cosigners of your letter. I apologize for the delay in responding.

The Vicksburg District of the U.S. Army Corps of Engineers has been working closely with the Ouachita/Black users and stakeholders to implement the Inland Marine Transportation System (IMTS) guidelines, which were established to create a nationally consistent approach to levels of service for the inland navigation system. In August of 2013, the Vicksburg District Commander increased the levels of service from 18 hours a day to 20 hours a day on the lower two locks. The Vicksburg District will re-assess the usage of the waterway annually and will implement modifications accordingly. The most recent assessment was in 2014 and the District Commander made the decision that no change in level of service from the previous year was warranted.

A Section 216 Study could identify any change of conditions, problems, or new opportunities, since the navigation project was completed in 1984. Funds were not included in the Fiscal Year (FY) 2014 Work Plan, or the FY 2015 President's Budget for this study. However, such a study will be considered, along with many other worthwhile projects Nationwide, for funding in the future.

The Vicksburg District will continue to maintain the current pool levels as designated in the Water Control Plan, which is part of the Authorized Project. Any permanent change in pool levels would be considered a major deviation to the environment/habitat and could require an Environmental Impact Statement. To date, there have been no discussions to change the current water control plan on the Ouachita/Black Waterway.

Thank you for your continued interest in the Civil Works program.

Very truly yours,

Jo-Ellen Darcy

Jo-Ellen Darcy
Assistant Secretary of the Army
(Civil Works)

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Additional Proposal Information

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AR-LA Joint Ltr to Sec Darcy FINAL.pdf

Congress of the United States
Washington, DC 20515

April 7, 2014

The Honorable Jo-Ellen Darcy
Assistant Secretary for Civil Works
108 Army Pentagon
Room 3E446
Washington, DC 20310-0108

Dear Secretary Darcy,

As you know, we have expressed concern regarding reduced levels of service on the Inland Marine Transportation System (IMTS) and the impact on transportation and recreational users. We must also address the needs of stakeholders who rely on IMTS projects for secondary or co-benefits that are not specifically authorized as project purposes. In general, we seek your commitment to work with us to address these broad concerns; and specifically, we request your feedback regarding potential impacts to co-beneficiaries of the Ouachita-Black Rivers Navigation Project in Arkansas and Louisiana. A reconnaissance study investigating changes experienced since the completion of the Ouachita-Black project is greatly needed.

Local communities, employers, and other users rely on water from Ouachita-Black navigation pools to meet critical water supply needs in Arkansas and Louisiana. Our region's aquifer is strained by municipal, industrial, and agricultural use; but the Ouachita-Black project provides an alternative surface water source that relieves pressure on the aquifer. For example, since 2004, the $65 million Ouachita River Alternative Water Supply Project has protected the region's drinking water by supplying water to many local industries, including an oil refinery, a fertilizer manufacturer, and a brominated products manufacturer that previously relied solely on the threatened Sparta aquifer. The project also supplies water to the country's second largest natural gas fired merchant power plant, Entegra/Union Power. This plant supplies electricity to users throughout Arkansas, Louisiana, and other states.

These industrial users alone employ approximately 1,100 citizens, and current growth and expansion is possible only because of access to Ouachita River surface water. Since the Ouachita-Black project is not explicitly authorized as a water supply project, this and other water uses occur under other authorities. Nevertheless, sufficient and reliable withdrawals are possible only because of the pools created by the current Ouachita-Black project configuration and water control plan.

One of our objectives is to ensure that reduced levels of service on the Ouachita River do not undermine the long-term viability of the navigation project. We also want to work with you to guarantee the future availability of water from the navigation pools for a variety of beneficial uses, including sustaining and creating jobs, protecting drinking water supplies, and providing affordable, reliable industrial surface water supply.

We have heard concern regarding the status of the Ouachita-Black project from individual citizens, local communities, groups like the Ouachita River Valley Association, employers, and elected officials. A reconnaissance study, conducted under Section 216 (Review of Completed Projects), is urgently needed to identify: (1) changes that have occurred since the completion of the Ouachita-Black project, and (2) opportunities to enjoy enhanced benefits from the investment in this project. A reconnaissance study would enable the Corps to better understand problems and opportunities associated with flood risk reduction, navigation, ground and surface water supply (agricultural, municipal, and industrial),

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recreation, bank stabilization, and ecosystem restoration. We ask you to initiate such a study in FY2014 and FY2015.

Also, you have stated that the review of the IMTS is designed to ensure the "resiliency and long-term viability of the system." What assurances can you provide that the pool elevation will be maintained in accordance with the authorized project purpose and the approved project water control plan? What level of environmental review would be required before the Corps could adjust the target pool elevation in a way that would impact stakeholders who rely on the pool for water supply?

We hope that forthcoming policy changes will provide a clearer path for project modifications, including the authorization of important project purposes, such as bank stabilization and water supply. We will need your support to ensure that basic operations and maintenance is supported. As Congress works on these issues, we will ask you to use your existing and future authorities to strengthen the Ouachita-Black Navigation Project and to enhance the benefits that taxpayers enjoy as a result of their investment in this important system. We appreciate your efforts to work with us on these significant issues, and we look forward to your response to the challenges and questions presented in this letter. Please contact us if there is anything we can do for you.

Sincerely,

Mark Pryor,
U.S. Senator

John Boozman,
U.S. Senator

Mary Landrieu,
U.S. Senator

David Vitter,
U.S. Senator

Tom Cotton,
Member of Congress

John Fleming,
Member of Congress

Vance McAllister,
Member of Congress

Additional Proposal Information

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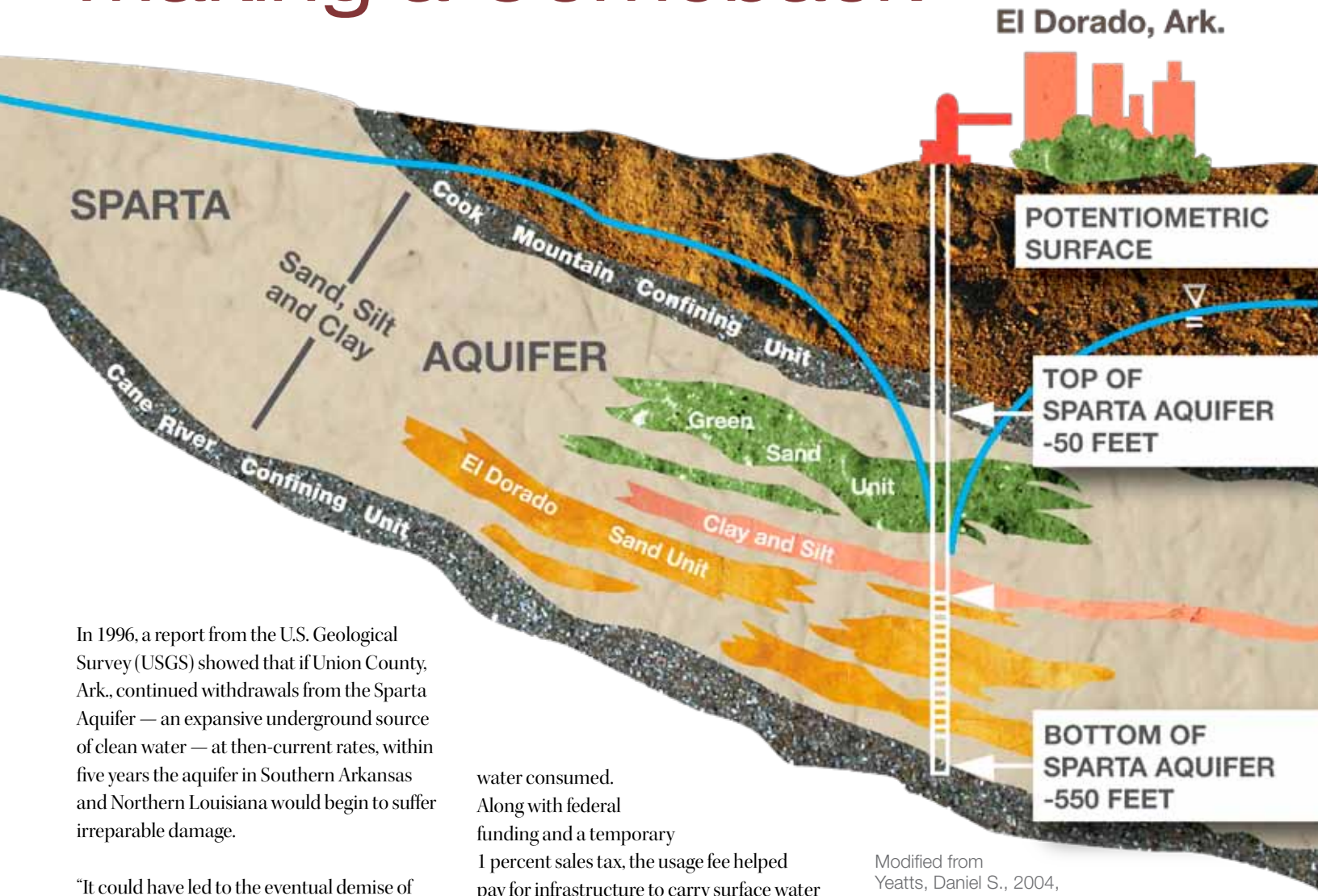
B&M 2010 SpartaMakingComeback.pdf

Sparta Aquifer Is Making a Comeback



Modified from Yeatts, Daniel S., 2004, Monitoring water-level and water-quality response to conservation measures in the Sparta Aquifer of the Union County area: U.S. Geological Survey Fact Sheet 2004-3086, 4 p.

In 1996, a report from the U.S. Geological Survey (USGS) showed that if Union County, Ark., continued withdrawals from the Sparta Aquifer — an expansive underground source of clean water — at then-current rates, within five years the aquifer in Southern Arkansas and Northern Louisiana would begin to suffer irreparable damage.

"It could have led to the eventual demise of the only industrial and drinking water source for Union County, and that would have threatened the livelihood of county residents," says Pat Higgins, hydrogeologist for Burns & McDonnell.

As a result, the Arkansas Natural Resources Commission (ANRC) designated five counties in southern Arkansas as the state's first critical groundwater area, and the residents of Union County took action. In 1999, the late Jodie Mahony, an Arkansas legislator, led the charge to pass legislation creating the Union County Water Conservation Board (UCWCB). With unprecedented authority over groundwater use, the UCWCB imposed a fee of 24 cents per 1,000 gallons of Sparta Aquifer water consumed. Along with federal funding and a temporary 1 percent sales tax, the usage fee helped pay for infrastructure to carry surface water from a new 65-million-gallons-per-day Ouachita River intake to three local industries previously relying on Sparta.

The UCWCB teamed with the ARNC, Burns & McDonnell, the U.S. Environmental Protection Agency (EPA), the Union County Conservation District, and the USGS to monitor the aquifer. Once water from the Ouachita River began flowing in October 2004, dependence on the Sparta was reduced or eliminated. Water levels in some wells spiked during the first few months after the switch and have continued gradually rising. The study results are invaluable to determine whether the aquifer could make a full recovery.

Challenges

While the initiatives taken by the residents, legislators and study partners put the Sparta on the right track, part of ensuring a full recovery is continued monitoring of the aquifer's water levels and quality. If the Sparta Aquifer didn't show vast improvements relatively quickly, additional costly infrastructure and more extreme conservation measures could have been

Wells in and around El Dorado, Ark., serve as monitoring sites to collect data on the recovery efforts to save the Sparta Aquifer.

required. The monitoring wells needed to be placed in certain locations throughout Union County — specifically around the Sparta's deepest cone of depression beneath El Dorado — and they needed to meet strict testing criteria to support the integrity of the results. Some existing wells met the criteria, and some needed to be constructed. That meant the team needed property owners' permission or right-of-way access onto personal and municipal property.

Additionally, constructing the monitoring network and establishing a data recording system required funding beyond the significant contribution the residents and industries of Union County had already given.

Solutions

From the beginning, the residents of Union County supported efforts to save the Sparta Aquifer. So gaining property owners' permission and access to use or build wells was largely a time challenge to determine well locations and if existing wells met the criteria as monitoring sites. The team then had to complete any needed construction.

"Local residents and industries were very cooperative," Higgins says, "and the UCWCB wanted to maintain good relations and avoid using its authority to assess fees, while continuing to preserve the valuable public support the project had earned."

Instead, Sherrel Johnson, UCWCB grants administrator, secured federal funding with a grant from the EPA to cover monitoring costs from 2002 through 2007. Information collected would provide benchmark data before project completion in 2004, and early impact data following completion.

The UCWCB assumed all monitoring costs between December 2007 and September 2009 as Johnson continued to identify funding sources using the project's initial success, scientific credibility and unique local support as evidence of its worthiness for subsequent state and federal grants. "The project's case for public funding proved successful and resulted in recent funding from both the states of Arkansas and Louisiana and the federal government totaling more than $380,000, which will allow the UCWCB to continue monitoring Sparta Aquifer recovery through September 2011," Johnson says.

> "It could have led to the eventual demise of the only industrial and drinking water source for Union County."

Results

Because of Union County residents' resolve, the responsibility taken by the industries operating there and the hard work of the UCWCB, the Sparta's recovery to date has been a success. Well water levels have risen more than 60 feet around El Dorado, and 11 feet as far out as 56 miles southeast of the city. Irreparable damage to the aquifer and water quality has so far been avoided.

Arguably the most impactful outcome of the project and monitoring is the ripple effect it could have on other communities using Sparta groundwater, as Union County has given them a frame of reference for the steps they need to take. The aquifer is massive, and while the counties and parishes within the monitoring area are experiencing the Sparta Aquifer recovery, other Sparta users outside the project area are experiencing significant water level declines.

"If these communities continue pumping water from the Sparta Aquifer faster than it can recharge naturally, they will not be able to save the Sparta for their own benefit as a future source of high-quality, dependable water," says Robert Reynolds, UCWCB president.

For more information, contact Pat Higgins, 816-822-3887.

While some existing wells met the criteria as testing sites to monitor the recovering Sparta Aquifer, some new wells had to be dug in and around El Dorado, Ark.

To learn more about the Sparta Aquifer recovery efforts, visit www.ucwcb.org.

Additional Proposal Information

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Clapp CorpsAgree NewsTimes 1.10.04.pdf

UCWCB signs agreement with Corps Pact for bank stabilization, rip rap work near Calion intake structure

by TONI WALTHALL, *El Dorado News Times,* 1.10.04

The Union County Water Conservation Board signed a project cooperation agreement with the United States Army Corps of Engineers Friday, for bank stabilization and rip rap work near the Charles E. Thomas Ouachita River Supply intake structure in Calion.

Named after the Calion landowner who donated the property on which the structure was built, the intake structure was the first phase in the three-phase Ouachita River Water Supply pipeline that was devised in an effort to reduce the strain on the Sparta Aquifer. Before the formation of the water board and the ensuing conservation efforts, the water levels in the aquifer were decreasing at a rate of 1 foot per year. – *NOTE from SJ 3.7.18: 1' per year was/is one of three criteria for the Critical Groundwater Designation. In 1997, Union County was experiencing groundwater declines of up to 7' per year in some wells.*

"Our primary objective is to conserve, protect and maintain the Sparta Aquifer," said board vice president Ken Rudder.

The Sherrel F. Johnson Water Clarification Facility (part of Phase I), has been operational since early 2003 with a treatment capacity of 32 million gallons a day. The facility carries the name of the former El Dorado Chamber of Commerce executive director whose role was pivotal in building community and congressional support for the project.

Completion of Phase II, the pump station and 3-million gallon ground storage tank, is within sight. When installation of the Phase III transmission main (pipeline) is complete this summer, the treated water from the Ouachita River will be transported to industrial users through 18 *[additional]* miles of pipeline. The

rights-of-way needed for the pipeline were acquired without court action, some were even donated to the board.

According to board vice president Ken Rudder, because of generous contributions from the community the entire project will finish under budget.

Col. Frederick L. Clapp Jr., commander and engineer with the Vicksburg District of the USACE, commended the board and the community on their conservation successes.

"I want to congratulate you on doing a project for which you actually have people donate land. We do a lot of projects around the Vicksburg District ... where we have to acquire rights-of-way, but I don't think we've ever had anybody give us any. That's a real mark of community spirit," he said. "That's something I've learned in this job. All of the work the (USACE) is involved in cannot get done except through team(work)."

Clapp attributed congressional foresight for the funds that will be used in the bank stabilization work.

"For us to do the work, we have to have the authority to do it and the appropriations, money," he said. "Whoever your congressional delegation is, they did a great job getting the (appropriations) added in 2003, because it wasn't in the president's budget. Kudos to your delegation."

State Rep. Jodie Mahony, former state Rep. Mark Smith, former Congressman Jay Dickey, U.S. Sen. Blanche Lincoln and Congressman Mike Ross were all instrumental in obtaining funds for the Union County project, according to information obtained from the UCWCB. Former state Rep. John Lowery was appointed to the board before he ran for the state office.

Though traditionally focused on water-related navigation, recreation, erosion prevention and mitigation projects, the USACE is getting increasingly involved in water supply issues as they increase, Clapp said.

In signing the document, the board agreed to fund 25 percent of the $500,000 job in cooperation with the USACE.

According to Brian Chewning, USACE project manager, the signed agreement is the first step in the collaborated effort. The USACE will provide the "oversight and

review" designs and other submissions by contractors, but will have no part in the construction, which will begin late this summer.

The Ouachita River Water Supply line will be operational before the rip rap installation begins, but Chewning said neither operation will interfere with the progress of the other.

Rudder said, "This is truly a county project. The county communities supported the bond issue and everything we've done. We hope they're as proud of it as we are."

"You all are doing great. You're further along than I ever dreamed you would be," said USACE Senior Project Manager Paul Eagles, after the meeting. "I predict we'll see a big reduction on Sparta in the coming years. The whole (region) all around will benefit from what you're doing here. Union County is a model for a lot of places."

Rhonda Martin, an environmental conservation specialist for the Union County Conservation District, said she has been invited to several different states that want to know more about Union County's conservation efforts and how they earned voluntary support from the people.

"Just five short years (after the creation of the board), we're going to be delivering water to industries, reducing Sparta consumption by half," Johnson said after the meeting. "It's been eight years (January 1996) since we were first declared a critical groundwater area by the Arkansas Soil & Water Conservation Commission. By any measure, the speed at which this project is being completed is a testimonial to the cooperative efforts of all of the Union County citizenry – in partnership with local, state and federal agencies. It is an exemplary, national model of a public-private partnership."

The UCWCB consists of nine members: President Robert Reynolds, Rudder, Robert McKinnon, Les Chandler, Curt Morrill, Pete Parks, Wendell Holden, Charles Lovett and Ralph Freeman.

Additional Proposal Information

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Comments FedReg 3.7.18.pdf

REQUEST THAT WATER SUPPLY BE ADDED AS AN AUTHORIZED PURPOSE OF THE OUACHITA-BLACK NAVIGATION PROJECT. The once severely threatened and rapidly depleting underground Sparta aquifer in Union County, Arkansas has recovered over 100' since the late 1990s only because of the available, abundant surface water supply behind Thatcher Lock and Dam near Calion, Arkansas. Thatcher is the uppermost of four locks-and-dams in the Ouachita-Black Navigation system.

Congress originally authorized the Ouachita-Black navigation project in 1902. The Rivers and Harbors Act of 1964 authorized construction of four locks and dams to replace the six 1950's structures, and to increase minimum channel depth from 6' to 9'. The Flood Control Acts of 1944 and 1962 authorized the Corps to develop recreation facilities on the waterway.

NO ADDITIONAL CONSTRUCTION NOR PROJECT ALTERATION NEEDED: Water supply is NOT currently an authorized purpose of the Ouachita-Black Rivers Navigation Project but is an unintended, valuable, positive benefit for which NO additional construction or funding is required.

Maintaining the Ouachita's required 77' navigation depth allows 16' above the top of Union County Water Conservation Board's (Board) infrastructure and permitted intake sump basin:

Intake Platform - 106'
General Ground Elevation - 80'
Intake Diameter - 48"
Top of Intake Sump Basin - 61'
Bottom of Intake Sump Basin - 57'

For the past decade, Union County has been seeking via presentations and conversations with the Arkansas & Louisiana Congressional delegations, the U.S. Army Corps of Engineers, and the Mississippi River Commission, recognition of water supply as a Ouachita-Black project purpose for economic, national security, conservation, public health, and environmental purposes.

BACKGROUND: The once severely threatened Sparta aquifer in Union County, Arkansas, has recovered significantly because of available, abundant surface water supply behind Thatcher Lock and Dam on the upper Ouachita River.

Prior to 2004, the deep, confined underground Sparta aquifer was Union County's sole source of drinking and industrial water and by the late 1990s, was declining as much as 7' per year in some Union County wells.

In 2004, the UCWCB completed $65 million worth of infrastructure: 65 mgd intake at the Ouachita River, a water treatment facility that treats the river water for industrial use, a 3

mgd above-ground storage tank, and 23 miles of pipeline. In October 2004 , the Board began delivering surface water to three major industries - an oil refinery, a brominated products manufacturer, and a fertilizer plant -- that previously relied solely on the rapidly depleting Sparta aquifer.

In addition to the three industries, the project serves a 2205 MW natural-gas-fired combined-cycle power plant that did not previously rely on Sparta groundwater. The project also irrigates an 18-hole golf course/residential development completed in 2009, and a new high school's practice fields and grounds.

Developed as an economic development priority, the project also has conservation, environmental, and public health benefits.

ECONOMIC DEVELOPMENT: In contrast to the late 1990s, today Union County has abundant clean Sparta drinking water and a reliable, affordable, abundant supply of surface industrial water. The county's Chamber of Commerce currently has four prospects, two of which are looking at Union County mainly because it meets the prospects' required water needs and other sites don't. In addition to prospects, Union County has the abundant industrial water supply to support its current and invaluable existing industrial, power generation, and other economic drivers.

NATIONAL SECURITY: Water, power generation, refined oil, brominated products, and nitrogen fertilizer are essential to national security.

CONSERVATION/ENVIRONMENTAL: By providing the alternative surface source to industries and allowing the Sparta aquifer to recover, the Board has also conserved and protected its secure drinking water supply at a time when much of the country is struggling with inadequate and sometimes unsafe and/or threatened water supply.

PUBLIC HEALTH: As the Sparta declined, saltwater threatened to enter the aquifer from deep underground, which was once the ocean floor. Several wells dried up of began pumping saltwater, which made the water unfit for industrial use and a public health threat. Health Departments monitor water utilities' sodium levels because high levels of sodium are unhealthy for human consumption.

The project now serves as a national model with both scalable and transferrable aspects.

CONCLUSION: Water supply as an added project purpose provides added benefit without altering existing infrastructure and requires no additional funding.

ATTACHMENTS - 7: Additional support documentation available if needed.

Additional Proposal Information

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ConservFeeThruJune2008.pdf

UNION COUNTY WATER CONSERVATION BOARD 2008

		USER NAME	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	YEAR TO DATE
		Balance Forward as of December 31, 1999							$ 407,593.07
		Balance Forward as of December 31, 2000							$ 1,629,211.42
		Balance Forward as of December 31, 2001							$ 1,504,030.33
		Balance Forward as of December 31, 2002							$ 1,398,141.64
		Balance Forward as of December 31, 2003							$ 1,419,659.45
		Balance Forward as of December 31, 2004							$ 1,466,909.71
		Balance Forward as of December 31, 2005							$ 1,288,030.18
		Balance Forward as of December 29, 2006							$ 1,146,177.13
		Balance Forward as of December 31, 2007							$ 1,124,459.18
		Grand Total from 1999 - 2007							$ 11,384,212.11
1		Agerton, Gary & Judith - Chicken Farms	-	-	-	-	-	-	-
2		Albemarle Corporation (Starting Feb'07 Direct Deposit)	1,554.18	1,635.47	1,547.07	1,538.48	1,446.57		7,721.77
3		Batts-Lapile Water Association	317.78	260.48	254.62	253.48	203.55		1,289.91
4		Calion Municipal Water Works	462.24	504.72	392.88	425.76	360.96		2,146.56
5		Columbian Chemical Company							-
6		Cyphers Farms- C.D.							-
7		El Dorado Chemical Company	12,512.64	-	4,226.88	7,945.68		4,538.40	29,223.60
8		El Dorado Water Utilities	37,036.32	40,229.76	35,400.48	37,200.72	37,267.92		187,135.20
9		Faircrest Water Association	783.12	896.64	858.72	850.80	1,123.20		4,512.48
10		Felsenthal Water Association							-
11		Georgia Pacific Corporation							-
12		Great Lakes Chemical Corporation	20,235.36	20,250.00	20,112.48	43,269.84		20,710.80	124,578.48
13		Highway 82 West Water Association							-
14		Huttig City Water	861.60	934.32	779.28	790.80	794.88	812.64	4,973.52
15		Johnson Township Water Association	441.07	892.68	433.06	-			1,766.81
16		Junction City Water & Sewer Department							-
17		Lawson -Urbana Water Association	931.44	780.00	707.52	822.72	760.08		4,001.76
18		Lisbon Water Association	-	-	477.12	246.48	228.48		952.08
19		Lion Oil Company	-	3,643.41	-	-	11,354.64		14,998.05
20		Marysville Water Association	489.12	489.24	595.70	528.38	528.38		2,630.82
21		Mitcham, Don & Janie							-
22		Mt.Holly Water Association	350.16	337.96	249.96	238.39	266.23		1,442.70
23		New Hope Water Association	1,509.65	1,032.65	-	663.89	-	1,515.99	4,722.18
24		New London Water Association	771.79	492.58	499.32	565.80	653.43		2,982.92
25		Norphlet Water & Sewer System	1,658.88	1,810.08	1,620.96	1,734.00	1,519.68		8,343.60
26		Old Union Water Assoiciation	1,159.60	1,050.25	1,032.48	870.80	859.30		4,972.43
27		Parkers Chapel Water Association	1,628.64	1,940.64	2,035.20	1,728.96	1,959.36		9,292.80
28		Smackover Municipal Water Works	1,984.32	2,328.96	-	4,486.56	2,220.96		11,020.80
29		Strong Municipal Water Works	391.40	620.21	465.89	598.30	352.28		2,428.08
30		Teris,L.L.C./Clean Harbor	1,294.50	633.68	-	-			1,928.18
31		Thurlkill Farms, Rex	-	-	-				-
32		Union Power Partners, LP (TPS Arkansas)	-	-	-				-
33		Wesson-Newell Water Association	319.68	321.12	284.16	285.60	308.64		1,519.20
34		Wildwood Water Association	-	-	-				-
		TOTALS	$ 86,693.49	$ 81,084.85	$ 71,973.78	$ 105,045.44	$ 62,208.54	$ 27,577.83	$ 434,583.93
		Grand Total for 1999 through 2008 Current Month:							$ 11,818,796.04

Additional Proposal Information

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CorpsCivilWorksBriefWaterSupplyValueToNation.pdf

Value to the Nation: Water Supply

How much water do you use in a day? Would you believe more than 1,200 gallons?

The typical household only uses 50 to 85 gallons a day, but it takes nearly 1,200 gallons per person per day to meet the needs of farmers, factories, electrical utilities, and the many other entities that make it possible for us to have food on our table, a computer on our desk and power for our house.

Careful management of the nation's water supply is critical to limiting water shortages and lessening the impact of droughts. As one of the nation's largest water supply agencies, the U.S. Army Corps of Engineers plays a major role in ensuring that Americans have enough water to meet their needs.

USACE has 136 multiple purpose projects that contain storage for water supply in 26 states. These projects are capable of providing approximately 6 billion gallons of water per day for use by local communities and businesses. That is enough water to supply the average daily household needs of about 103 million Americans. USACE's numerous water supply projects benefit the environment and have a significant economic impact.

For more information read our Water Supply Brochure (*pdf, 3.29 MB*) or view the Water Supply Fast Facts.

https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/Water-Supply/

Additional Proposal Information

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CountyWideMapFINALSept2012.pdf

SEPTEMBER 2011

OUACHITA RIVER ALTERNATIVE WATER SUPPLY PROJECT

UNION COUNTY WATER CONSERVATION BOARD

441 W. Cedar • El Dorado, Arkansas 71730 • 870-814-2871 • www.ucwcb.org

Additional Proposal Information

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CustomerCostOfWater.pdf

Affordable Alternative Surface Water Supply

Entergy/Union Power Station *- $0.704 per 1,000 gallons*

El Dorado Chemical, Great Lakes Central/LANXESS Central, Delek (Lion Oil Refinery – $0.743 per 1,000 gallons

Murphy USA Mystic Creek Golf Course & Residential Irrigation - $0.91 per 1,000 gallons

El Dorado High School & Holly Falls Irrigation – $0.993 per 1000 gallons

Source*: Evers Cox & Gober 7.14.15*

NOTE - June 2019: The City of El Dorado, the county seat, is exploring irrigating the median in its city limits-to-city limits major highway artery expansion.

UPDATED 6.26.19

Additional Proposal Information

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DeptInterior CooperativeConservationAward 4.21.08.pdf

El Dorado NEWS-TIMES
"The Voice of South Arkansas"

UCWCB, partners recognized for efforts to preserve aquifer

by John Worthen, *El Dorado News Times,* 4.21.08 P1

The U.S. Department of the Interior has recognized the Union County Water Conservation Board, along with their partners, for efforts to preserve the Sparta Aquifer over the past decade.

A delegation from South Arkansas is in Washington, D.C., this week to accept the 2008 Cooperative Conservation Award.

According to the DOI, the award recognizes cooperative conservation achievements that involve work between federal, state and local governments, as well as private for profit and non-profit institutions, other non-governmental entities and individuals.

The U.S. Geological Survey nominated the partnership for the award and was part of the UCWCB's federally funded study to monitor Sparta Aquifer recovery.

In an e-mail to the News-Times on Monday, Sherrel Johnson, grants administrator for the UCWCB, said the award "shines a positive light on the people of Union County and our ability to bring together diverse public and private stakeholders to solve a problem that threatened the county's economic well-being."

Johnson is in Washington, D.C., with UCWCB president Rob Reynolds, as well as others from south Arkansas who were part of the Sparta project.

The story behind the award dates back to the mid 1990s. Then, geologists were worried that Arkansas' deepest water source, the

Sparta Aquifer, might soon run dry if consumption rates continued or were increased.

Accepting the Interior Award on Behalf of the South Arkansas Sparta Aquifer Recovery Initiative - L to R
(alternating front to back): David Sartain, El Dorado Chemical; Pete Howard, Great Lakes/Chemtura Central Plant; Bill O'Brien, Entegra/Union Power Partners; Steve Cousins, Lion Oil Company; Jon Sweeney, Arkansas Natural Resources Commission; Mark Myers, Director, U.S. Geological Survey; Todd Fugitt, Arkansas Natural Resources Commission; Kameran Onley, acting Assistant Secretary - Water and Science, U.S. Department of the Interior; Phil Hays, USGS Arkansas Water Science Center Little Rock; Robert Reynolds, President Union County Water Conservation Board; Dave Freiwald, USGS Arkansas Water Science Center Little Rock; Secretary Dirk Kempthorne, U.S. Department of the Interior; Truett Smith (Mark's son); Sherrel Johnson, Union County Stakeholders 1997-1999/UCWCB Grants Administrator; Mark Smith, Arkansas 82nd General Assembly; Pat Higgins, Burns & McDonnell Engineers, Kansas City; Rodney Baker, Arkansas Farm Bureau.

Groundwater levels had declined more than 360 feet in some areas, prompting concern from citizens and government officials alike.

In 1996, the Arkansas Natural Resources Commission (then the Arkansas Soil and Water Conservation Commission) declared Union, Columbia and Ouachita counties among the first in the state as "critical groundwater areas."

Senator Pryor Welcomes Group to Washington D.C. Phil Hays, USGS Arkansas; Sherrel Johnson and Robert Reynolds, Union County Water Conservation Board; U.S. Senator Mark Pryor; Truet Smith, Student, Parkers Chapel High School, Union County; Dave Freiwald, USGS Arkansas; and Mark Smith, former Arkansas State Representative.

By August 1998, a hydrologist from the USGS declared the El Dorado area had "10 years or less" to draft a conservation plan to keep the aquifer from being depleted beyond renewal. Geologists announced that Sparta Aquifer withdrawals in Union County would need to be reduced to about 28 percent of the 1997 withdrawal rate of about 21 million gallons per day.

In March of 1999, the Arkansas Legislature weighed in with the creation of Act 1050, which authorized groundwater conservation boards like the UCWCB to monitor local groundwater supplies.

Dozens of meetings were held in Union County between 1997 and 2000, as local officials worked to figure out a plan to save the water supply here.

Reynolds recounted the events last year in a speech to members of the Louisiana Sparta Commission.

"We were like the butcher, the baker and the candlestick maker," Reynolds quipped. "We formed the water conservation board, and we were chemical engineers, county officials, an insurance guy and a retired teacher. We had never done this before, but we knew that we had to come up with something."

That "something" came in early 1999 when a major company announced plans to build a giant electric power facility in the heart of Union County.

Officials at Union Power Station knew they would need lots of water to fuel their mammoth 2,200 mega-watt capable power plant, so the company agreed to build a river water treatment facility twice the capacity that they would use.

This allowed other local industries to tie into the pipeline and stop siphoning from the fast-depleting aquifer.

"There was an opportunity there and we took it," Reynolds said. "There was a little bit of luck involved, but also a lot of hard, time consuming work."

Union County residents agreed to finance the $45-million pipeline project in an effort to help save their aquifer; soon after, Chemtura Central Plant (formerly Great Lakes Chemical), El Dorado Chemical, Lion Oil and the Union Power Station began using the river pipe line to supply water to their plants.

Each plant agreed to pay 56 cents per thousand gallons of water used.

Sparta Aquifer levels began correcting themselves almost immediately after the pipeline was activated. Before the pipeline, the Sparta Aquifer was Union County's only source of industrial water.

Conservation efforts have reduced the Union County Sparta Aquifer withdrawals by approximately 7.5 million gallons per day, and the UCWCB announced recently that water levels have risen in Sparta wells.

According to the UCWCB, the Sparta Aquifer in south Arkansas and north Louisiana may be the only groundwater source in the country showing recovery.

Wells in Union County, South Arkansas, and north Louisiana are rising for the first time in 60 years, one as much as 49 feet.

With current reductions in Sparta Aquifer ground-water withdrawals, ground-water levels in the eight USGS monitoring wells have risen 2-to-49-feet since the Fall of 2004, according to information from the UCWCB.

The UCWCB's Mission Statement is: The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.

Additional Proposal Information

(This is as uploaded, a blank page will show if nothing was submitted)

EDEFWaterRelatedGrantsToTeachers2009.pdf

El Dorado Education Foundation
Teacher Grants – Water-Related

1. ***"Water Watchers"*** ***Science***
Maggie Harris & Diana Oswalt
This project provided greater water conservation awareness in students and parents. Students were actively involved in scientific research as they collected water samples, examined samples under microscopes, collected data, and prepared graphs/charts. They also held an exhibition and performance for the public. Fall 1997.
4th grade **$1,159.20**

2. ***"Panda and Water Watchers II"*** ***Math, Science, Reading, & Language***
Maggie Harris
This project encouraged student interest in math and science. The project's primary goal was to promote water conservation awareness, and was an innovative way to teach these real-life skills. Students learned about the Sparta aquifer and their roles in protecting the water supply. They learned to use water-sampling techniques, worked with microscopes, and performed research. They visited **El Dorado Water Utilities, Great Lakes Chemical Company,** the **EHS science lab, Panda Power** in El Dorado**,** and the **IMAX theatre** in Little Rock. A PTA presentation of students' findings was held later in the school year. Fall 2000.
4th grade **$1,997.12**

3. ***"People & Water: A Vital Bond – A 6th Grade Team's Exploration" – Reading, English, Math, Science, & Social Studies***
Debbie Hahn, Karen Greer, Lara Robbins, Denise Roberts, & Mary Schimberg
Five middle school teachers, recognizing the needs of sixth-graders to feel a sense of team, to achieve success on state-mandated tests, and to make real-world connections, created a year-long learning environment revolving around the importance of water. The unit centered upon six novels featuring water settings, five water environments, and five endangered animals native to those environments. The program featured speakers from **Arkansas Game and Fish**, the **Union County Water Conservation Board**, **Boy Scouts**, **Arkansas State Parks**, and **KTVE-TV**, as well as service projects and a field trip to investigate different bodies of water. Fall 2002.
6th grade **$2,108.84**

4. ***"Pools & Ponds: Life in Marine & Freshwater Biomes"*** ***Science***
Alva Reibe, Jane Purtle, & Mary Guthrie
This project purchased and maintained both a saltwater and a freshwater aquarium, to give students hands-on learning experiences with these diverse ecosystems. It was designed to provide intermediate students with knowledgeable understanding of animal and plant life in marine and freshwater biomes. Spring 1998.
6th grade **$1,286.88**

5. ***"Groundwater Guardian Project: Defenders of the Sparta"*** ***Interdisciplinary***
Eveann George
This was a project designed to give students an opportunity to investigate a real-life problem; the lowering of the Sparta aquifer. Through their investigation, students practiced problem-solving and learned to work together to find possible public solutions to a community problem. Spring 1998.
10th grade **$4,519.83**

6. ***"Defenders of the Sparta II"*** ***Interdisciplinary***
Michelle Pamphlin & Rhonda Martin
This was an integrated project designed to give students an opportunity to investigate a real-life problem; the lowering of the **Sparta** aquifer. Through their investigation, students practiced problem-solving and learned to work together to find possible solutions for a community problem. A **WaterFest** was held in the spring for **EHS** and area fourth-graders. Also involved were the **Union County Conservation District**, the **Union County Cooperative Extension Service**, the **Arkansas Soil and Water Conservation Commission**, the **U.S. Geological Service**, and **El Dorado Water Utilities**. Spring 2002.
9th-12th grades **$4,991.83**

7. ***"Life on the Mississippi"*** ***English, Social Studies, Math, Vocational, & Science***
Jackie Phillips
Students, teachers, community representatives, and parents researched the history of the Mississippi River. Areas of emphasis included the economy, modes of transportation, importance of the Delta soil, and the musical heritage of the river. A field trip to Memphis was included, so that students would have the opportunity to see, firsthand, history where it took place. Fall 1998.
9-12th grades **$4,761.18**

8. ***"Down to the Molecule"*** ***Biology & Chemistry***
Susan Johnson & Linda Bates
This project was designed for students to learn conceptually difficult molecular processes by having access to the best high-tech equipment. The equipment allowed students to focus on data analysis rather than difficult data-collection methods. Students studied photosynthesis, extracted DNA, measured water potential, and examined chemical reactions. Their work was available at parent-teacher conferences and at **EHS "open house"** events. Fall 2005.
9-12th grades **$5,000.00**

9. ***"The Traditional Naturalist's Journal for Modern Scientists"*** ***Biology, Botany, Zoology, Painting, Drawing, & Arts & Crafts***
Susan Johnson, Patrick Johnson, & Boyan Ivanov
This project was designed for students to increase their familiarity, understanding, and positive attitudes regarding the natural environment – through journaling, investigating, and researching the biodiversity existing around them. The project combined historical observation and research techniques with 21st-century technology. Fall 2006.
9-12th grades **$5,000.00**

10. ***"Mathematics: The Gate and Key to the Sciences"*** ***Biology, Botany, & AP Biology***
Susan Johnson
The purpose of the project was to help students understand the interconnectedness of mathematics/technology and the biological sciences by allowing students to measure, graph, compute, visualize, predict, and interpret mathematical data they have gathered through lab experiments and activities. Fall 2007.
10-12th grades **$2,000.00**

Additional Proposal Information

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EntergyUCWCB$50KEnvStewardship3.18.03..pdf

March 18, 2003

Entergy Corporate Contributions
L-ENT-8A
P. O. Box 61000
New Orleans, Louisiana 70161

We encourage Entergy to award a *$25,000 Leadership Level Environmental Stewardship* grant to its service area's – and perhaps the country's – only project in which residents have allowed ourselves to be taxed once, and then voted to tax ourselves a second time to preserve the underground Sparta formation aquifer, a natural resource upon which all Union County industrial and residential customers have depended for industrial and drinking water; a project in which industries like Great Lakes and Lion Oil took the lead by establishing what A*rkansas Soil & Water Conservation Commission* staff members continue to point to as an exemplary conservation project; a project in which stakeholders county wide not only exceeded the letter of the law, but wrote the law that will produce measurable, long-term results providing sustainable benefits to the environment and protecting the public health; a project which provides a reliable, affordable, preferable, alternative source of industrial water from the Ouachita River.

Invisible to the naked eye, Union County, Arkansas' once pristine and plentiful groundwater source, the Sparta aquifer, faced looming irreparable damage, which would have rendered the natural resource useless to the economic sustainability of Union County. On the western edge of the Mississippi Delta, Union County was experiencing severe water level declines and water quality degradation, which led to Union being one of the first five Arkansas counties declared a critical groundwater area by the *Arkansas Soil & Water Conservation Commission* (ASWCC) in 1996.

As more Arkansas counties were declared critical, the ASWCC and the U.S. Geological Survey (USGS) continued to agree: *Union County's situation was by far the state's most critical*. The USGS recommended a consumption reduction of a staggering seventy-two percent - or 14 million gallons per day -- in order to stabilize and preserve the Sparta, Union County's sole source of industrial and drinking water.

Union County is not alone in its need to address critical groundwater issues – the stressed Sparta winds its way through much of Entergy's service area. Beginning in western Tennessee and northeast Arkansas, straddling the Mississippi/Arkansas line through the Delta, slipping across the Arkansas line into Louisiana, and finally far East Texas, the Sparta formation shares much of the same geographic region with Entergy.

However, with its unique and innovative project, Union County does stand alone in addressing this significant, regional environmental need. In 1999, stakeholders throughout the county – industry, economic development

leaders, elected officials, private citizens, the Arkansas Farm Bureau, the Arkansas Poultry Federation, Rural Water Associations, the Union County Conservation District, state and federal agencies, and others – coalesced to write, support, and enact legislation authorizing the state's first and thus far only water conservation board. Public hearings throughout the county incorporated stakeholders' input, built consensus, and resulted in unopposed legislation, even though Act 1050 of 1999 authorized a conservation fee on Sparta water consumers.

Thus, not only did Union County exceed the letter of the law, we wrote the law. With unprecedented authority over groundwater, the newly appointed, eleven member Union County Water Conservation Board adopted its mission statement on July 14, 1999. Consistent with improving the environment, the Board's mission states: *The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for an affordable, alternative source of fresh water, pursuant to the authority and responsibility granted by the State of Arkansas*. That alternative source is the Ouachita River.

On September 1, 1999, the UCWCB began collecting a conservation fee of 24¢ per 1000 gallons from all registered and significant users. In February, 2002, the voters of Union County passed a temporary 1¢ sales tax to construct infrastructure to provide Ouachita River water for Union County's largest industrial consumers. Nearly four years after its inception, UCWCB members continue to work tirelessly and without financial compensation to complete the project.

We are asking that Entergy invest in Phase II of the project which will serve three of Union County's largest industrial consumers of Sparta water – Lion Oil Company, Great Lakes Chemical Corporation, and El Dorado Chemical. Phase II will reduce Sparta water consumption by approximately 50 percent. Phase I is complete and serves the project's largest customer, Union Power Partners, who constructed the intake, pump station, treatment plant -- all necessary for completion of the overall project -- and five miles of pipeline as part of its merchant power plant. In late 2002, UPP sold the $50 million infrastructure to the UCWCB for $14 million.

Entergy has been a consistent partner in the project. Wayne Harrell has been the Entergy constant, while other Entergy representatives and the company as a whole have been indispensable to the project's overall success. Paul Ford and Doug Wood became early project liaisons as we sought to use Entergy transmission line rights-of-way during water line construction. Diane Tatum served on the Chamber of Commerce Executive Committee when its Board designated the water issue its top priority. Purchasing water line rights-of-way alongside Entergy's existing transmission line rights-of-way expedited the project, an important element given the limited amount of time we had to avoid irreparable damage to the Sparta. Entergy upgraded transmission lines specifically to service the project's intake structure. Without Entergy's initial and ongoing support and cooperation, Union County's water project would have faced extensive barriers to success.

Being mindful of Entergy's funding criteria, it is noteworthy that environmental education has become permanently woven into curricula throughout Union County. In partnership with the Union County

Conservation District, the Arkansas Museum of Natural Resources, the El Dorado Education Foundation, public and private schools throughout the county, and others, educators have embraced the project to preserve the Sparta aquifer. I would venture that if asked, Union County school children from elementary through high school age could, without exception, explain to some degree the challenges Union County faces with the Sparta aquifer.

Significant community involvement also includes two of Union County's largest employers – Great Lakes Chemical and Lion Oil Company. These two major Arkansas industries, which between them provide over 1000 jobs for South Arkansas and North Louisiana residents, set the conservation example in 1999 by constructing a pipeline between their two plants. By using Great Lakes' once-used cooling tower water for Lion Oil's refining process, the industries have reduced Sparta consumption by 10 percent, or 2.3 million gallons per day. During ceremonies celebrating the project's completion, sixth grade "Water Watcher" Nolan Mock thanked the two companies for their efforts, noting that it was his generation that would benefit most from the companies' efforts. Subsequently, the ASWCC and USGS have reported measurable rising Sparta levels which they attribute in part to this project. These results prove that the probability of the UCWCB's project success is very high. I would argue that success is undeniable.

There is no better way for Entergy to celebrate Earth Day than to align itself with the volunteer members of the Union County Water Conservation Board and the citizens they serve by investing in that portion of our project that will provide Ouachita River water to three major Union County industries – Great Lakes, Lion Oil, and El Dorado Chemical. By doing so, Entergy will partner with a project that is not only "beyond the best", but is the only one of its kind in Entergy's service area, and perhaps in the country. The Union County Water Conservation Board and the citizens of Union County have set the national standard for environmental preservation of a groundwater resource.

To borrow J. Wayne Leonard's words, the Sparta Aquifer is the "legacy we want to leave for future generations." We have set the bar high. Please join us by awarding the Union County Water Conservation Board a Leadership Level Environmental Stewardship Award.

Sherrel Johnson
President & CEO, El Dorado Chamber of Commerce 1995-2000
El Dorado Industrial Development Corporation 1995-2000
Union County Industrial Board 1995-200

Additional Proposal Information

(This is as uploaded, a blank page will show if nothing was submitted)

Funding Partners $65Million.pdf

Ouachita River Alternative Water Supply Project

Funding Partners

$65 Million Estimated Total Cost

Local – 88%

Chemtura Chemical (formerly Great Lakes)
El Dorado Chemical
El Dorado Education Foundation**
Lion Oil Company
Sparta Aquifer Consumers – 24¢/1000 gallons Conservation Fee
Linda & Stan Sweeney
Gladys & Clayton Taylor Grandchildren
Charles E. Thomas
Union County Conservation District (UCCD)*
Union County Taxpayers - 1¢ County-Wide Sales Tax
Union Power Partners (Entegra) - Phase I; largest single investment

Federal – 8%

Economic Development Administration (EDA)
Environmental Protection Agency (EPA)
Housing & Urban Development (HUD)
U.S. Army Corps of Engineers
U.S. Geological Survey (USGS)*

State – 4%

Arkansas Natural Resources Commission (ANRC)*
Economic Dev of Arkansas Fund Commission – no longer exists

*Although ANRC, UCCD, & USGS invested no direct infrastructure funding, the agencies have contributed priceless support, data, education, and resources since the onset of this project.

**EDEF funded no infrastructure, but supported extensive education efforts through funding multiple public school water resource education projects

Additional Proposal Information

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InfrastructureOwnershipStatement 8.9.19.pdf

AUGUST 9, 2019

TO: Jefferson Deming

FROM: Robert Reynolds

Congressman Westerman asked yesterday who owned the river water infrastructure. This is as short as I can make the answer: *Union County Water Conservation Board on behalf of the people of Union County.*

When Panda Energy of Dallas came to Union County in 1999 to develop a merchant power plant, they knew that the Sparta Aquifer would not support a large power plant. Panda made a deal with Union County in exchange for help with permitting, legislation, and other project development support provided by Sherrel Johnson at the Chamber of Commerce, State Senator Jodie Mahony, and others. Panda built the water infrastructure twice the size of its requirements so the County could extend the pipeline beyond the power plant to serve heavy industry and reduce the burden on the Sparta Aquifer. Doubling the capacity did not double construction cost. Instead, because of economies of scale, it increased Panda's cost by only 30 percent or $14 million.

In a truly generous and far-sighted gesture, when Union County reimbursed Panda the $14 million for up-sizing, Panda deeded the entire $52 million infrastructure -- water intake structure, clarification facility, and first 5 miles of pipeline -- to Union County. Since Panda would be the only river water user for a couple of years, and the first and biggest water user thereafter, the County and Panda agreed that Panda would be the water facility contract operator. Also, Panda was the only river water user who did not have the Sparta as a back-up in the event of river water system failure.

Union County completed the 11-mile extension to industry with public funds including a county-wide temporary sales tax and a conservation fee on Union County Sparta groundwater users. The balance of federal and state grants made up less than 15 per cent of the total $65 million cost, and the project has been debt free since December 2005.

Panda sold Union Power Station to Tampa Electric Company (TECO) in 2002. Following bankruptcy reorganization in the mid-2000s, the power plant emerged as investor-owned Entegra/Union Power Station. In 2016,

Entergy bought the generating plant. The County's water facility operating contract followed ownership, and in 2017, Entergy subcontracted with Applied Specialties Inc. to operate the County's river water system. The County's contract remains with the power plant owner, Entergy.

If that does not answer completely and satisfactorily the Congressman's question, please let me or Sherrel know. Thank you again for the time you and the Congressman's team spent in Union County yesterday.

Mission Statement: The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.

Sherrel Johnson, Project Mgr/Grants Admin
Union County Water Conservation Board
441 West Cedar
El Dorado, Arkansas
Cell 870 314-0749
FAX 870 881-9708
sherrelj@suddenlink.net
www.ucwcb.org

Additional Proposal Information

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IntakeWithAuthorizationLanguage.pdf

OUACHITA-BLACK RIVERS, ARKANSAS AND LOUISIANA –The Union County Water Conservation Board's 65 mgd intake at the Ouachita River near Calion, Arkansas. Authorized by Section 101 of the Rivers and Harbor Act of 1960 (Public Law 86-645;74 Stat.481), the Ouachita-Black River Navigation project does not include water supply as an authorized project purpose.

TODAY: Working with Katy Breaux, Congressman Westerman and his staff, and others on ***7001 Proposal*** for WRDA to include water supply as a project purpose.

Additional Proposal Information

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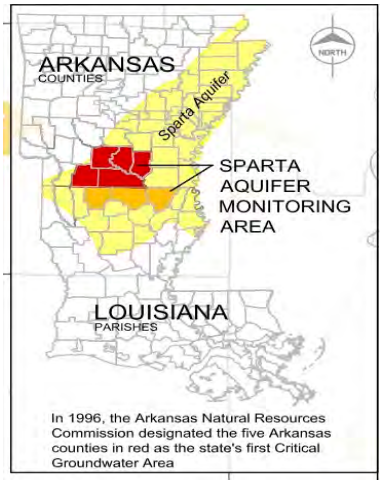
MRC 8.21.19.pdf

Sparta Aquifer Recovery

South Arkansas & North Louisiana

"An Unintended Benefit"

Sherrel Johnson, *UCWCB Grants & Project Mgr.*



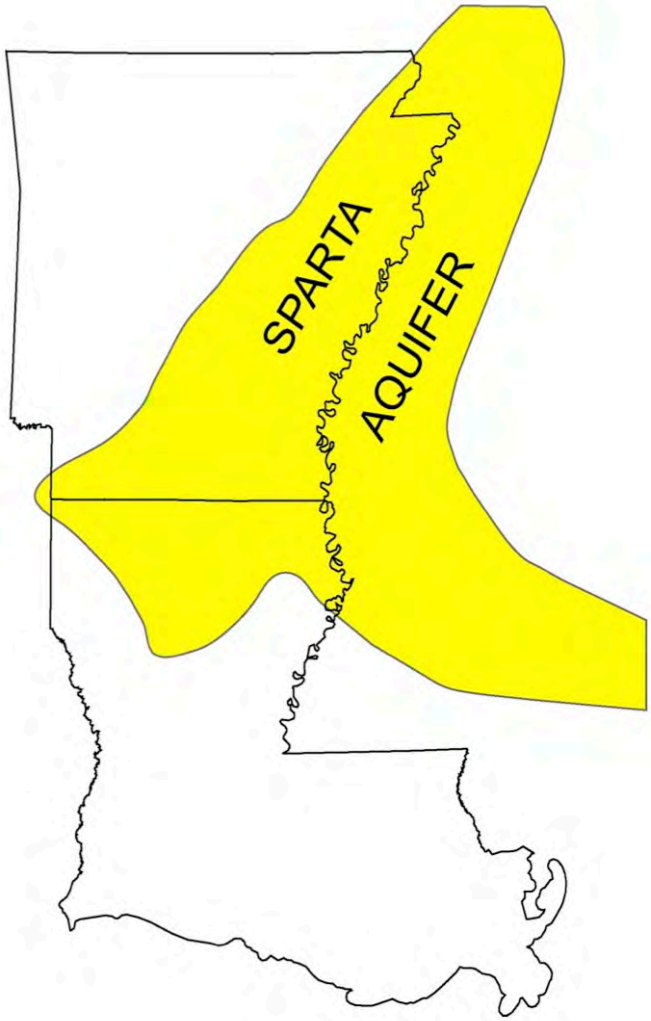
Mississippi River Commission

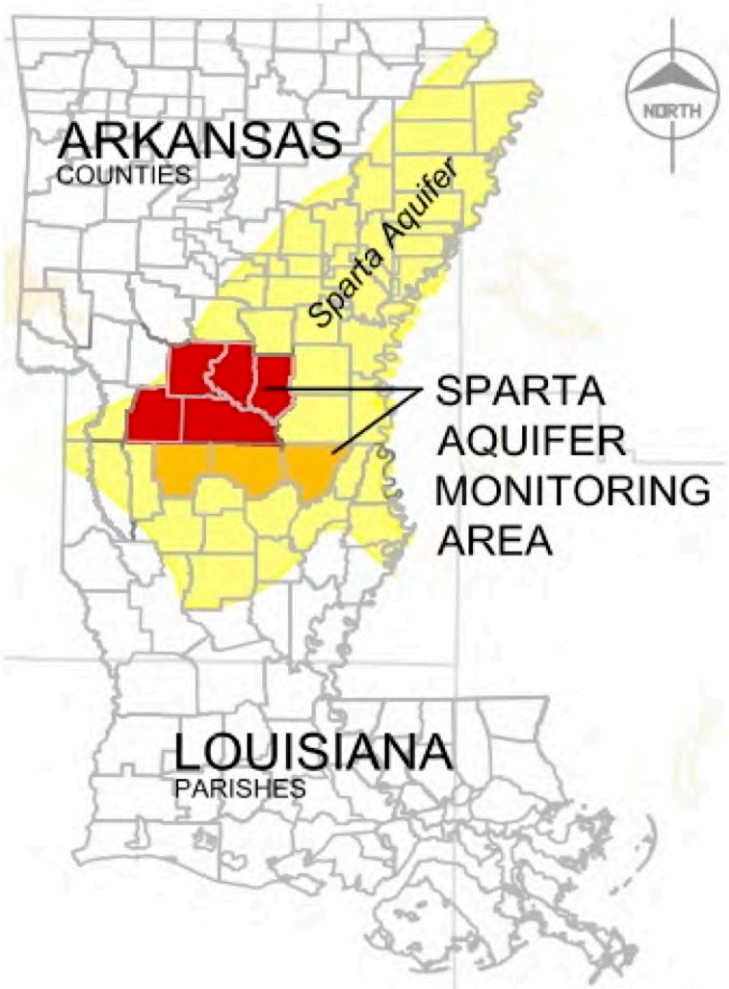
August 21, 2019 • Vicksburg, Mississippi – *Slide 13 edited 8.24.19 by Sherrel Johnson*

Union County Water Conservation Board

441 West Cedar, El Dorado, Arkansas 71730 • 870 814-2871 or cindywoolsey@suddenlink.net • www.ucwcb.org

US Army Corps
Engineers
TOY


SPARTA
AQUIFER


ARKANSAS
COUNTIES
Sparta Aquifer
NORTH
SPARTA
AQUIFER
MONITORING
AREA
LOUISIANA
PARISHES

"Union County must reduce Sparta groundwater consumption by 72% from 21 mgd to 7 mgd in five years or less or risk inflicting irreparable damage on the Sparta aquifer," *at the time the County's only source of drinking and industrial water.*

- USGS Arkansas Water Science Center, 1998

USGS & ARKANSAS NATURAL RESOURCES COMMISSION AGREED, OF THE STATE'S THREE CRITICAL GROUNDWATER AREAS, UNION COUNTY'S WAS THE WORST

1997	Today
21 mgd Sparta groundwater	**7-8 mgd avg Sparta, 15 mgd avg Ouachita River**
Groundwater levels declining as much as 7' per year	**Groundwater levels rising, one well has risen 101' since 2004 industry conversion; over 134' since its deepest measurement - 379.7' in Oct 2001**
Saltwater encroachment threatened our only source of drinking water	**Saltwater encroachment appears to have been halted**
No single authority over groundwater	**June 1999, Union County Water Conservation Board formed with unprecedented authority in Act 1050 of 1999, including collection of 24¢ per gallons conservation fee from significant* users (everyone) -** **residents paid thru water utility*
No alternative source	**By 2005, the Board had built/paid for $65M infrastructure & was delivering Ouachita River surface water to major Industries that previously relied solely on Sparta groundwater**

NONE OF THIS WOULD HAVE BEEN POSSIBLE WITHOUT THE ABUNDANT POOL ABOVE THATCHER DAM

OUACHITA RIVER ALTERNATIVE WATER SUPPLY PROJECT
OUACHITA RIVER
The Quachita River forms Union County's North and East Boundaries from the mouth of Smackover Creek to Calion and through the Felsenthal National Wildlife Refuge to the Lousina Line.
UNION COUNTY
AQUIFER
CROSS OIL & REFINERY
INTAKE & PUMP STATION
NON-POTABLE WATER TREATMENT PLANT AND PUMP STATION
CALION LUMBER
THATCHER LOCK & DAM
UNION POWER PARTNERS
EL DORADO CHEMICAL
STORAGE TANK AND PUMP STATION
WATSON SAWMILL
MYSTIC CREEK
CLEAN HARBORS
LION OIL
DEL-TIN FIBER
TETRA
GREAT LAKES CHEMTURA WEST
GREAT LAKES CHEMTURA CENTRAL
(PILGRIM'S PRIDE)
(GEORGIA PACIFIC)
GREAT LAKES CHEMTURA SOUTH
ANTHONY FOREST PRODUCTS
South Arkansas Regional Airport
Felsenthal National Wildlife Refuge
FELSENTHAL LOCK & DAM
PLUM CREEK
48"
36"
30"
12"
20"
28"
SMACKOVER
NORPHLET
CALION
STANDARD-UMSTED**
WILDWOOD*
CRABAPPLE POINT
QUINN***
MT. HOLLY
LISBON***
MARYSVILLE
BEULAH GROVE*
EL DORADO
HWY 82 WEST
OAK MANOR*
OLD UNION***
NEW LONDON
LAWSON-URBANA
PARKERS CHAPEL
HARMONY*
JOHNSON TOWNSHIP***
WESSON NEWELL
NEW HOPE
FAIRCREST
JUNCTION CITY
STRONG
AURELLE**
BATTS - LAPILE
HUTTIG
FELSENTHAL
SCALE IN MILES (APPROXIMATE)
UNION COUNTY WATER SYSTEMS
AURELLE** BATTS-LAPILE BEULAH GROVE* CALION CRABAPPLE POINT EL DORADO FAIRCREST FELSENTHAL HARMONY** HUTTIG HWY 82 WEST
JOHSON TOWNSHIP*** JUNCTION CITY LAWSON-URBANA LISBON*** MARYSVILLE MT. HOLLY NEW HOPE NEW LONDON NORPHLET OAK MANOR*
OLD UNION*** PARKERS CHAPEL QUINN*** SMACKOVER STANDARD-UMSTED** STRONG WESSON-NEWELL WILDWOOD**
* Purchase water from El Dorado Water Utilities
** Purchase water from another association or municipality
*** Dual sources: own wells and purchase from another association or municipality
UCWCB OUACHITA RIVER ALTERNATIVE WATER SUPPLY
INDUSTRIES SERVED BY OUACHITA RIVER ALTERNATIVE WATER SUPPLY
INDUSTRIES SERVED BY A WATER UTILITY (SPARTA GROUNDWATER) *
* Parkers Chapel Water Serves TETRA for potable only
INDUSTRIES WITH SPARTA WELLS
( ) NOT OPERATING
SPARTA AQUIFER RECOVERY MONITORING WELL
MYSTIC CREEK GOLF COURSE/HOUSING IRRIGATION
EL DORADO HIGH SCHOOL SITE IRRIGATION
UNION COUNTY WATER CONSERVATION BOARD
441 W. Cedar • El Dorado, Arkansas 71730 • 870-814-2871 • www.ucwcb.org

$65 Million Infrastructure

Federal 8% — 6.5 million

EDA 1.5, EPA 3, Corps 500K
HUD 1.5

State 4% - EDAFC — 2.5 million

Local 88% — 56.0 million

1¢ COUNTY-WIDE TEMPORARY SALES TAX

24¢ PER 1000 GAL SPARTA CONSERVATION FEE

ENTEGRA/UNION POWER PARTNERS

PRIVATE LANDOWNER ACREAGE

Thatcher
Lock & Dam
November 2017

Hinged Crest
Gate Leak

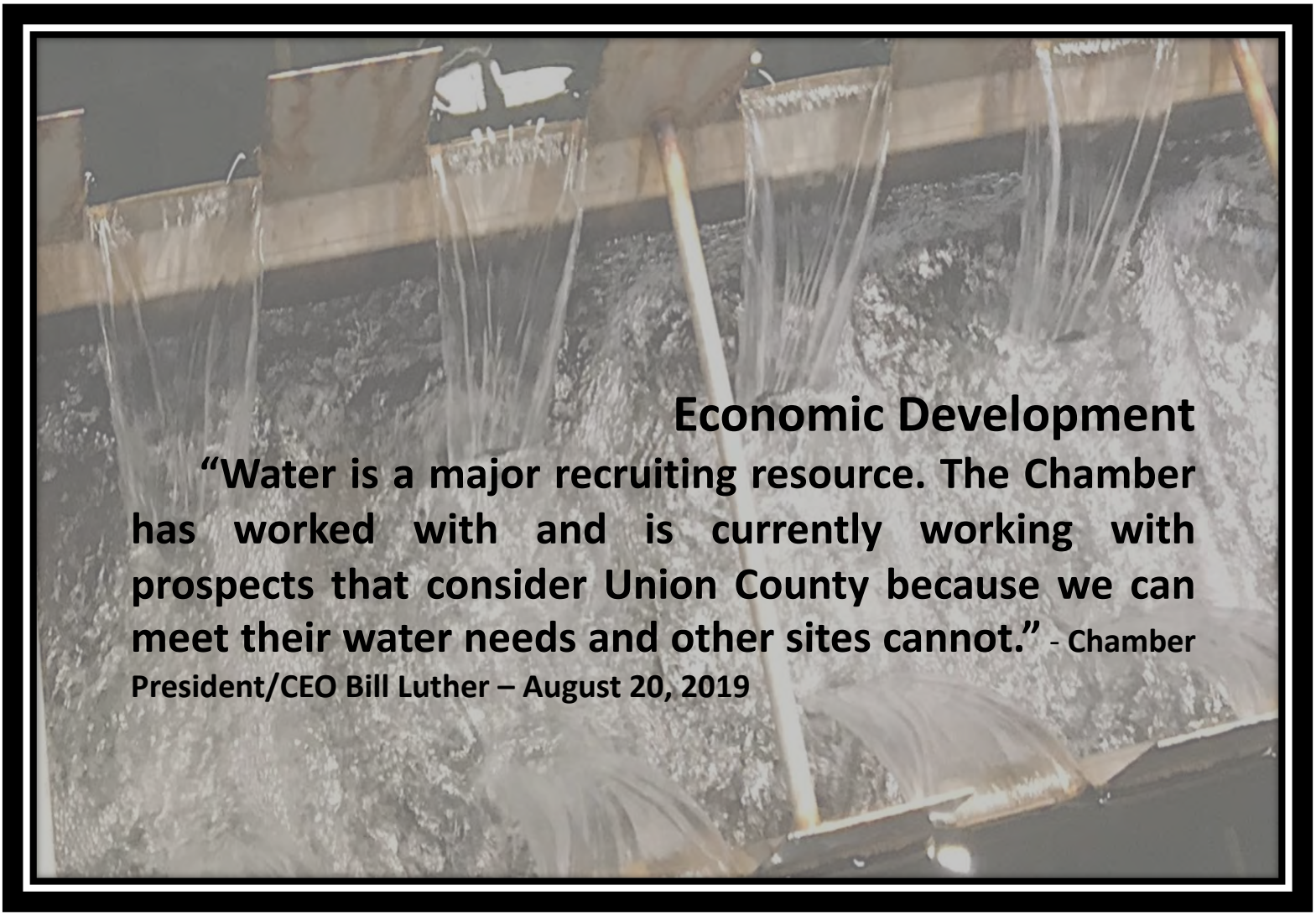
Lockmaster
Garland “Winky”
Temple

Cong. Bruce Westerman toured Thatcher Lock & Dam & the Board's Ouachita River Alternative Water Supply infrastructure August 8, 2019.

L to R, Robert Reynolds, founding Board Pres 1999-2015; Skip Martin, Corps Monroe; Garland "Winky" Temple, Thatcher Lock Master; Westerman, Diedre Smith, Arkansas Waterways Commission; Sherrel Johnson, Board Grants & Proj. Mgr.; Aaron Landreneau, Corps Monroe.

"El Dorado Chemical's $800 million expansion, the largest in company history, is possible only because of the abundant alternative Ouachita River surface water supply provided by Union County."

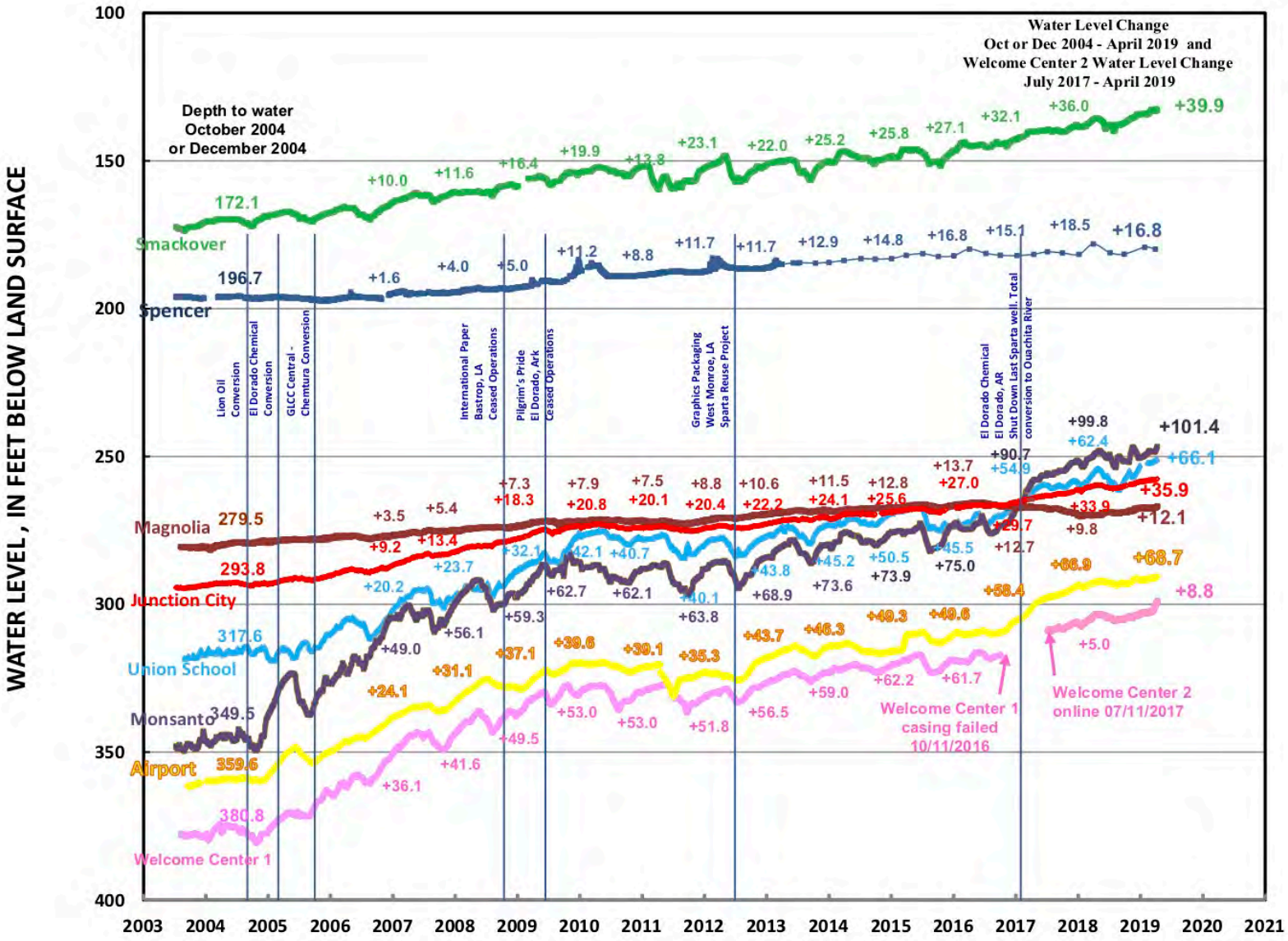
- *John Carver, VP LSB Industries*



Economic Development

"Water is a major recruiting resource. The Chamber has worked with and is currently working with prospects that consider Union County because we can meet their water needs and other sites cannot." - **Chamber President/CEO Bill Luther – August 20, 2019**

Melinda Boyer, **Congressman Westerman Field Representative**
Tom Shaw, Project Chief & Katy Breaux, Project Mgr., **Vicksburg District Corps of Engineers**
Sherrel Johnson, **UCWCB Project/Grants Mgr.**
Derek Bell, **UCWCB Water Treatment Plant Operations Mgr.**
Robert Reynolds, **Volunteer Advisor UCWCB** & Stephen Plyler, **Senator Cotton Field Representative**


WATER LEVEL , IN FEET BELOW LAND SURFACE
Water Level Change
Oct or Dec 2004 - April 2019 and
Welcome Center 2 Water Level Change
July 2017 - April 2019
Depth to water
October 2004
or December 2004
Smackover
Spencer
Magnolia
Junction City
Union School
Monsanto
Airport
Welcome Center 1
Lion Oil Conversion
El Dorado Chemical Conversion
GLCC Central - Chemtura Conversion
International Paper Bastrop, LA Ceased Operations
Pilgrim's Pride El Dorado, Ark Ceased Operations
Graphics Packaging West Monroe, LA Sparta Reuse Project
El Dorado Chemical El Dorado, AR Shut Down Last Sparta well. Total conversion to Ouachita River
Welcome Center 1 casing failed 10/11/2016
Welcome Center 2 online 07/11/2017
100
150
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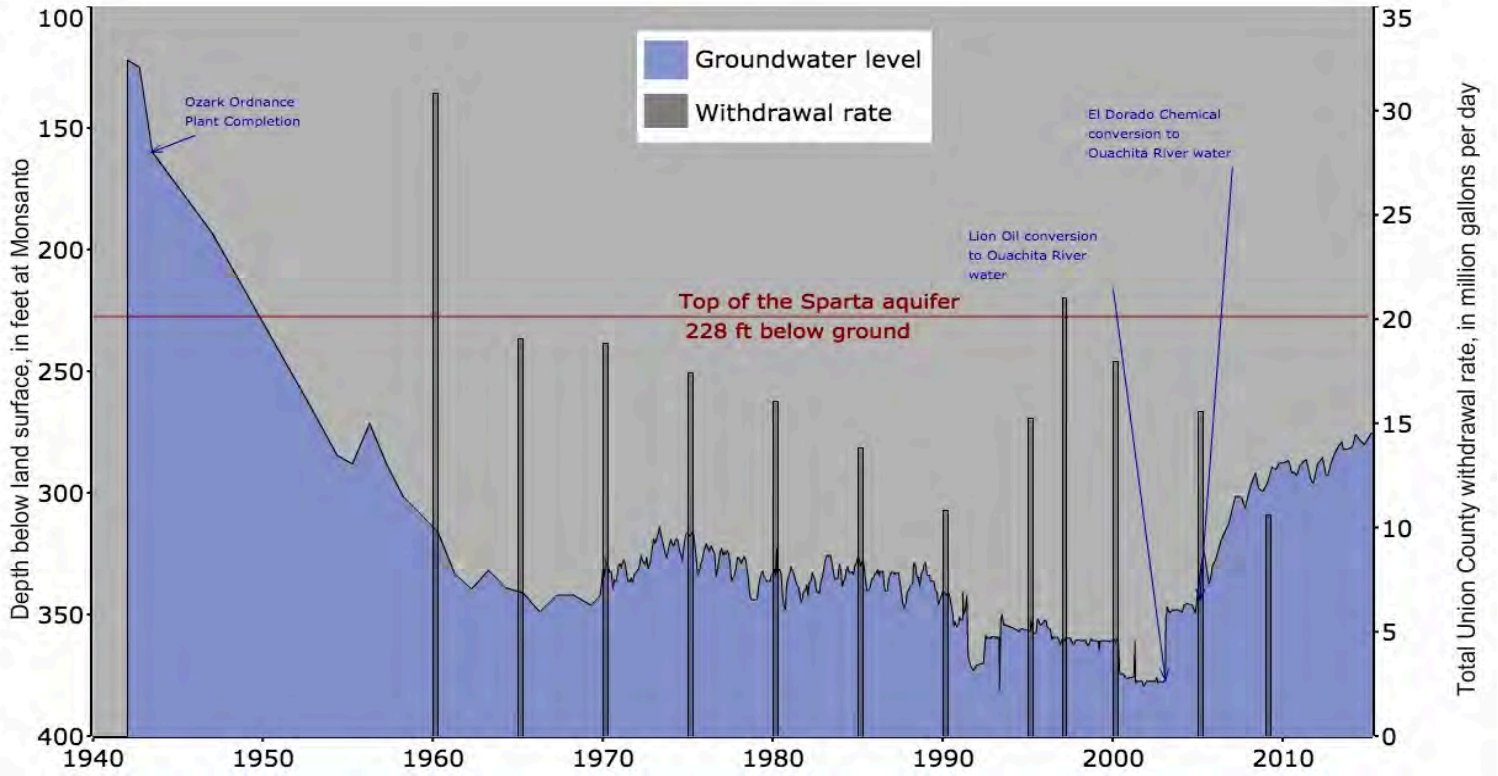
USGS Monsanto Real-Time Monitoring Well



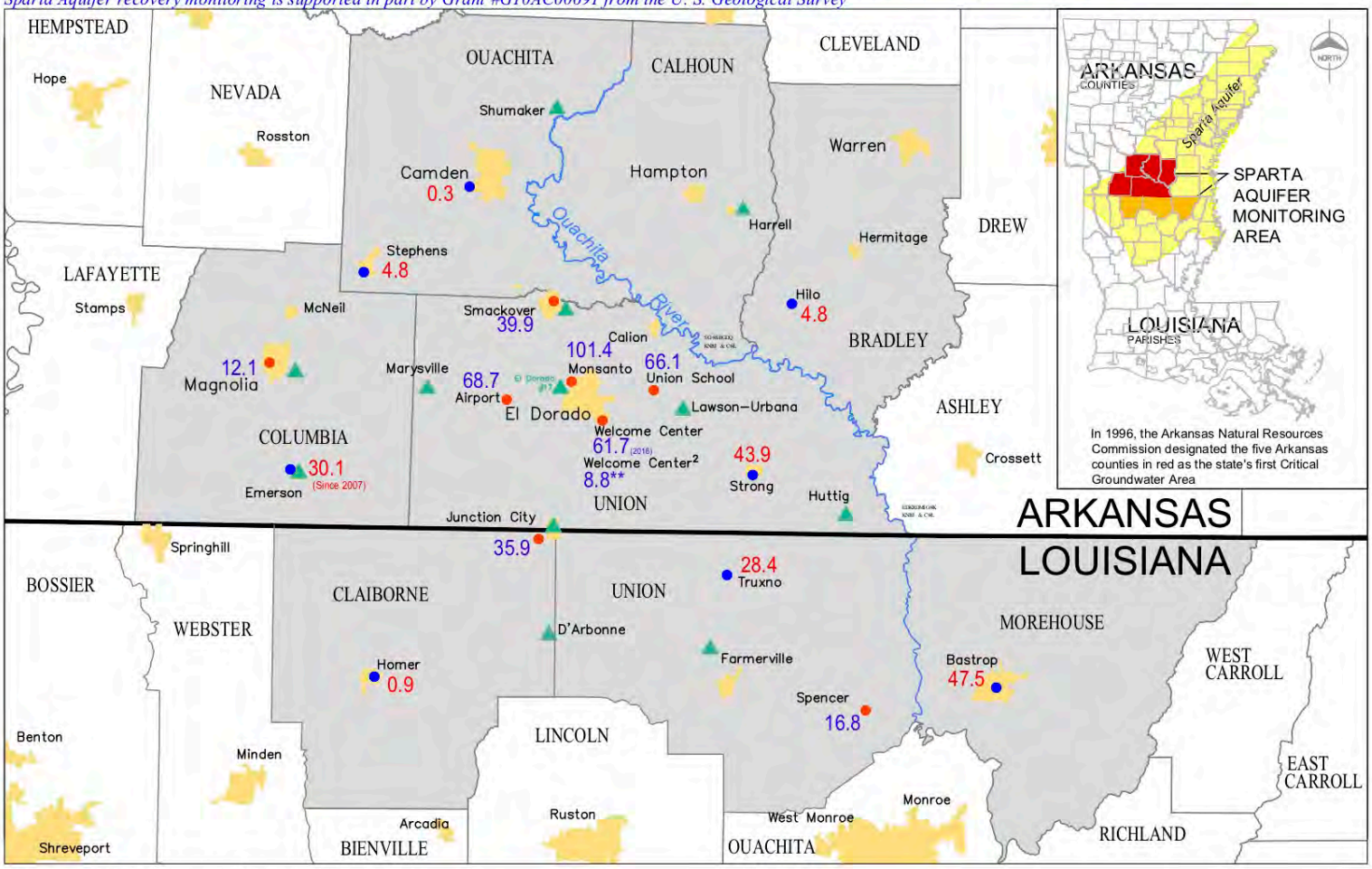
Groundwater Levels 1942 – 2016
Total Union County Groundwater Usage 1960 - 2016
Aquifer Test Pumping Well in 1947 - 1999 – 2012
Interactive at www.ucwcb.org

1942 – 125' **Oct 2001 Lowest – 379'** **April 2019 – 248'**

Over halfway back to 1942 level

South Arkansas Sparta Aquifer Recovery Initiative - *Monitoring Well Network*

Sparta Aquifer recovery monitoring is supported in part by Grant #G10AC00691 from the U. S. Geological Survey



- ● AUTOMATED DATA LOGGER MONITORING WELL
- ▲ USGS WATER QUALITY MONITORING WELL
- ● USGS REAL-TIME MONITORING WELL

101.4 RISE IN SPARTA AQUIFER GROUNDWATER LEVEL IN FEET BETWEEN OCTOBER 2004* AND APRIL 2019, USGS REAL-TIME WELLS

47.5 RISE IN SPARTA AQUIFER GROUNDWATER LEVEL IN FEET SINCE DECEMBER 2004*, UCCD ADL WELLS

* THREE MAJOR UNION COUNTY (ARKANSAS) INDUSTRIES BEGAN CONVERSION GROUNDWATER TO SURFACE WATER OCTOBER 2004 **ORIGINAL WELL CASING FAILED 2016. NEW WELL COMPLETED JUNE 2017.

0 10 20
SCALE IN MILES

UNION COUNTY WATER CONSERVATION BOARD • 441 W Cedar • El Dorado, Arkansas 71730 • 870 814-2871 • www.ucwcb.org

April 2019

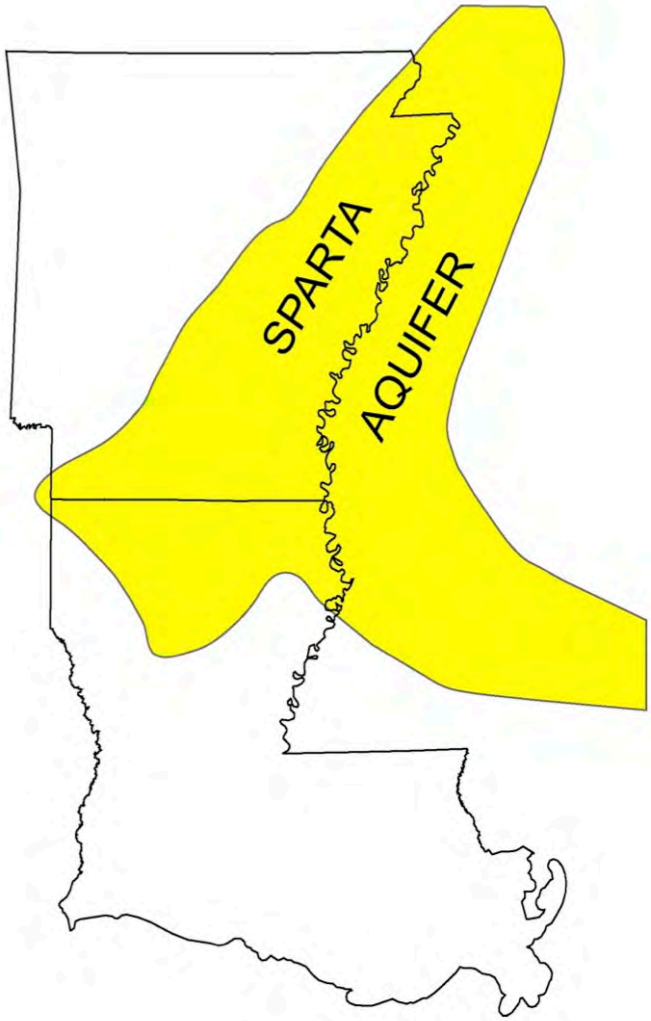
OUACHITA-BLACK RIVERS, ARKANSAS AND LOUISIANA –The Union County Water Conservation Board's 65 mgd intake at the Ouachita River near Calion, Arkansas. Authorized by Section 101 of the Rivers and Harbor Act of 1960 (Public Law 86-645;74 Stat.481), the Ouachita-Black River Navigation project does not include water supply as an authorized project purpose.

TODAY: Working with Katy Breaux, Congressman Westerman and his staff, and others on ***7001 Proposal*** for WRDA to include water supply as a project purpose.

Mission Statement

The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.

- *Adopted July 21, 1999*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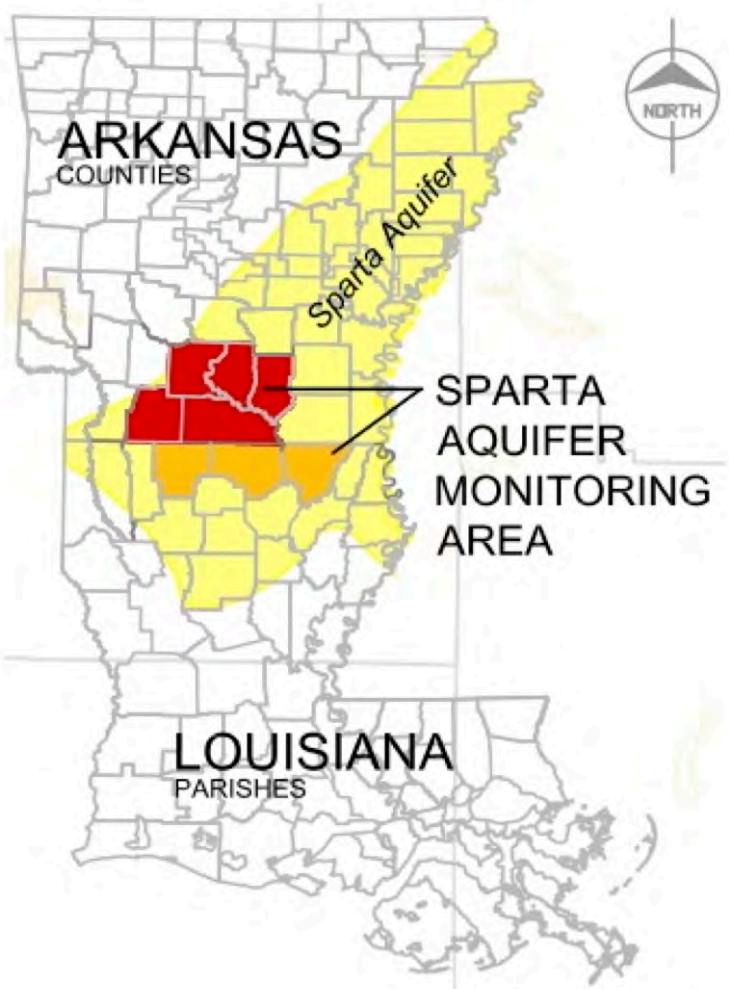
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MONITORING
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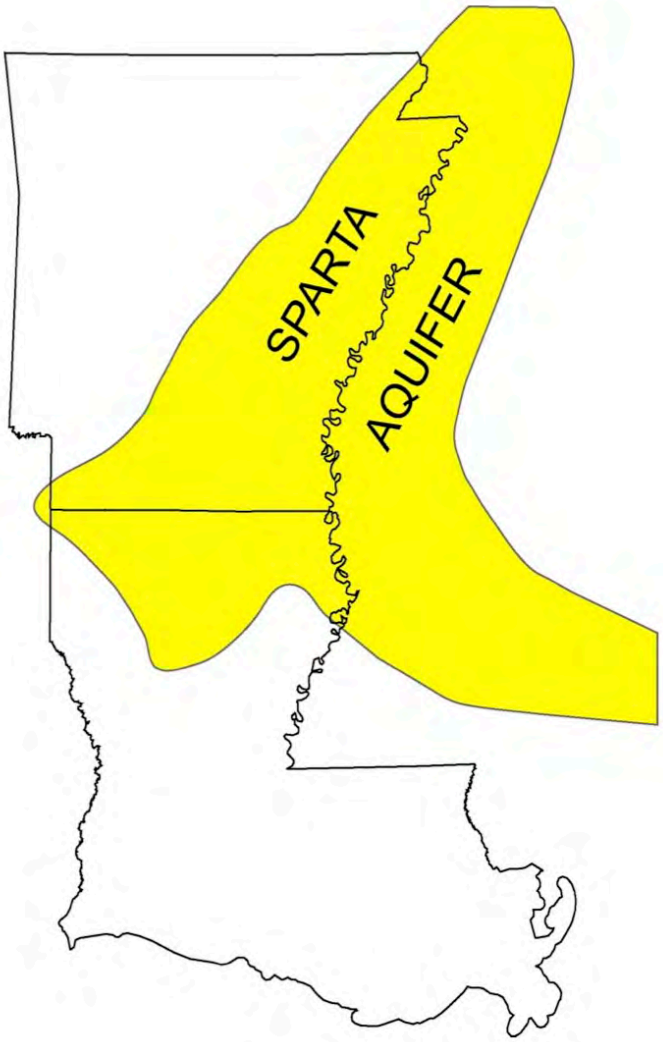
LOUISIANA
PARISHES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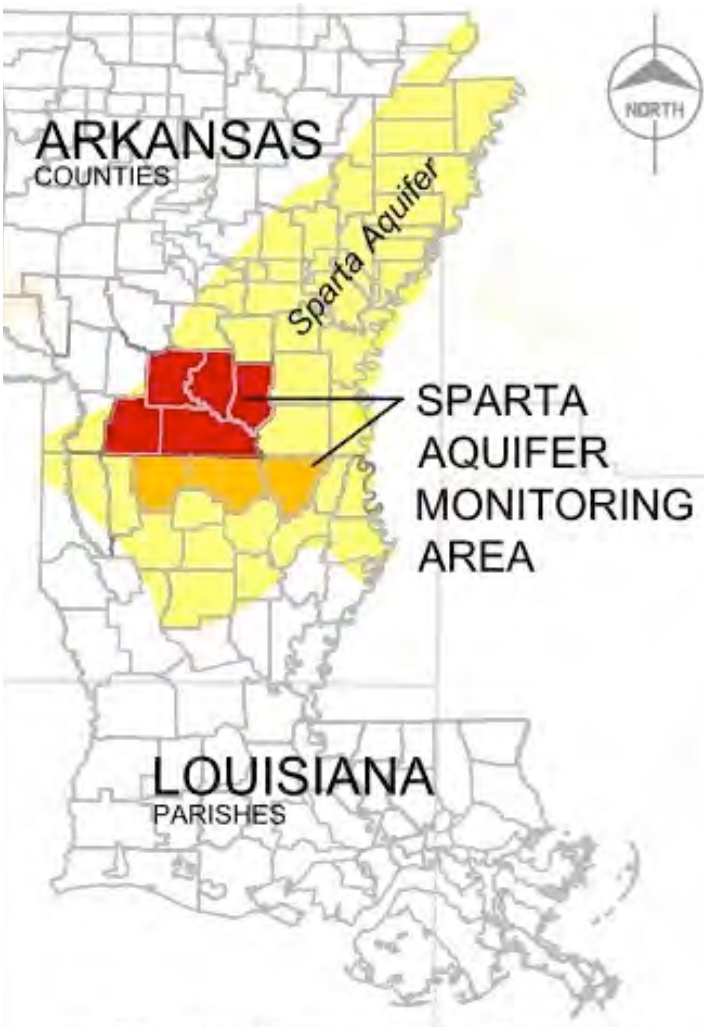
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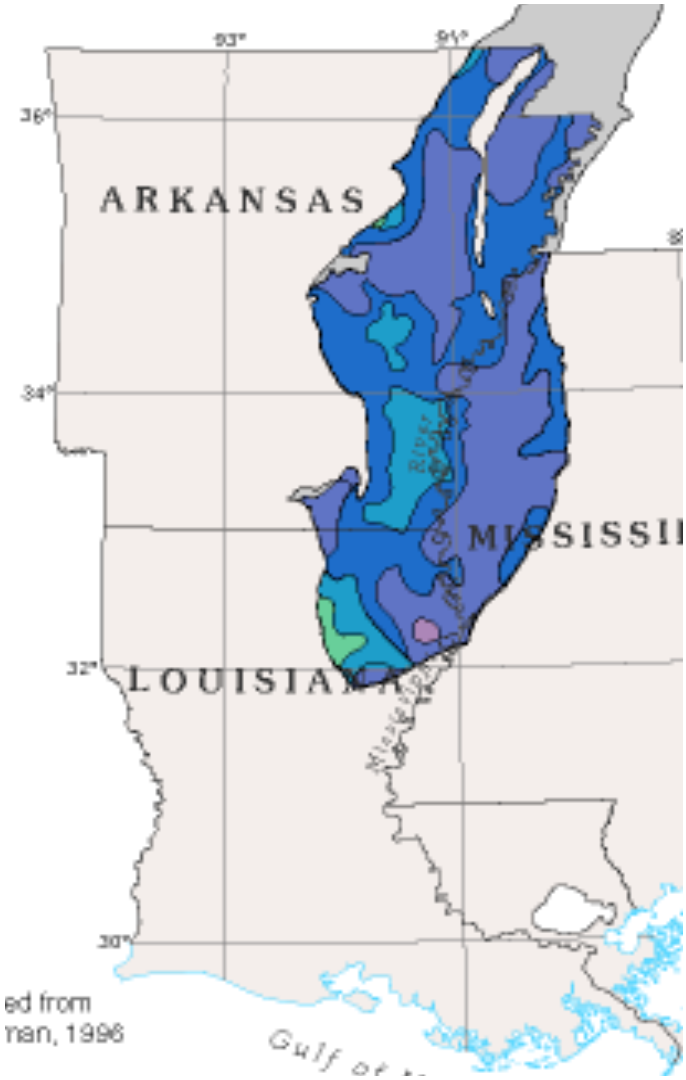
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Additional Proposal Information

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MRC Comments 4.18.18.pdf

UNION COUNTY WATER CONSERVATION BOARD

Vernie Meador
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870 312-0137

Ken Rudder
Vice-President

Pete Parks
Secretary/Treasurer

Les Chandler
Mary Dell Coleman
Roger Landes
Johnny Loftin
Robert McKinnon
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~

Mission Statement

The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.

~

441 West Cedar
El Dorado, Arkansas 71730
870 862-1244
FAX 881-9708

www.ucwcb.org

Mississippi River Commission – April 18, 2018 in Greenville, Mississippi

The Union County (Arkansas) Water Conservation Board (Board), Union County taxpayers, El Dorado Chemical, Entergy/Union Power, Lion Oil Refinery, and Great Lakes/LANXESS Central Plant, invested over $65 million in infrastructure and rely on the abundant Ouachita River water supply above Thatcher for industrial use and electric generation. Also golf course/residential development and the county's largest high school now use the river water for irrigation. *Arkansas Natural Resources Commission* permitted the Board through 2041 to withdraw an average of 50 mgd.

The Board's customers provide over 1,200 high-paying direct jobs creating nearly 3,000 jobs in the larger Arkansas/Louisiana region, and manufacture products -- including electric generation -- essential to our national security and economy. In early 2017, fertilizer manufacturer El Dorado Chemical completed an $800 million expansion that more than doubled its Ouachita River water supply demand creating an additional 45+ high-paying jobs. Most importantly, the alternative industrial river water supply allows conjunctive use, protecting Union County's only source of drinking water -- the Sparta aquifer -- by using the alternative surface source instead of Sparta groundwater. The once-threatened Sparta is recovering.

Until the late 1990s, Union County used 100% Sparta groundwater for industrial and drinking water, and all Sparta well levels were declining, some as much as 7' per year. Today Union County uses a daily average of 15 mgd Ouachita River water and 7-8 mgd groundwater. Groundwater levels in South Arkansas and North Louisiana monitoring wells have risen dramatically since industrial conversion in

2004-2005. One monitoring well's groundwater level has risen **99.8'** feet nearest the deepest cone of depression beneath El Dorado. Also, saltwater intrusion has been halted.

Neither the industrial jobs, future growth, nor Sparta recovery would be possible without the volume of surface water behind Thatcher. Water supply is not, however, a project purpose.

In 2016, U.S. Sen. John Boozman filed a provision directing the Corps to conduct a study to determine the feasibility of modifying the Ouachita-Black Navigation Project to include water supply as a project purpose. The Boozman Provision did NOT make it into the final WIIN-WRDA 2016 legislation, but we continue to work with our legislative delegation, and request that the Corps of Engineers help us find a path to include water supply as a project purpose and/or be considered when evaluating the Ouachita's economic impact.

Both Sen. Cotton's staff and our 4th District Congressman Bruce Westerman take an active interest in the Union County project. Their staffs are fully engaged , have toured the project, and in Cong. Westerman's case, he educated himself about the project by meeting with a gathering of 45 Sparta Recovery/Ouachita River Alternative Water Supply key stakeholders. An engineer, Cong. Westerman's interest is professional by vocation and political by election.

In early March 2018, and to help ourselves as we seek your help, the UCWCB submitted comments to the Federal Register regarding EC 1165-2-216, Proposed Policy Guidance to Alter Project Purpose. *Those comments attached as a separate document.*

Once again, we appreciate your attention and support.

Steve Cousins, Retired Lion Oil Refinery Mgr.

Sherrel Johnson, Grants Administrator, Spokesperson
870 314-0749 or sherrelj@suddenlink.net

Johnny Loftin, UCWCB & Farm Bureau

Robert Reynolds, Volunteer Advisor & Founding UCWCB President
870 863-7234 or robertreynolds@suddenlink.net

Preston Spires, UCWCB & Chemical Engineer

Additional Proposal Information

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MRC200YearVision DrinkAnyAquifer2016.pdf

America's Watershed: A 200-year working vision

An Intergenerational Commitment

Our people enjoy a quality of life unmatched in the world:

- **We lead secure lives along the river or tributary.**
- **We enjoy fresh air and the surrounding fauna, flora and forests while hunting, fishing and recreating.**
- **We travel easily, safely and affordably.**
- **We drink from and use the abundant waters of any river, stream or aquifer.**
- **We choose from an abundance of affordable basic goods and essential supplies that are grown, manufactured and transported efficiently and reliably along and by the river to local and world markets.**

The Mississippi watershed is 41% of the U.S., 31 states, 1.25 million square miles, more than 250 tributaries.

Balancing needs for:

- ✓ **National security, flood control and flood damage reduction**
- ✓ **Environmental sustainability and recreation**
- ✓ **Infrastructure and energy**
- ✓ **Water supply and water quality**
- ✓ **Movement of goods; agriculture and manufacturing**

Leveraging local citizens' input, international dialogue, science, engineering, technology and public policy.

Join the dialogue, visit:

- **www.mvd.usace.army.mil/mrc**
- **cemvd-ex@usace.army.mil**

Additional Proposal Information

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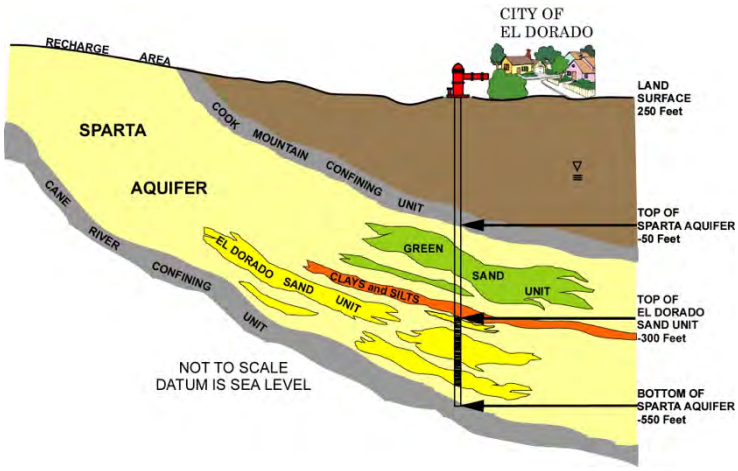
NRCS P3 Build Resiliency.pdf

P3 – BUILDING FOR RESILIENCE, NOT RECOVERY

Sparta Aquifer Recovery in South Arkansas & North Louisiana

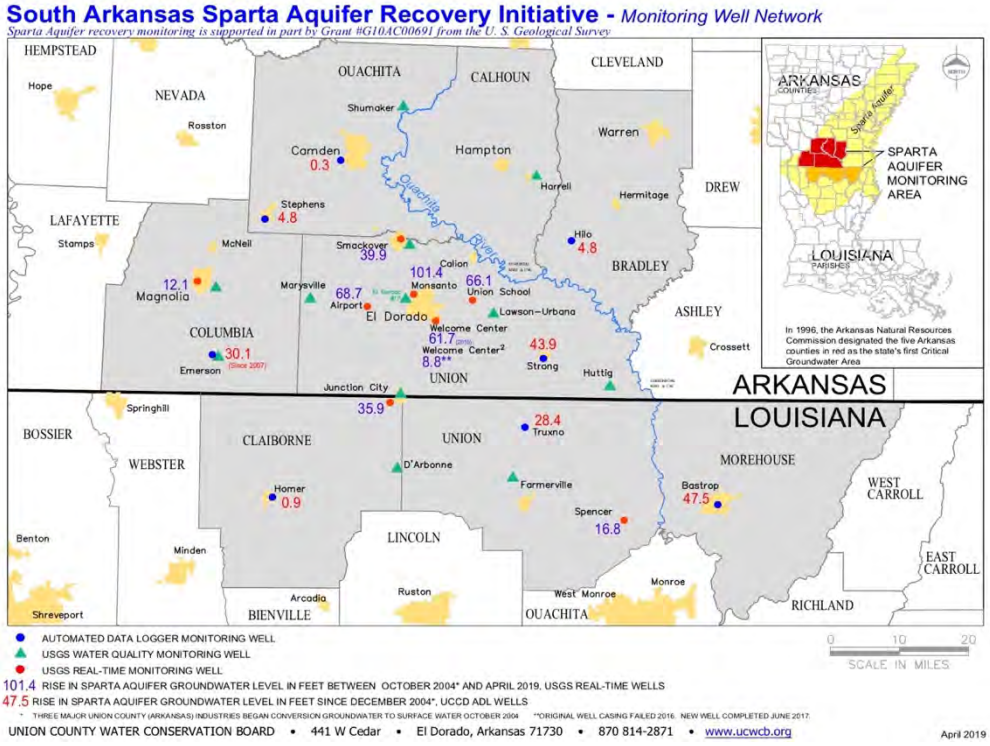


Once threatened by over-pumping, the deep, confined Sparta aquifer's groundwater levels in Union County, Arkansas have risen dramatically since 1997. One monitoring well's water level has risen 101.4' since 2004 when the Union County Water Conservation Board (Board) began delivering an alternative surface source from the nearby Ouachita River to three major industries – the county's largest single groundwater users -- that had previously relied solely on the aquifer: an oil refinery, a brominated products manufacturer, and a fertilizer manufacturer.

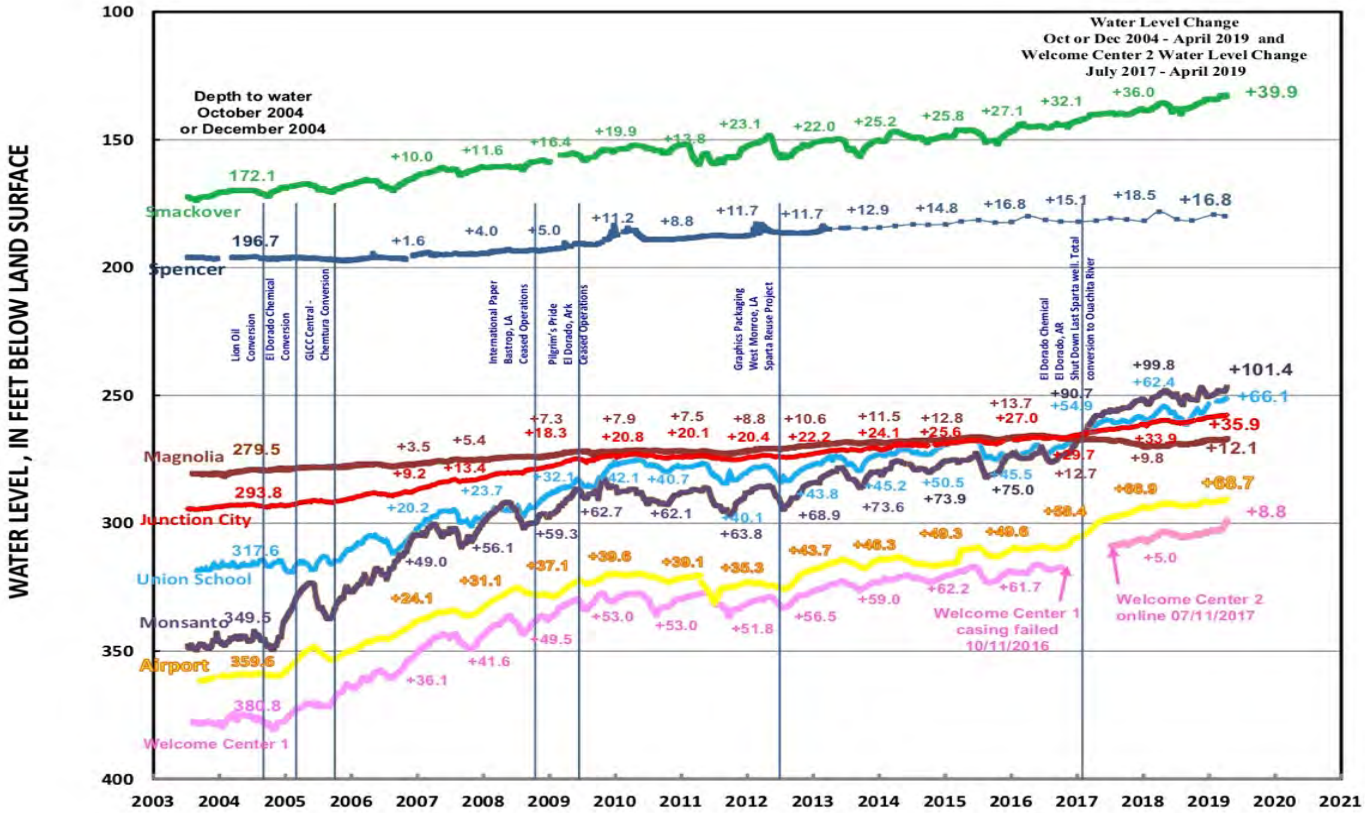
In 1996, the Arkansas Natural Resources Commission declared Union among the state's first five Critical Groundwater Counties. Groundwater levels were declining as much as 7' per year in some parts of Union County, which threatened irreparable damage to the Sparta aquifer. In response the county formed an expansive P3 coalition that began addressing the declining aquifer as its economic development priority. This led to Board formation in 1999 – the state's first Critical Groundwater Conservation Board with unprecedented authority over groundwater -- and $65 million of infrastructure – a 65 mgd intake at the Ouachita River, water treatment plant, and 23 miles of pipeline -- completed in 2004 to deliver affordable, lightly treated river water to the three industries, the county's largest single groundwater users. Union County taxpayers, Sparta water users, and a private business paid 88% of the $65 million through a conservation fee levied on all Sparta users, a temporary 1¢ sales tax approved by county voters, and an historic infrastructure gift. By December 2005, the Board had paid off the infrastructure debt and in a happy ceremony, drowned the mortgage. The sales tax and the conservation fee were removed from the books in 2006 and 2008 respectively. Infrastructure operation is paid for by river water customers.

MEASURING RESULTS

In 2002, prior to building the Ouachita River Alternative Water Supply infrastructure, the Board established a 28-well, strategically located monitoring network – 8 static USGS Real-Time water level wells, 8 static Automated Data Logger (ADL) water level wells, and 12 pumping Water Quality wells – dedicated to measuring the Sparta's response to Union County's conservation efforts.



"In 1997, groundwater levels were declining as much as 7' per year in some parts of Union County. As of April 2019 and in response to countywide conservation efforts, one USGS well's water level had risen 101.4' since industrial conversion began in October 2004." – *see 8 USGS Real-Time Wells graphed below*



The Sparta aquifer groundwater level rise is the direct result of reducing pumpage from the Sparta aquifer and allowing the aquifer to recharge naturally. In 1997, Union County was pumping an average of 21 mgd from the Sparta, then its sole source of drinking and industrial water. Today Union County pumps an average of 7-8 mgd from the Sparta, and delivers an average of 15 -16 mgd of river water to the three major industries and Entergy/Union Power Station, as well as additional customers that use the river water for irrigation -- a golf and residential community, the new high school practice fields, and a private citizen.

"Union County must reduce Sparta groundwater consumption by 72% from 21 mgd to 7 mgd in five years or less or risk inflicting irreparable damage on the Sparta aquifer," at the time the County's only source of drinking and industrial water. *- USGS Arkansas Water Science Center, 1998*

The Union County Water Conservation Board is fulfilling its Mission Statement adopted July 21, 1999: *The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future customers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.*

NATURAL RESOURCES CONSERVATION SERVICE

The Natural Resources Conservation Service joined the coalition by providing the local Conservation District a truck to manually measure groundwater levels monthly in the 8 static ADL Monitoring Network wells and quarterly in an additional 130+ pumping and non-pumping Sparta wells within a 60-mile radius of the deepest cone of depression in Union County. Providing "wheels on the ground" to continuously monitor and record groundwater levels in the five contiguous South Arkansas Critical Groundwater counties provides continuous data further documenting the Sparta's response to Union County's conservation efforts and is in keeping with the NRCS practice of helping producers by improving water health and ensuring long-term sustainability. – *Pictured, Ginger Risinger, Conservation District Hydrology Tech*

CONTACT: Sherrel Johnson, Grants & Project Mgr. • sherrelj@suddenlink.net • 870-314-0749 • www.ucwcb.org
Follow Union County Water Conservation Board on **Facebook**

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ProjectDescriptionJan2006.pdf

Ouachita River Alternative Water Supply Project

Union County Water Conservation Board

The *Union County* (Arkansas) *Water Conservation Board's* (UCWCB) project to provide Ouachita River water as an industrial supply alternative to the rapidly depleting Sparta aquifer may be this country's only project in which residents wrote the law that created the state's first critical county conservation board, allowed themselves to be taxed once, and then voted an additional temporary sales tax on themselves to conserve the underground Sparta formation aquifer, and provide an abundant supply of water for future growth.

In yet another unprecedented action, the UCWCB asked Union County to terminate the temporary sales tax on December 31, 2005, more than three years before the tax was scheduled to sunset. Through superior fiscal and construction management, higher than projected tax revenues, lower interest rates, and by applying both federal funds and local conservation fees to project debt, the UCWCB was able to pay off the debt more than three years ahead of schedule.

Phase I: 65 mgd Charles E. Thomas intake west of Ouachita River Bridge/Highway 167 (facing north)

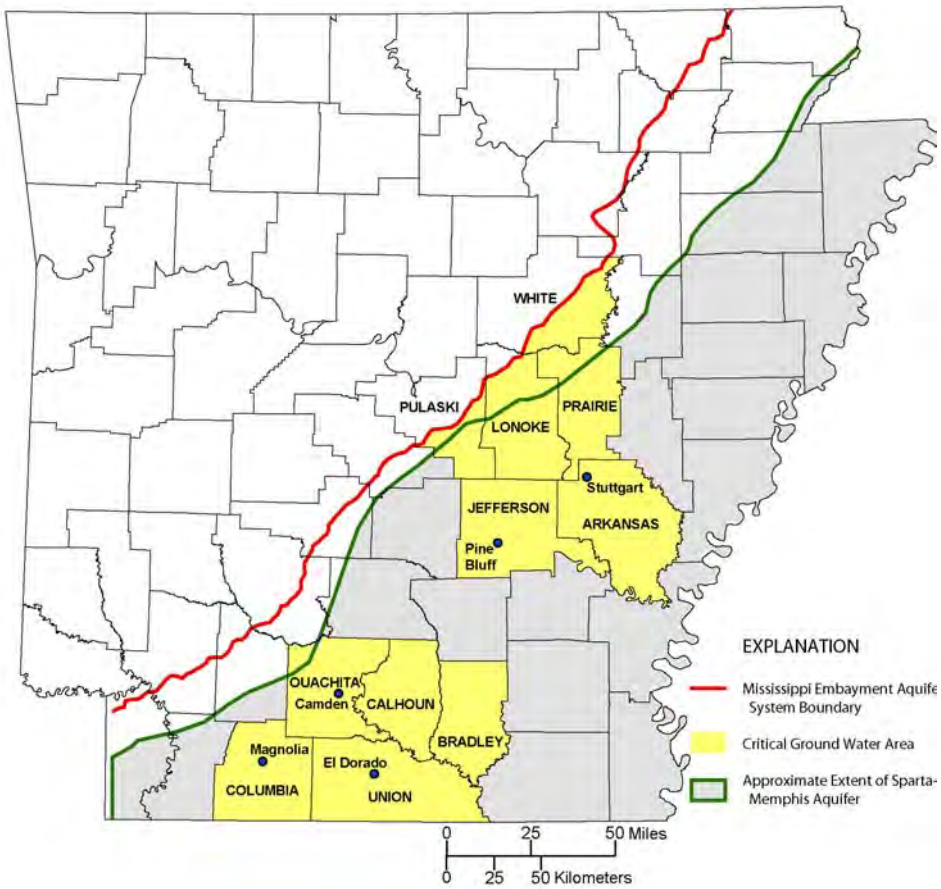
The Sparta aquifer in Union County is a natural resource that all Union County industrial and residential customers depend on for industrial and drinking water. The UCWCB project is one in which local manufacturers like *Chemtura Chemical Central Plant* (formerly *Great Lakes*) and *Lion Oil Refinery* took the industrial lead by establishing what *Arkansas Natural Resources Commission* (ANRC) staff members continue to point to as an exemplary conservation effort. The UCWCB project is one in which stakeholders county wide not only exceeded the letter of the law, but wrote the law that will produce measurable, long-term results to ensure economic sustainability, benefit the environment by conserving this natural resource, and protect the public health by halting drinking water degradation. The UCWCB project provides a reliable, affordable, preferable, alternative source of industrial water from the Ouachita River.

BACKGROUND

Invisible to the naked eye, Union County, Arkansas' once pristine and plentiful groundwater source, the Sparta aquifer, faced looming irreparable damage. Its depletion would have rendered the natural resource useless to the economic sustainability of Union County. On the western boundary of the Mississippi Delta, Union County was experiencing severe water level declines and water

Author: Sherrel Johnson, August 2004. Edited January 2006.

quality degradation, and was among the first five Arkansas counties declared a critical groundwater area by the ANRC in 1996.



As more Arkansas counties were declared critical, the ANRC and *U.S. Geological Survey* (USGS) continued to agree: Union County's situation remained the state's most critical. The USGS recommended a consumption reduction of a staggering seventy-two percent - or 14 million gallons per day — in order to stabilize and conserve the Sparta aquifer, Union County's sole source of industrial, commercial, and drinking water. Union County is not alone in its need to address critical groundwater issues. The stressed Sparta originates in southern Illinois and western Tennessee, enters northeast Arkansas and straddles the Mississippi/ Arkansas line through the Delta, slips across the Arkansas line into Louisiana, and finally into far East Texas.

With its unique and innovative project, Union County stands alone in addressing this significant, regional economic sustainability need. In the late 1990s, stakeholders throughout the county – industry, economic development leaders, elected officials, private citizens, the *Arkansas Farm Bureau*, the *Arkansas Poultry Federation*, *Rural Water Associations*, the *Union County Conservation District*, state and federal agencies, and others – coalesced to write, support, and enact legislation authorizing the state's first and thus far only county water conservation board. Public hearings throughout the county incorporated stakeholders' input, and built consensus that resulted in unopposed legislation, even though Act 1050 of 1999 authorized a conservation fee on Sparta water consumers.

With unprecedented authority over groundwater, the newly appointed, eleven-member UCWCB adopted its mission statement on July 14, 1999. Consistent with addressing the county's economic future, the Board's mission states: The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for an affordable, alternative source of fresh water, pursuant to the authority and responsibility granted by the State of Arkansas. That alternative source is the Ouachita River.

On September 1, 1999, the UCWCB began collecting a conservation fee of 24¢ per 1000 gallons pumped from all registered and significant Sparta users. In February, 2002, Union County voters approved (62 to 38 percent) a temporary 1¢ sales tax to construct infrastructure to provide Ouachita River water for Union County's three largest industrial consumers.

Planning for Union County's future economic development needs, the Ouachita River project has 10 million gallons per day (mgd) excess capacity and is expandable to provide an additional 19 mgd.

Over six years after the UCWCB's inception, its members -- first appointed, now elected by justice of the peace district -- continue to work tirelessly and without financial compensation. The project is complete and two of the three industrial customers have converted from Sparta aquifer to Ouachita River water -- Lion Oil in December 2004 and El Dorado Chemical in February 2005. The third, Chemtura Central Plant (formerly Great Lakes) -- converted over one million gallons per day from Sparta to river water in October 2005.

Phase I: Intake west of Ouachita River Bridge/Highway 167 N (facing south).

Phase I: Sherrel F. Johnson Clarification Facility **(facing**

Phase I: Clarification facility. clarified water

Phase II: Pump station, storage tank, & portion of pipeline to industry right-of-way (facing west).

PROJECT DESCRIPTION

The *Ouachita River Alternative Water Supply Project* consists of a 65-million-gallon-per-day (mgd) intake structure and pump station at the Ouachita River, a clarification facility, and a pump station and storage tank approximately nine (9) miles from the Ouachita River. Over 20 miles of pipeline connects the infrastructure to deliver clarified river water to industrial customers.

The UCWCB's Non-Riparian Permit, issued February 4, 2000 by ANRC, allows for an average annual withdrawal of 50 mgd, with a peak allowance of 65 mgd.

Phase I was completed in 2002 and serves the project's first and largest customer, *Union Power Partners*. UPP designed, built, and paid for the $52 million water infrastructure: the 65 mgd intake at the Ouachita River, pump station, treatment plant and over five miles of pipeline — all necessary for completion of the overall Ouachita River project — during construction of its environmentally friendly 2205 MW combined cycle natural-gas fired merchant power plant. Upon completion of the water infrastructure, UCWCB reimbursed UPP $14 million for the incremental cost of doubling the facility's capacity. UPP then deeded the entire $52 million facility to Union County, a gift of historic proportion.

Phase II -- a pump station and storage tank approximately nine (9) miles south of the Ouachita River, and over 15 miles of pipeline -- was completed in September 2004 and began serving the first converting industrial customer -- *Lion Oil* -- in December 2004. *El Dorado Chemical* converted to river water in February 2005, and *Chemtura Central Plant* (formerly *Great Lakes*) converted 1 mgd from Sparta to river water. Converting the three industries from ground to surface water reduced aquifer water consumption by over 6 mgd, allowing for aquifer recharge, halting water quality degradation trends, and conserving the Sparta for current and future users. Planning for Union County's future economic development needs, the project has 10 mgd excess capacity and is expandable to provide an additional 19 mgd.

In another historic action, the UCWCB paid off project debt by December 31, 2005. Subsequently, the county's Quorum Court removed the 1¢ sales tax over three years earlier than the seven year sunset. The action captured the attention of Arkansas's statewide newspaper, the *Democrat Gazette:* *"But now let us praise El Dorado. Did we read the news item right? Did the paper in El Dorado, the* News-Times, *really say that Union County paid off a bond issue three years ahead of schedule? How do you do that? We've heard of homeowners putting an extra payment on the mortgage when they fall into some money . . . but such cases are rare. But a government being thrifty? Whoever heard of such? Well, word around the campfire is that a perfect combo helped the Union County Water Conservation Board pay*

off this particular loan: fees from water users, federal moolah, lower-than expected construction costs, sales tax revenue greater than expected, and low interest rates. But higher revenues and happy circumstances have coincided in the past. How many local governments have stopped collecting taxes early?"

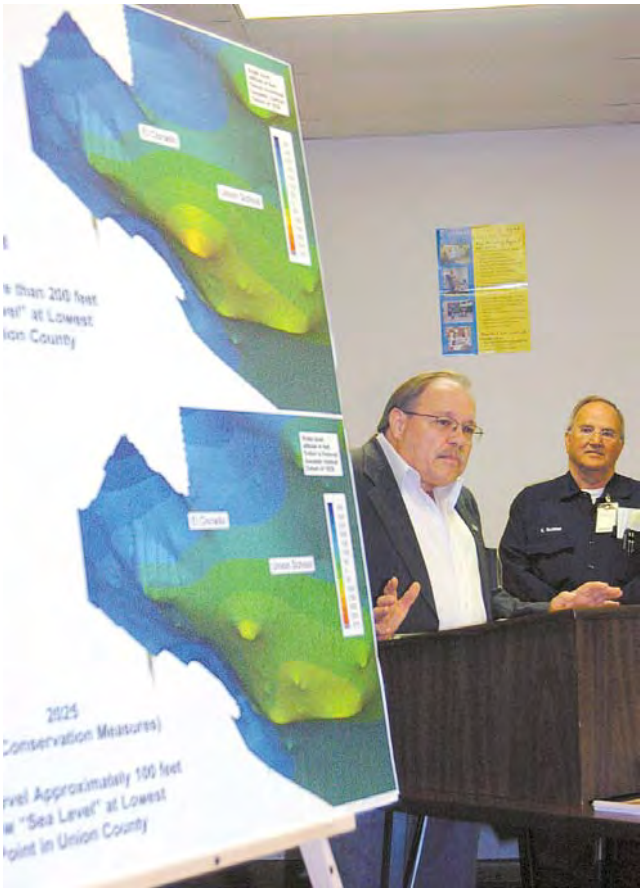
Arkansas Democrat Gazette
November 2, 2005

Sparta study well demonstration for Union School students.

EDUCATION

Water resources education has been permanently woven into curricula throughout Union County.

In partnership with *Union County Conservation District (UCCD), Arkansas Museum of Natural Resources*, *El Dorado Education Foundation*, schools throughout the county, *Entergy*, USGS, the *Environmental Protection Agency* (EPA), and other stakeholders, educators and students alike embraced the project to conserve the Sparta aquifer. In addition, the USGS, UCWCB, and the UCCD, with funding provided by the EPA, are conducting a *Sparta Recovery Study,* which began collecting data in January 2003. Two (2) of the twenty-nine (29) study wells in South Arkansas and North Louisiana are on Union County public school campuses -- the *Union School Well* and the *Charles L. Lovett Study Well* on the Strong campus, named in honor of UCWCB member Charles Lovett. In addition to providing on-site educational opportunities, study results are posted on the UCWCB's web site: *www.ucwcb.org*



As UCWCB Vice President/UCCD Chairman Ken Rudder looks on, John Terry, USGS Director of Arkansas' Science Center, announces at a May 2005 news conference from the Union School Campus Computer Lab, that the school's on-site USGS monitoring well has become interactive. Students can access real-time data at www.usgs.gov.

Photo by
JOSEPH OXENDALE
Courtesy of
EL DORADO NEWS TIMES

Continued on Page 8

Ouachita River Alternative Water Supply Project

Funding Partners

$65 Million Estimated Total Cost

Local – 90%

Chemtura Chemical (formerly Great Lakes)
El Dorado Chemical
El Dorado Education Foundation**
Lion Oil Company
Sparta Aquifer Consumers *– 24¢/1000 gallons Conservation Fee*
Linda & Stan Sweeney
Gladys & Clayton Taylor Grandchildren
Charles E. Thomas
Union County Conservation District (UCCD)*
Union County Taxpayers - *1¢ County-Wide Sales Tax*
Union Power Partners (Entegra) - *Phase I; largest single investment*

Federal – 8%

Economic Development Administration (EDA)
Environmental Protection Agency (EPA)
Housing & Urban Development (HUD)
U.S. Army Corps of Engineers
U.S. Geological Survey (USGS)*

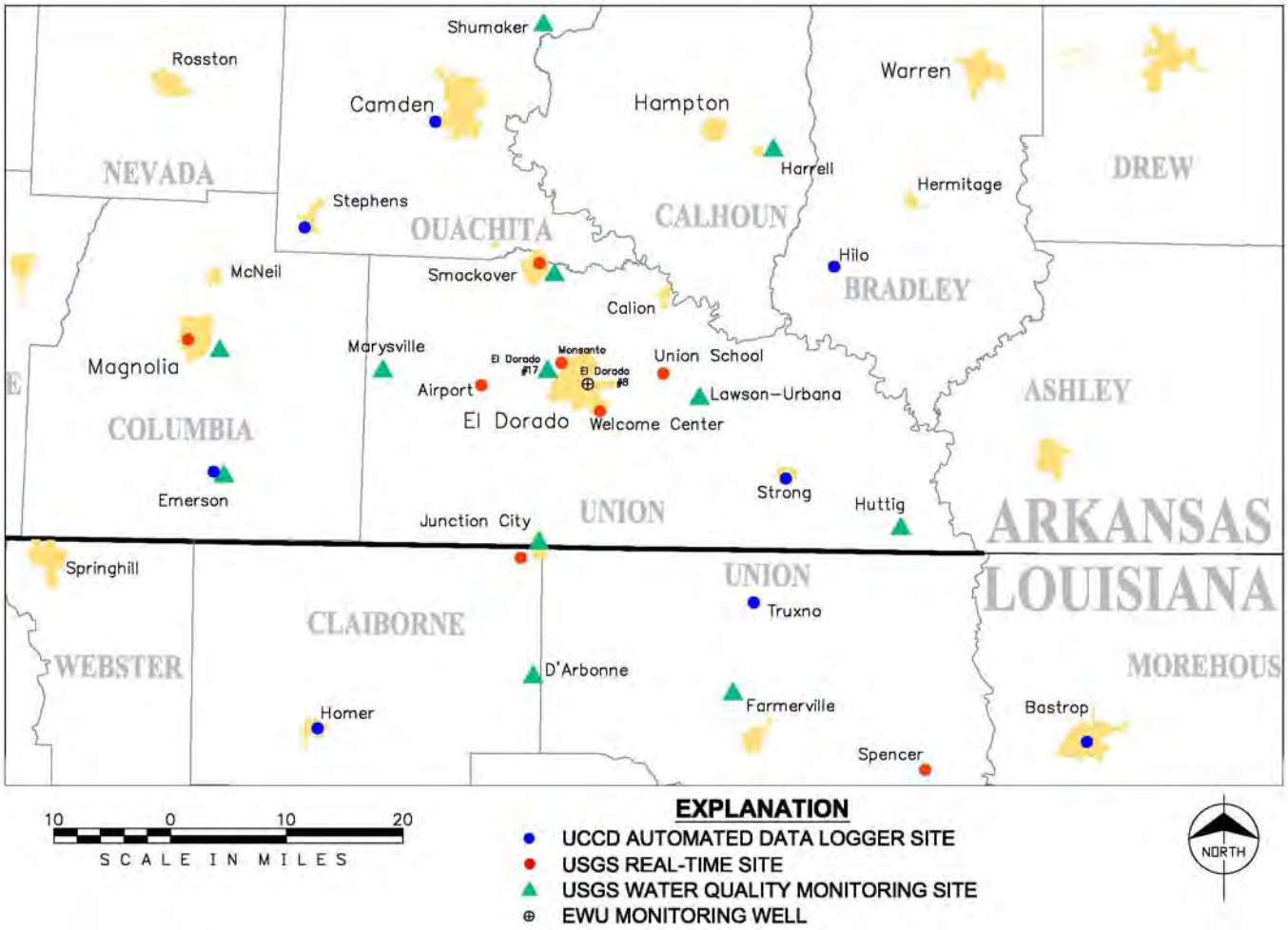
State – 2%

Arkansas Natural Resources Commission (ANRC)*
Economic Dev of Arkansas Fund Commission *– no longer exists*

*Although ANRC, UCCD, & USGS invested no direct infrastructure funding, the agencies have contributed priceless support, data, education, and resources since the onset of this project.

**EDEF funded no infrastructure, but supported extensive education efforts through funding multiple public school water resource education projects

Sparta Recovery Study Wells in South Arkansas & North Louisiana



Union County Conservation District Automated Data Logger Well: Automatically measures water levels once daily. Measurement data is posted to the Union County Water Conservation Board web site - *www.ucwcb.org*

U.S. Geological Survey Real-Time Well: Automatically measures and transmits well water levels in real time four times (4X) daily to the USGS web site. One of the eight (8) real-time wells is on the grounds of the new Welcome Center south of El Dorado on U.S. Highway 167. USGS web site: *http://waterdata.usgs.gov/ar/nwis/current/?type=gw*

U.S. Geological Survey Water Quality Monitoring Well: Tests for chlorides twice (2X) annually. Results are included in semi-annual reports to the *Environmental Protection Agency* (EPA). Chlorides most commonly occur as a component of sodium chloride, with minor amounts of calcium chloride, potassium chloride, and magnesium chloride.

Photo from Page 1, December 21, 2005. El Dorado News Times by Joseph Oxendale.

Turnin' on the Tap! ***December 20, 2005.*** Robert Reynolds, UCWCB President; Randy Young, Executive Director Arkansas Natural Resources Commission; Joel Holt, Chief Plant Engineer at Union Power Station (Entegra Power Group); and the plant managers from the three major industries that have converted from Sparta to river water during the past year: Greg Withrow, El Dorado Chemical (February 2005); Ed Mills, Chemtura (partial conversion 1 mgd October 2005); and Steve Cousins, Lion Oil (December 2004), turn on the ceremonial tap for the Union County project that provides Ouachita River water as an alternative source to the three large industries and major Union County employers.

Developed and built on a parallel path with the Ouachita River project, Union Power Station was the first to use Ouachita river water when its 2205 MW environmentally friendly merchant power plant became operational in early 2003. Entegra made a gift of historic proportions to the project: $38 million in infrastructure and fast track construction from the river to its plant. Entegra's gifts allowed the project to be built in time to save the aquifer.

The standing room only event in the El Dorado Chamber of Commerce Charles H. Murphy Jr. Boardroom celebrated this historic project that has reduced Sparta aquifer consumption by over 6 mgd.

The Board also celebrated paying off Union County's $23 million bond indebtedness by "drowning" the mortgage, removal of the temporary 1¢ sales tax that funded repayment, receiving $1.1 million from the EPA (the check was deposited just hours before the celebration), and most importantly, Sparta aquifer levels that are, according to Randy Young, "rising for the first time in 100 years . . . in Union County the water level has risen 10.3 feet."

GLENN mechanical

Glenn Mechanical of El Dorado built and donated the pipeline model. The Celebration was sponsored by the Board's engineer firm of record, Burns & McDonnell Engineers of Kansas City.

Burns & McDonnell SINCE 1898

Union County school children could, with few exceptions, explain to some degree the challenges Union County faces with the Sparta aquifer. As study well data is collected and reported, it is being recorded on the USGS and UCWCB web sites. Data indicates that water well levels are rising for the first time in decades.

INDUSTRY PARTICIPATION

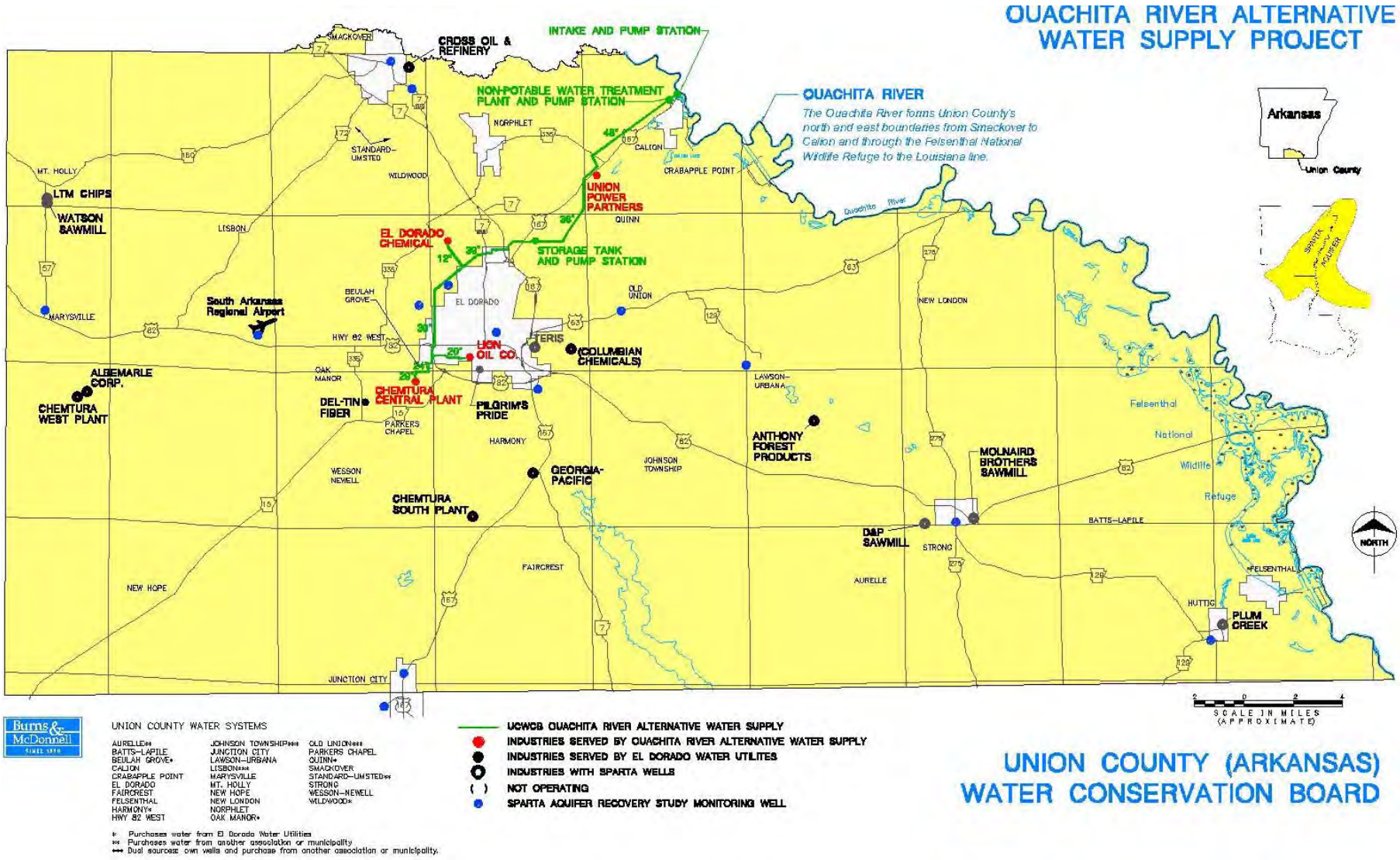
Significant early industry efforts to conserve the Sparta aquifer include two of the county's largest employers – *Chemtura Central Plant* and *Lion Oil.* These major Arkansas industries provide over 1000 jobs for South Arkansas and North Louisiana residents. They set the industrial conservation example in 1999 by constructing a water pipeline between their plants. By using *Chemtura*'s once-used cooling tower water for *Lion*'s refining process, they reduced Sparta consumption by 10 percent, or 2.3 mgd.

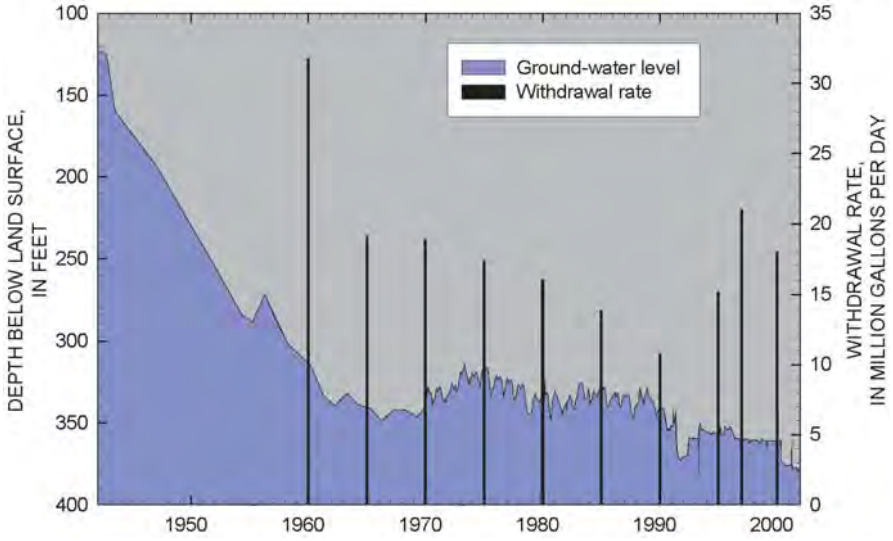
During December 1999 ceremonies celebrating project completion, sixth grade "Water Watcher" Nolan Mock thanked the two companies, noting that it was his generation that would benefit most from the companies' efforts.

Also, Lion Oil, El Dorado Chemical, and Chemtura have invested over $1.8 million in on-site infrastructure to convert from Sparta aquifer to clarified Ouachita River water, thus preserving the jobs they currently provide, and ensuring an abundant water supply for additional jobs in the future.

On December 20, 2005, ANRC Executive Director Randy Young turned on the

The Union County Water Conservation Board completed the Ouachita River Alternative Water Supply Project pipeline to industry in September 2004. In December 2004, Lion Oil Refinery became the first industrial customer to totally convert from Sparta to river water. In February 2005, El Dorado Chemical followed suit. Chemtura (formerly Great Lakes Chemical) Central Plant converted 1 mgd from Sparta to surface water in December 2005. In early 2003 Union Power Station, now owned by Tampa based Entegra Power Group, completed $52 million worth of infrastructure -- intake at the river, clarification facility, and pipeline from the Ouachita River to its environmentally friendly, natural gas fired 2205 MW merchant power plant five miles south of the river. In May 2003 Union Power sold the infrastructure to Union County for incremental costs of over sizing only -- $14 million -- making its contribution the largest single investment in the project, and a gift of historic proportions. Through conservation fees and a temporary 1¢ sales tax, Union County citizens and businesses -- including Union Power -- funded 90% of project costs, with federal and state dollars funding the balance. *See Page 6 for funding breakdown.*





Union County groundwater withdrawal rates 1960 through 2000, and water depth below land surface 1940 through 2003. Post WWII industrial growth accounts for the dramatic decline in water levels beginning in the early 1940s.

ceremonial tap to industries, noting that ANRC had "seen the water levels in the Sparta Formation rise for the first time in almost 100 years." *See inset photo and story Page 8.*

CONCLUSION

There is no aquifer recovery project in the state, the region, and perhaps the country, comparable to the Ouachita River Alternative Water Supply Project.

The Union County Water Conservation Board; the citizens it serves; and local, state and national public and private funding and resource partners have created a national model for practical application of public policy and natural resource conservation that strengthens Union County's economic future.

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~

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Mission Statement: The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Formation Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water pursuant to the authority and responsibility granted by the State of Arkansas.

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Additional Proposal Information

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PromisesFulFilled NT 12.21.05 TurnOnTap.pdf

‘Promises fulfilled’

Board celebrates completion of Ouachita River Alternative Water Supply Project, early debt payoff

by TONI WALTHALL • *El Dorado News-Times* • 21 December 2005 Page 1

The Union County Water Conservation Board on Tuesday celebrated the completion of the Ouachita River Alternative Water Supply Project and early payoff of $23 million in debt associated with it.

Citing the time-honored tradition of burning mortgages, Board Chairman Robert Reynolds ceremoniously drowned a mock document representing the debt, which the county paid off three and a half years early.

The project, which included a nearly 26-mile pipeline, had an estimated total cost of $65 million from start to finish, of which 90 percent was funded locally, eight percent from federal funds and two percent in state funds.

Turnin’ on the Tap! ***December 20, 2005.*** Robert Reynolds, UCWCB President; Randy Young, Executive Director Arkansas Natural Resources Commission; Joel Holt, Chief Plant Engineer at Union Power Station (Entegra Power Group); and the plant managers from the three major industries that have converted from Sparta to river water during the past year: Greg Withrow, El Dorado Chemical (February 2005); Ed Mills, Chemtura (partial conversion 1 mgd October 2005); and Steve Cousins, Lion Oil (December 2004), turn on the ceremonial tap for the Union County project that provides Ouachita River water as an alternative source to the three large industries and major Union County employers.

The project includes the Charles Thomas intake structure, the Sherrel Johnson Water Treatment Facility, storage tanks and miles of pipeline.

Local industry representatives - Steve Cousins of Lion Oil, Greg Withrow of El Dorado Chemical, Ed Mills of Chemtura, and Joel Holt of Union Power Station (Entegra Power Group) – turned the tap of a miniaturized replica of the water pipeline that carries Ouachita River water to four local industries.

When the United States Geological Survey declared Union County among the critical groundwater areas, its citizens and legislators worked to create the state's first county-wide water conservation board to address the problem. Lion Oil and Great Lakes Chemical (now known as Chemtura) were the first to act, starting a water sharing program which cut Sparta Aquifer water consumption by 10 percent.

Voluntarily passing a 1-cent sales tax in 2002, Union County citizens joined industries in conservation efforts that resulted in relieving reliance on the depleting Sparta Aquifer by approximately 70 percent.

"We've seen the water levels in the Sparta Formation rise for the first time in almost 100 years," said Randy Young, executive director of the Arkansas Natural Resources Commission (ANRC). "Looking at a five-year period throughout this area, the rise is 8.2 feet. Here in Union County the water level has risen 10.3 feet."

Young said the conservation project is a phenomenal feat that not only has great importance for South Arkansas, but nationally as well.

Arkansas was one of two states to be invited to Washington, D.C., to give a presentation to Congress.

"They chose Arkansas, in large part, because of this Union County project," he said.

Jim Foil, senior vice president of Burns and McDonnell Engineers, called the project an uncommon achievement that was remarkable for the cooperation between Union County citizens, government and industry.

Dr. Corbet Lamkin, commissioner for the ANRC, summed it up in two words: "Promises fulfilled."

He thanked the citizens of Union County for "taking a lead role in proving that problems can be solved through local leadership."

On behalf of the water board's family, Paula Reynolds spoke about the countless hours the individuals devoted to resolving critical water issues over the past seven years.

"It's like the space shuttle countdown. ... there's no turning back. They committed to it whole-

heartedly," she said, holding up a map of Union County depicting the track of the completed project. "This has been important to all of us and will continue to be important to our children, and our children's children."
Robert Reynolds recognized former sheriff A. Pieroni for his good example of service. Reynolds said Pieroni paved the way of trust throughout the county by successfully passing a temporary tax to fund construction of a new jail, which was constructed in the 90's.

Pieroni was presented a plaque with three pennies: One dated 1999, the year legislation was passed and the water board was created; 2002, to commemorate the year voters passed the temporary 1-cent sales tax for the project; and 2005 to represent the year industries tied onto the pipeline, the project was completed and the debt was paid off.

"Sometimes you get the impression that our country and society is so divided that we can't get anything done. Then a problem comes along that seems insurmountable, like the water disappearing beneath our very feet," Cousins said. "Local, state, federal government worked together. Industries work together and everyday citizens in Union County vote to tax themselves sacrificially, just to save a very precious resource for our children. That's a wonderful thing to be a part of."

Phillip Hays, senior hydrologist with the USGS, told the group that the Union County success story is one of his favorites to share with other groups.

Emon Mahony, former commissioner of the Economic Development of Arkansas Fund, praised the "uncommon" cooperative effort, stating, "voluntarily levying a water conservation fee is totally uncommon. Unheard of."

Union County received an early Christmas present from the Environmental Protection Agency in the form of a nearly $1 million check. In response to questions by Wendell Holden, Patricia Herring of Congressman Mike Ross' office announced that the grant money was delivered Tuesday.

Though the money was awarded nearly three years ago, the UCWCB continually ran into red tape. The board hired Sherrel Johnson as a grant consultant who worked tirelessly with government agencies to resolve the problems. Johnson has been involved with the water conservation project since its conception. She was honored with a standing ovation.

After the meeting, Reynolds said the water board will continue to meet quarterly.

"Though we are no longer raising money, we still have leadership responsibilities to keep it maintained," he said. "If any portion of the pipeline needs repair or is extended, we need to see that through."

Additional Proposal Information

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RipRapPics.pdf

Photos by Vicksburg District, U.S. Army Corps of Engineers • December 3 - 7, 2004

Ouachita River Alternative Water Supply Bank Stabilization Project
December 2004

Union County, Arkansas

U.S.Army Corps of Engineers

Contractor: Luhr Brothers Inc of Columbia, Illinois

Funding provided by Union County taxpayers and with a $500,000 federal appropriation in the 2003 Water Resources Development Act.

Estimated total project cost: $632,300

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Additional Proposal Information

(This is as uploaded, a blank page will show if nothing was submitted)

SalesTaxVoteFactSheet.pdf

ATTACHMENT "A"

Polling Sites – February 19th Special Election

# machines	Precinct Name	Votes For	Votes Against	Voting Location	Percent For	Percent Against
3	Early Voting + ABSENT	1085	355	Courthouse – County Clerk's Office	75	25
1	Mt. Holly	24	37	American Legion Hut	39	61
1	Three Creeks, Wesson & New Hope	45	60	New Hope Water Assoc. Bldg. (Three Creeks Water Bldg.)	43	57
2	El Dorado Precinct 1, Boxes 1 –5	285	111	Fairgrounds	72	28
1	El Dorado Precinct 2, Boxes 1 & 2	241	79	Hillsboro Street Church of Christ	75	25
1	El Dorado Precinct 3, Boxes 1 & 2	95	90	Rogers School	51	49
2	El Dorado Precinct 4, Boxes 1 – 4	306	160	College Avenue Church of Christ	66	34
1	El Dorado Country Box 1 & 7, and Hibanks	63	81	So. Ark. Comm. College East	44	56
1	El Dorado Country Boxes 2 & 5	64	47	Mt. Union Church	58	42
1	El Dorado Country Box 3	176	108	Parkers Chapel School Gym	62	38
1	El Dorado Country Box 4 & 6, and Wooley's Store	156	92	Wyatt Baptist Church	63	37
1	Calion City & Country	43	93	Calion City Hall	32	68
1	Union	44	87	Union School	34	66
1	New Union, New London,	26	73		26	74
	Aurelle 1 and Aurelle 2	8	5	Strong City Hall	62	38
1	Junction City – City & Country & Caledonia	56	84	Jct City – City Hall	40	60
1	Urbana, Lawson & Mt. Zion	38	32	Lawson Fire Station	54	46
1	Huttig City & Country, and Felsenthal	18	62	Huttig Library	23	77
1	Strong City & Country, and Sandybend	50	110	Strong City Hall	31	69
1	Norphlet City & Country	98	102	Norphlet City Hall	49	51
1	Smackover Wards 1, 2 & 3	110	102	Smackover City Hall	52	48
1	Smackover Country & Lisbon	38	30	Smackover City Hall	56	44
		3069	2000		61	39

Casting the first votes in the February 2002 Special Election for a temporary 1¢ sales tax to fund the pipeline to industries. As Judge Edmonds noted during countywide public meetings leading up to the vote, "We're buying back our aquifer."

Robert Reynolds, Founding Pres. UCWCB 1999-2015; Volunteer Advisor 2015 to present

Bobby Edmonds, Union County Judge 1997-2010. "Water" was his top campaign issue.

Sherrel Johnson, Chamber Pres & CEO 1995-2000; UCWCB Grants & Special Proj. Mgr., 2004 – Present

Cindy Woolsey, Rural & Municipal Water Associations Admin. Asst. 1992 to Present; UCWCB Admin. Asst. 1999 to present

The 1¢ sales tax passed countywide by a 61-39 margin, 3069 For - 2000 Against. The tax was to sunset in seven (7) years, but through a combination of good luck, favorable financing, prudent fiscal management, and contractor availability and performance, the Board was able to pay off all debt in 3 ½ years. In December 2005, stakeholders drowned the mortgage and the sales tax was removed from the books 3 ½ years early. TOTAL COLLECTIONS - $21.8 Million

UNION COUNTY WATER CONSERVATION BOARD

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Vice President

Pete Parks
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Les Chandler
Wendell Holden
Charles Lovett
John T. Lowery, Jr.
Robert McKinnon
Curt Morrill
Bob Willett
Greg Withrow

Cindy Woolsey
Administrative Asst.

MISSION STATEMENT

"The guiding purpose and primary objective of the Union County Water Conservation Board is to conserve, protect, and maintain the Sparta Aquifer as a continuing source of high quality, potable water for current and future consumers by providing for affordable, alternate sources of fresh water, pursuant to the authority and responsibility granted by the State of Arkansas."

Adopted July 21, 1999

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Facsimile Cover Letter

PLEASE DELIVER THE FOLLOWING PAGES TO:

NAME: JUDGE EDMONDS JODIE MAHONY

ATTN:

FAX: 864-1902 863-0422

FROM: ROBERT REYNOLDS

RETURN FAX: 863-6331 PHONE 863-7234

DATE: 2-22-02 NUMBER OF PAGES 2

	Votes For	Votes Against	Percent For	Percent Against
INSIDE ELDO	927	440	68	32
OUTSIDE ELDO	2142	1560	58	42

EDMONDS' AND REYNOLDS' HOME PRECINCT HAD THE HIGHEST PERCENTAGE FOR 75%

Additional Proposal Information

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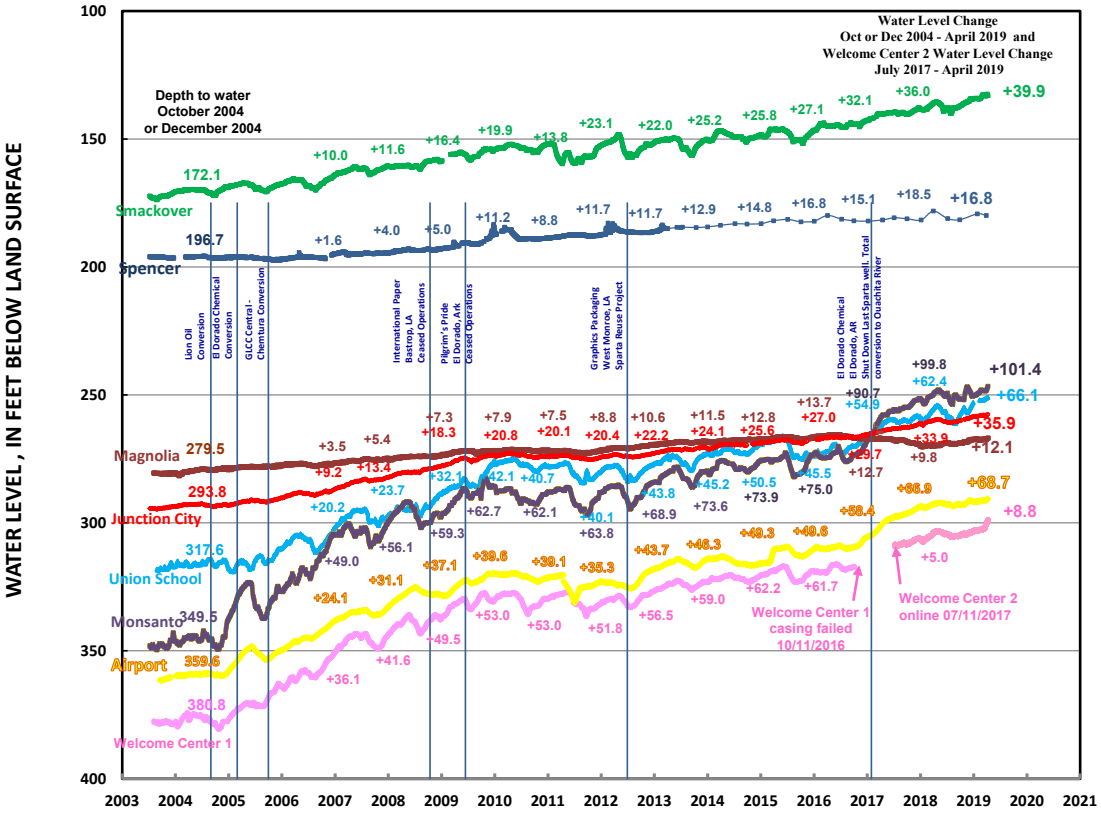
Sparta Change Graph 2004-19 RT.pdf


Water Level Change
Oct or Dec 2004 - April 2019 and
Welcome Center 2 Water Level Change
July 2017 - April 2019
Depth to water
October 2004
or December 2004
WATER LEVEL , IN FEET BELOW LAND SURFACE
Smackover
Spencer
Magnolia
Junction City
Union School
Monsanto
Airport
Welcome Center 1
Lion Oil Conversion
El Dorado Chemical Conversion
GLCC Central - Chemtura Conversion
International Paper Bastrop, LA Ceased Operations
Pilgrim's Pride El Dorado, Ark Ceased Operations
Graphics Packaging West Monroe, LA Sparta Reuse Project
El Dorado Chemical El Dorado, AR Shut Down Last Sparta well. Total conversion to Ouachita River
Welcome Center 1 casing failed 10/11/2016
Welcome Center 2 online 07/11/2017

Additional Proposal Information

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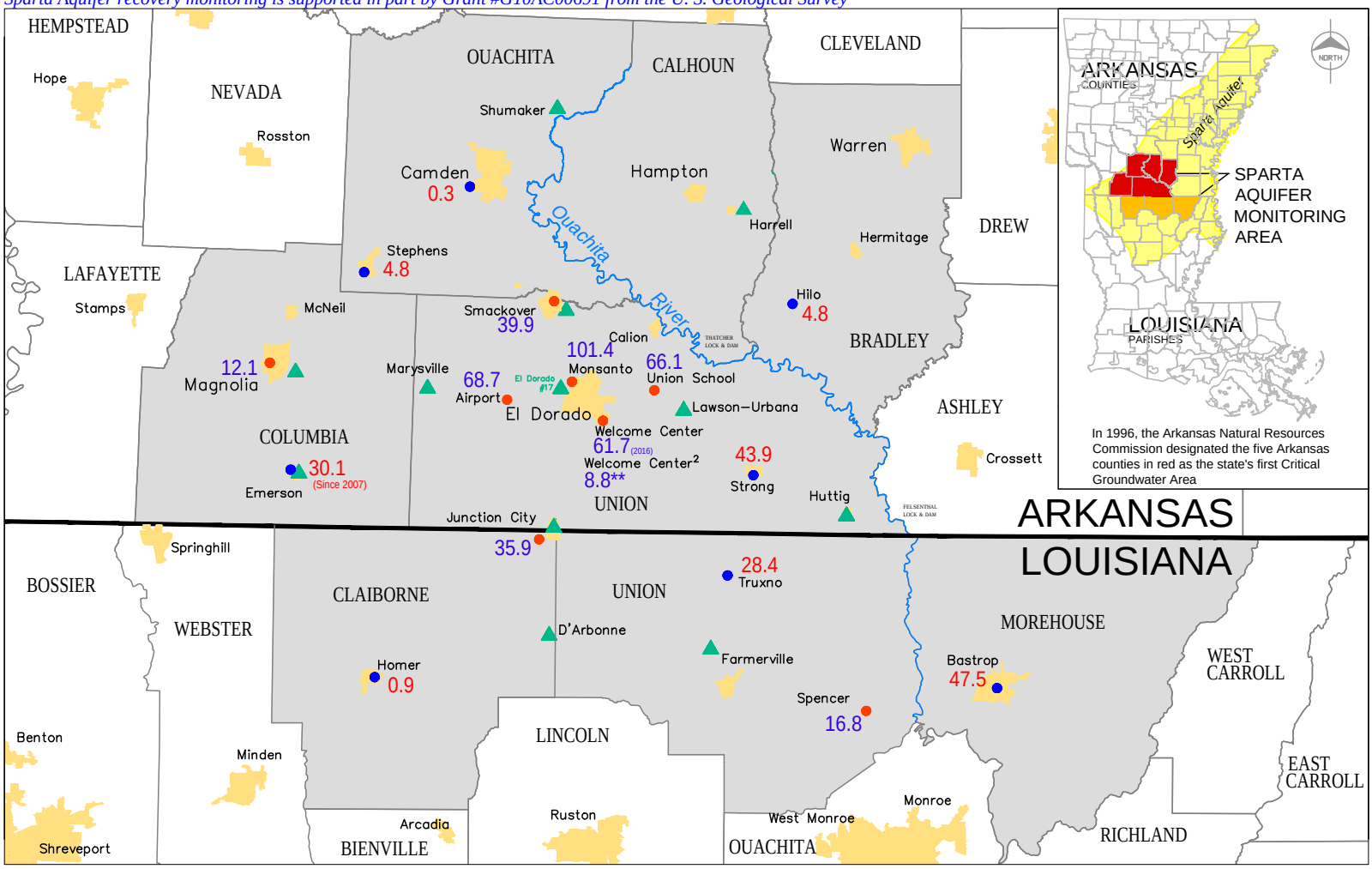
Sparta Change Map RT & ADL 2019.pdf

South Arkansas Sparta Aquifer Recovery Initiative - *Monitoring Well Network*

Sparta Aquifer recovery monitoring is supported in part by Grant #G10AC00691 from the U. S. Geological Survey



- AUTOMATED DATA LOGGER MONITORING WELL
- USGS WATER QUALITY MONITORING WELL
- USGS REAL-TIME MONITORING WELL

101.4 RISE IN SPARTA AQUIFER GROUNDWATER LEVEL IN FEET BETWEEN OCTOBER 2004* AND APRIL 2019, USGS REAL-TIME WELLS

47.5 RISE IN SPARTA AQUIFER GROUNDWATER LEVEL IN FEET SINCE DECEMBER 2004*, UCCD ADL WELLS

0 10 20
SCALE IN MILES

* THREE MAJOR UNION COUNTY (ARKANSAS) INDUSTRIES BEGAN CONVERSION GROUNDWATER TO SURFACE WATER OCTOBER 2004 **ORIGINAL WELL CASING FAILED 2016. NEW WELL COMPLETED JUNE 2017.

UNION COUNTY WATER CONSERVATION BOARD • 441 W Cedar • El Dorado, Arkansas 71730 • 870 814-2871 • www.ucwcb.org

April 2019

Additional Proposal Information

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Thatcher At-A-Glance 8.8.19.pdf

<u>Thatcher Lock & Dam</u> – *at a glance*

Staffed 5 a.m. – 3 p.m. M-F

Staffing hours reduction begun several years ago; 24/7 until 2014(?)

Pool level 77.5' controlled remotely from Vicksburg

Hinged crest gate leak dam side "isn't much" - *Temple*

If breaks completely, won't hold 77.5' pool. There's a 71' concrete apron that would hold pool at 71', but the Board's infrastructure was designed for 77' depth.

SOURCES: Lock Master Temple & Crew, Skip Martin, Tim Rodgers. *See more detailed 11.1.17 Field Trip Report in 8.8.19 packet*

NEXT STOP: Board's Ouachita River Infrastructure

Intake Elevations

Intake Platform - 106'

General Ground Elevation - 80'

Intake Diameter 48"

Top of Intake Sump Basin – 61' – *top of intake pipe opening*

Bottom of Intake Sump Basin - 57' – *bottom of intake pipe opening*

Additional Proposal Information

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Thatcher Field Trip Report Updated 4.25.18.pdf

Thatcher Lock & Dam Field Trip

Wednesday 11.1.17 – Derek Bell, Sherrel Johnson, Robert Reynolds
Guides: Garland "Winky" Temple, Lock Master & His Team

Objectives:

- *To "lay eyes" on Thatcher in order to better understand its mechanical operation, function, and the ongoing leak and its implications*
- *To establish direct lines of communication among Water Treatment Facility operators, the Board, the Corps, and Thatcher*

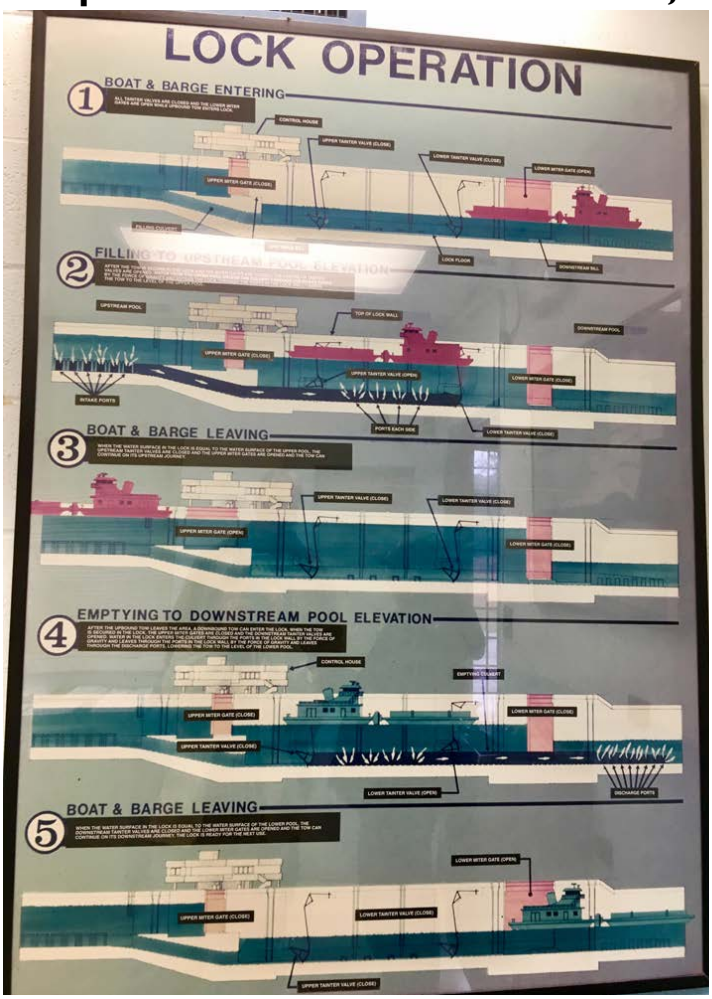
Catalyst: *In October, ORVA Exec. Dir. Rayford Wilbanks asked me about the Board's infrastructure elevations. October is the annual historic "low flow month". The Ouachita River at Thatcher was just above 75'. The specified pool depth is 77' for navigation. In a planned drawdown, the Corps had lowered Felsenthal Refuge water level from 65' to 64', and there wasn't enough upriver pool to get Felsenthal back to 65'. The upper Ouachita lakes were too low to release additional water. It's the first time since the Board began delivering Ouachita River water that the Corps has asked the elevation question, so I asked multiple questions, spoke directly with Tim Rodgers in Vicksburg, and worked with Lock Master Temple to schedule a Thatcher field trip. It was raining November 1, and continued rains restored Ouachita River water levels and brought the pool above Thatcher to 77'+. Thatcher is staffed 5 a.m.–3 p.m. M-F, otherwise Vicksburg controls water levels remotely.* http://water.weather.gov/ahps2/hydrograph.php?gage=cala4&wfo=lzk

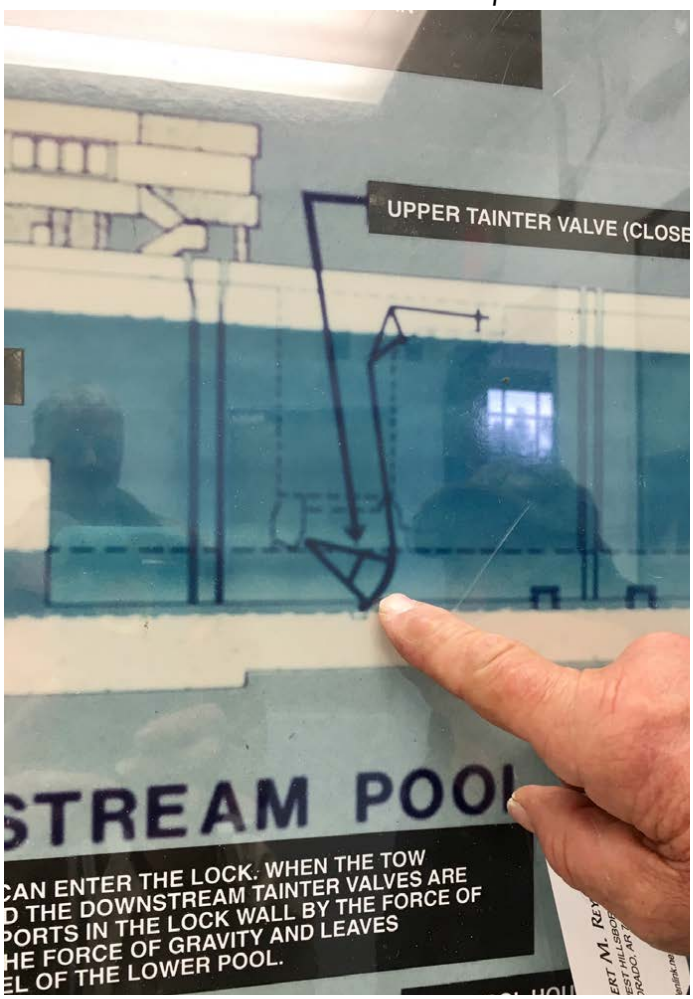
It's not the Tainter Gate (bottom of the lock side w/red & blue gates pictured) that's leaking, it's the Hinged Crest Gate (top of the dam, right side of pic). The Gate is in the "closed" position.

We've been reporting for years that the Tainter Gate is leaking, but it's not. The Hinged Crest Gate (at the top of the dam on the high water passage side) has been leaking for several years. Per Lock Master Garland Temple, the Tainter Valves have had some rust and erosion in years past but have been repaired/maintained.

LEFT: Looking upriver from Union County side.

Temple identifies Tainter Gate location; Lock Side – *see #3 on LOCK OPERATION poster*





Hinged Crest Gate Function, Leak, Implications, Future Repair

The **Hinged Crest Gate** is the highwater navigation pass side of Thatcher (right side of pic) when the water level is high enough for traffic to pass through w/o using the lock. The locks are on the left side. This shot is from downriver.

Leak: The "waterfall" pictured is the leak. "It's not much" according to Temple, and the dam was holding pool at 75.7' on November 1 -- behind the dam. Pool holding depth 77.5' - http://water.weather.gov/ahps2/hydrograph.php?gage=cala4&wfo=lzk

Problem: Hinged Crest Gate is leaking; it doesn't seal properly. It is designed to open and close to control/allow flow depending on water levels.

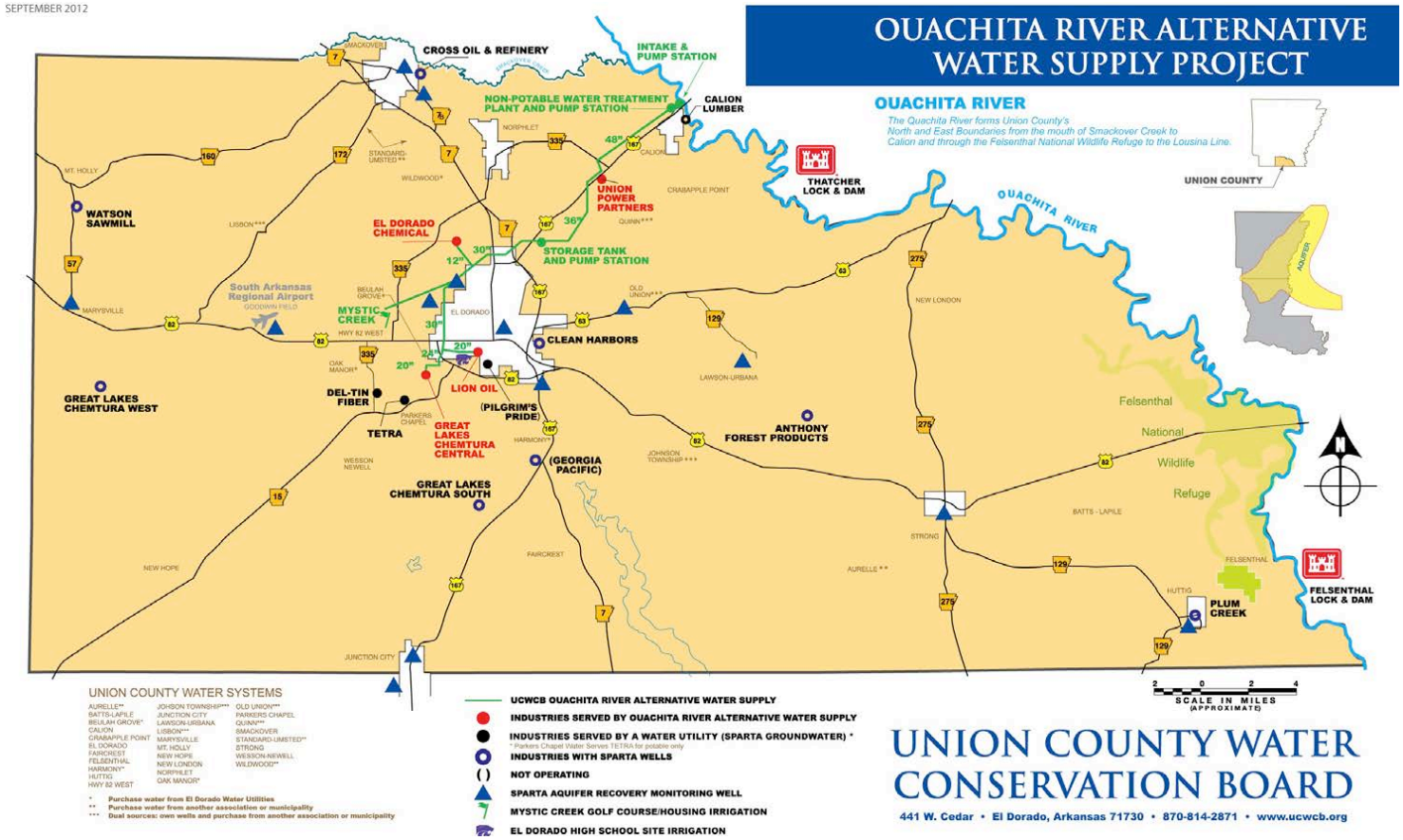
What if the Gate breaks completely: It won't hold pool. There is, however, a concrete "apron" at 71' that would hold pool at 71'.

Repair: The Gate has to be "dewatered" for repair, which will not affect pool level. Estimated repair cost $1-1.5 million. Earliest possible repair funding FY2019. As of 4.25.18, repair added to Priority Maintenance Committee (POM) list to prioritize – *per Skip Martin.*

UCWCB Ouachita River Infrastructure Intake Elevations

Intake Platform - 106'
General Ground Elevation - 80'
Intake Diameter 48"
Top of Intake Sump Basin – 61' – *top of intake pipe opening; w/pool at 75' that's 14' above top of intake*
Bottom of Intake Sump Basin - 57' – *bottom of intake pipe opening; w/pool at 75' that's 18' above bottom of intake*

UCWCB Ouachita River Infrastructure – *Note Thatcher & Felsenthal Locations*



Additional Proposal Information

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ThatcherHingedCrestGateLeak.pdf

Thatcher
Lock & Dam
November 2017

Hinged Crest
Gate Leak

Lockmaster
Garland "Winky"
Temple

If the Hinged Crest Gate fails, the dam won't hold pool at 77'. Per Lock Master Temple, there's a concrete apron below the gate that would hold pool at 71', but I've not confirmed with operations how long it would hold pool, nor asked if there are circumstances under which it would NOT hold pool at 71'. However, **the Board's 65mgd Intake at Calion is designed based on 77' minimum depth.** Per Skip Martin early 2018, cost to repair the hinged crest gate leak would be about $1M and the earliest possible repair date FY19. However, that was before Columbia suffered its failures and had subsequent costly repairs. So we don't know today's estimated cost nor estimated repair timeline. – *8.25.19, Sherrel Johnson, Grants & Proj. Mgr. sherrelj@suddenlink.net, 870-314-0749*

Additional Proposal Information

(This is as uploaded, a blank page will show if nothing was submitted)

WaterLevelChangeRTWellsOnePage2004-2019.pdf

Water level change in 8 USGS real-time wells since Oct 2004 (rise in feet) – April 2019

	Oct 2006	*April 2009	April 2010	*April 2012	*April 2014	April 2016	April 2017	April 2018	April 2019
Smackover	4.0	16.4	19.9	23.1	25.2	27.1	32.1	36.0	39.9
Spencer (LA)	-0.30	5.0	11.2	11.7	12.9	16.8	15.1	18.5	16.8
Magnolia	1.9	7.3	7.9	8.8	11.5	13.7	12.7	9.8	12.1
Junction City (LA)	5.7	18.3	20.8	20.4	24.1	27.0	29.7	33.9	35.9
Union School	9.1	32.1	42.1	40.1	45.2	45.5	54.9	62.4	66.1
Monsanto	38.2	59.3	62.7	63.8	73.6	75.0	90.7	99.8	101.4
Airport	18.0	37.1	39.6	35.3	46.3	49.6	58.4	66.9	68.7
Welcome Center**	25.7	49.5	53.0	51.8	59.0	61.7	**	**5.0	**8.8

*April 2007, 2008, 2011, 2013, 2015 levels omitted temporarily for spacing purposes in order to update recent comparative change columns.
**Welcome Center Well failed Fall 2016 – 61.7'rise; new well completed June 2017 & groundwater level has risen 8.8' as of April 2019.

Additional Proposal Information

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WaterSupplyBasisOfDesign .pdf

BASIS OF DESIGN

UPP WATER SUPPLY PROJECT

Prepared by: E. E. Humes	Checked by: W. B. Smith (Atkins-Benham)	Approved By: Mike Reifel

1.0 INTRODUCTION

1.1 Purpose and Scope

The design basis manual is intended to provide design criteria and other pertinent project data to all team members. It provides the elements, such as codes, standards, design criteria and other design input requirements, that each engineer needs for the water supply system design.

1.2 Project Description

1.2.1 General

The UPP Water Supply Project (Project) involves the supply of industrial water from the Ouachita River to the new Union Power Partners (UPP) 2700-MW electric power generation station and future industrial users within the city of El Dorado, Arkansas. This is a joint development project between UPP and the Union County Water Conservation Board. UPP will build and Union County will own and operate. Initial system treatment capacity will be 32.5 MGD with a pumping capacity of 43.4 MGD. Ultimate system capacity will be 65 MGD (station plus other industrial users and potential potable water supply). Water requirements for the power plant average 17 MGD with a maximum of 22 MGD. The major components of the Project include the following:

- Intake Structure (includes the Intake Structure and Pump Platform at the Ouachita River as well as the Service Deck and Access Bridge).
- Water Clarification Facility.
- Pipelines (Water Supply line, Return line and Clarified Water Delivery Point Meter Station).

1.2.2 Intake Structure at the Ouachita River

Equipment includes trash racks, trash rack rake, stop logs, traveling water screens, three 400-hp vertical turbine pumps (two with variable-frequency drives and one with a constant speed drive), flow meter, pig launching capability, and building for storage, electrical, and chemical feed. The pump platform is constructed at the river edge of reinforced concrete on a 55-ft x 65-ft, pile-supported base. Space will be allocated for one future pump.

1.2.3 Service Deck and Access Bridge

The service deck is 87-ft x 87-ft and is located adjacent to the pump platform. The access bridge is 1,225-ft long. Both structures are elevated and rest on pile-supported bents. The bridge links the pump platform to dry land, providing access to the intake structure and support for the water supply pipeline, the return line and the electrical conduit. Vehicular access includes light trucks and rubber-tired cranes.

1.2.4 Water Clarification Facility

This facility will be located approximately ¾ mile from the Ouachita River and will be designed to reduce the total suspended solids (TSS) to a maximum of 20 mg/l. Other parameters to be considered based on the agreement between UPP and Union County, are total available chlorine to a maximum of 1.0 mg/l and iron to a maximum of 0.3 mg/l. Water quality information provided by Environmental Consulting and Technology (ECT) shows total residual chlorine from less than 0.05 mg/l to 0.15 mg/l for nine tests from August 1999 to April 2000. ECT reports that iron averaged 0.4 mg/l and ranged from 0.1 mg/l to 2.1 mg/l. Based on this information and the fact that no chlorine will be added as a part of the Water Clarification Facility, total available chlorine is not expected to exceed 1 mg/l. Iron in the Ouachita River is expected to be a part of the TSS that will be reduced in the Water Clarification Facility. Three one-third capacity trains are planned. Processes include flow splitting, chemical addition, rapid mix, flocculation, sedimentation and sludge lagoons. Treated water will be transferred to the power station via three 1500-hp vertical turbine pumps (two with variable-frequency drives and one with a constant speed drive). Space will be allocated for three future basins and one future pump. Three sludge lagoons will be constructed initially on available land next to the sedimentation basins with future lagoons constructed when needed. Ancillary facilities include a chemical / forklift storage building and control / electrical buildings.

1.2.5 Pipelines

The water pipelines will be designed for the ultimate capacity and will be approximately five miles long The water supply pipeline will be 48 inches in diameter from the Water Clarification Facility to a point where the pipeline leaves the power-line right-of-way. The pipeline reduces to 30 inches in diameter at this point, then crosses Highway 167 and ends at the power station battery limits. The water supply pipeline will be constructed of ductile iron pipe except for the pump platform and access bridge section, which will be steel. A 48-inch blind flange will be installed as a future connection point for Union County. The return water pipeline will be 16 inches in diameter and constructed of polyethylene except for the access bridge section, which will be steel. The return water pipeline will be constructed from the power station battery limits to discharge structure at the Ouachita River. This discharge point is ¼ mile downstream from the intake structure. Both pipelines will be located within a common right-of-way. A Clarified Water Meter Station will be installed at the 30-inch water supply lateral to the power plant.

2.0 ABBREVIATIONS AND TERMINOLOGY

AASHTO American Association of State Highway and Transportation Officials

AWWA American Water Works Association

BOCA Building Officials and Code Administration

°F	degrees Fahrenheit
ft^3	cubic feet
ft	foot or feet
gpm	gallons per minute
GPD	gallons per day
hp	horsepower
ID	internal diameter
in.	inch
kV	kilovolt
lbs	pound
lf	linear feet
MAOP	Maximum Allowable Operating Pressure
MGD	million gallons per day
mg/l	milligram per liter
MW	megawatt
NGVD	National Geodetic Vertical Datum
psig	pounds per square inch, gauge
SCADA	supervisory control and data acquisition
TBD	to be determined
TSS	total suspended solids
VFD	variable frequency drive
WT	Wall thickness of line pipe

3.0 DESIGN CRITERIA FOR RAW WATER PUMPING FACILITY

3.1 Design Parameters

3.1.1 Intake Structure Capacity:

Initial – 43.4 MGD (30,100 gpm) pumping capacity (65 MGD structure)

Ultimate – 65 MGD (45,100 gpm)

3.1.2 Fluid Source: Ouachita River

3.1.3 Normal (also minimum) River Level: Elev. 77 ft NGVD (the river is normally maintained at this elevation for navigation purposes).

3.1.4 Fluid Temperature: 33° to 88°F

3.1.5 Soils: Soil and Foundation Investigation, Raw Water Intake Structure and Pipeline, Calion Arkansas, Grubbs, Hoskyn, Barton & Wyatt, Inc., February 2000

3.1.6 Top of Pump Platform – Elev. 106 feet

3.2 Design Codes and Standards

Arkansas Department of Health standards for drinking water systems (to permit future operation as a raw water supply to a future raw water treatment facility for drinking water)

Earthquake Zone: Design will be based on BOCA Code. Av – 0.05 and Aa – 0.05

Wind Load: Design will be based on BOCA Code. 70 mph

Bridge Loading: AASHTO Bridge Design Specifications, H-20 Loading

Water Levels:

Normal Pool – Elev. 77 NGVD

100-Year Flood – Elev. 99.5 NGVD

Hydraulic Institute Standards, latest edition

3.3 Pumping Chambers

Pumping Chambers – two, each with space and divider wall for two pumps, to allow one half of the intake to be dewatered for maintenance while the other half remains in operation (will not deliver 65 MGD with one pumping chamber out of service).

3.4 Pumps

Initial – three (two operating and one standby), 400 hp, vertical turbine (two with VFD, one constant speed and each pump sized to deliver 21.7 MGD with three pumps operating).

Ultimate – four, 400 hp, vertical turbine

3.5 Trash Racks

Quantity - Two total, one for each pumping chamber

Incline – 10° from vertical

Clear Opening – 3"

Additional Proposal Information

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Westerman LtrSupport7001Proposal 6.21.19.pdf

BRUCE WESTERMAN
4TH DISTRICT, ARKANSAS

COMMITTEE ON
NATURAL RESOURCES

COMMITTEE ON TRANSPORTATION
AND INFRASTRUCTURE

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http://westerman.house.gov

June 21, 2019

Vicksburg District
U.S. Army Corps of Engineers
4155 Clay Street
Vicksburg, MS 39183

I write to express my support for the Union County Water Conservation Board's (UCWCB) 7001 proposal to add Water Supply as an authorized purpose of the Ouachita and Black River Navigation System.

In 1997, the Sparta Aquifer groundwater levels in Union County were declining as much as 7 feet per year, and Union County Water Conservation District was using 21 million gallons per day (mgd) of Sparta groundwater as its only source of residential and industrial water. Due to the lasting harm this was causing the aquifer, the UCWCB began using the Ouachita River Alternative Water Supply's lightly treated river water and delivering it to three major industrial users.

These conservation efforts by the UCWB have had a significant impact on the Sparta Aquifer and the surrounding areas. Union County currently uses eight or less mgd of groundwater from the Sparta Aquifer for potable use only and uses an average of fifteen mgd of lightly treated Ouachita River water for industrial use and irrigation. In April of 2014, the water levels of the Sparta Aquifer in one monitoring well rose 101.4 feet. The aquifer's recovery and Union County's present abundance of ground and surface water are made possible by the pool of water above Thatcher Lock & Dam on the Ouachita River, near Calion, Arkansas. Designating the water supply as a function of the river system would guarantee Union County's viability and growth potential for decades to come.

It is of the utmost importance to support county efforts like UCWCB's project to aid in water conservation. By adding the designation of Water Supply as a project purpose for the Ouachita and Black River Navigation System, we can all enjoy the benefits of a well-maintained water system.

Thank you for your full and fair consideration of this application. I look forward to your decision. Please apprise me of its progress by contacting Melinda Boyer in my El Dorado office at (870) 864-8946 or at melinda.m.boyer@mail.house.gov

Sincerely,

Bruce Westerman

Bruce Westerman
United States Congressman
Arkansas' Fourth District

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10. ADDITIONAL DOCUMENTS CONTENTS

Union County Water Conservation Board 7001 Proposal – Add Water Supply as Project Purpose

1997 and Today Comparison – *Sparta water usage, authority, saltwater intrusion, infrastructure*

Act 1050 of 1999 – *Enabling legislation, Critical Groundwater Conservation Board*

Amendment, Act 1774 of 2005

Amendment, Act Act 632 of 2017

ANRC Allocation Plan, Ken Brazil, August 2, 2000

ANRC ASWCC Resolution 2003

ANRC Critical Groundwater Areas Map

ANRC Non-Riparian Permit August 4, 2000

AR-LA D'Arcy Response to Joint Letter October 21, 2014

AR-LA Joint Letter to D'Arcy April 4, 2014

Burns & McDonnell, "Sparta Aquifer is Making a Comeback", Benchmark, 2010 No. 2

Comments Federal Register, March 7, 2018

Conservation Fee 24¢ per 1000 Gal Sparta Water Pumped Total Collections 1999-2008

Customer Cost of Water

Department of Interior Cooperative Conservation Award, April 2008

El Dorado Education Foundation Water Related Teacher Grants

Entergy Environmental Stewardship Award Application Letter – $25,000 2003

Funding Partners - $65 Million Infrastructure

Infrastructure Ownership Statement for Congressman Westerman - August 9, 2019

Intake Ouachita at Calion, Aerial – *Ouachita Black Authorizing Citation*

MRC Comments April 18, 2018 – *Sample; we've made similar comments at multiple MRC hearings*

MRC Executive Summary 2016, 200 Year Vision, Slide 62, 4th bullet - *". . . drink from any river, stream, or **aquifer**"; similar slides appeared in multiple Corps presentations over the years*

MRC Presentation, August 21, 2019

NRCS "P3 – Building for Resiliency, Not Recovery", Poster 74th SWCS International Annual Conference, July 28-31, 2019 - Pittsburgh

Project Description 2006

"Promises Fulfilled – Turnin' on the Tap" *El Dorado News Times,* December 21, 2005

Rip Rap, Col. Clapp Signs Corps Agreement, *El Dorado News Times* January 10, 2004

Rip Rap Pics, USACOE Bank Stabilization, Ouachita River Intake, December 2004

Sales Tax Vote February 2002 – *1¢ temp countywide approved for 7 yrs., but came off books 3 ½ yrs. Early; total collections $21.8 million*

Sparta Change Graph 8 USGS Real-Time Wells 2004-2019

Sparta Change Map, South Arkansas/North Louisiana 28-Well Monitoring Network

Sparta Water Level Change Table 2006 – 2019

Thatcher At-A-Glance

Thatcher Field Trip November 1, 2017

Thatcher Leak Montage

USACOE Civil Works “Value to the Nation: Water Supply”

Water Supply Infrastructure Design Basis – 77’ Minimum Pool Depth

Westerman Letter of Support