

## Application for Federal Assistance SF-424

\* 1. Type of Submission:

- ☐ Preapplication  
☒ Application  
☐ Changed/Corrected Application

\* 2. Type of Application:

- ☒ New  
☐ Continuation  
☐ Revision

\* If Revision, select appropriate letter(s):

\* Other (Specify):

\* 3. Date Received:

06/25/2015

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

\* a. Legal Name:

The Chickasaw Nation

\* b. Employer/Taxpayer Identification Number (EIN/TIN):

731374986

\* c. Organizational DUNS:

0708483610000

d. Address:

\* Street1:

520 E Arlington

Street2:

Box 1548

\* City:

Ada

County/Parish:

\* State:

OK: Oklahoma

Province:

\* Country:

USA: UNITED STATES

\* Zip / Postal Code:

74821-1548

e. Organizational Unit:

Department Name:

Commerce

Division Name:

Environmental Health & Safety

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

\* First Name:

Melissa

Middle Name:

\* Last Name:

Edgar

Suffix:

Title:

Special Assistant II

Organizational Affiliation:

\* Telephone Number:

580-559-0963

Fax Number:

580-272-1252

\* Email:

Melissa.Edgar@chickasaw.net

## Application for Federal Assistance SF-424

### \* 9. Type of Applicant 1: Select Applicant Type:

I: Indian/Native American Tribal Government (Federally Recognized)

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

\* Other (specify):

### \* 10. Name of Federal Agency:

Bureau of Reclamation

### 11. Catalog of Federal Domestic Assistance Number:

15.514

CFDA Title:

Reclamation States Emergency Drought Relief

### \* 12. Funding Opportunity Number:

R15AS00047

\* Title:

WaterSMART: Drought Contingency Planning Grants for Fiscal Year 2015

### 13. Competition Identification Number:

Title:

### 14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

### \* 15. Descriptive Title of Applicant's Project:

A Regional Drought Contingency Plan for the Arbuckle Simpson Aquifer Region

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

**Application for Federal Assistance SF-424****16. Congressional Districts Of:**

\* a. Applicant

2, 4

\* b. Program/Project

2, 4

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

**17. Proposed Project:**

\* a. Start Date:

10/01/2015

\* b. End Date:

09/30/2017

**18. Estimated Funding (\$):**

* a. Federal	187,081.00
* b. Applicant	200,361.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	387,442.00

**\* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.☒ c. Program is not covered by E.O. 12372.**\* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**☐ Yes☒ No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

**21. \*By signing this application, I certify (1) to the statements contained in the list of certifications\*\* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances\*\* and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ \*\* I AGREE

\*\* The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**Authorized Representative:**

Prefix:

\* First Name:

Thomas

Middle Name:

\* Last Name:

John

Suffix:

\* Title:

Undersecretary of Community Services

\* Telephone Number:

580-559-0995

Fax Number:

580-272-1252

\* Email:

grants.admin@chickasaw.net

\* Signature of Authorized Representative:

Thomas John

\* Date Signed:

06/25/2015

# BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006  
Expiration Date: 06/30/2014

## SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. WatersSMART Drought Contingency Planning		\$	\$	187,081.00	200,361.00	\$ 387,442.00
2.						
3.						
4.						
5. Totals		\$	\$	187,081.00	200,361.00	\$ 387,442.00

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### SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	WaterSMART Drought Contingency Planning	N/A			
<b>a. Personnel</b>	\$ 194,960.00	\$ 23,800.00	\$	\$	\$ 218,760.00
<b>b. Fringe Benefits</b>					
<b>c. Travel</b>	1,801.00	3,840.00			5,641.00
<b>d. Equipment</b>					
<b>e. Supplies</b>					
<b>f. Contractual</b>	0.00	159,441.00			159,441.00
<b>g. Construction</b>					
<b>h. Other</b>	3,600.00				3,600.00
<b>i. Total Direct Charges (sum of 6a-6h)</b>	200,361.00	187,081.00			\$ 387,442.00
<b>j. Indirect Charges</b>					\$
<b>k. TOTALS (sum of 6i and 6j)</b>	\$ 200,361.00	\$ 187,081.00	\$	\$	\$ 387,442.00
<b>7. Program Income</b>	\$	\$	\$	\$	\$

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**SECTION C - NON-FEDERAL RESOURCES**

(a) Grant Program		(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8.	Non-Federal share	\$ 200,361.00	\$	\$	\$ 200,361.00
9.	Federal amount requested	187,081.00			187,081.00
10.					
11.					
12. TOTAL (sum of lines 8-11)		\$ 387,442.00	\$	\$	\$ 387,442.00

**SECTION D - FORECASTED CASH NEEDS**

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 140,000.00	\$ 35,000.00	\$ 35,000.00	\$ 35,000.00	\$ 35,000.00
14. Non-Federal	\$ 140,000.00	35,000.00	35,000.00	35,000.00	35,000.00
15. TOTAL (sum of lines 13 and 14)	\$ 280,000.00	\$ 70,000.00	\$ 70,000.00	\$ 70,000.00	\$ 70,000.00

**SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT**

(a) Grant Program		FUTURE FUNDING PERIODS (YEARS)			
		(b)First	(c) Second	(d) Third	(e) Fourth
16.	Federal	\$	\$ 47,081.00	\$	\$
17.	Non-federal		60,361.00		
18.					
19.					
20. TOTAL (sum of lines 16 - 19)		\$	\$ 107,442.00	\$	\$

**SECTION F - OTHER BUDGET INFORMATION**

21. Direct Charges:		22. Indirect Charges:	
23. Remarks:			

## ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

<b>SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL</b>	<b>TITLE</b>
Thomas John	Undersecretary of Community Services
<b>APPLICANT ORGANIZATION</b>	<b>DATE SUBMITTED</b>
The Chickasaw Nation	06/25/2015

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# DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

Approved by OMB

0348-0046

<b>1. * Type of Federal Action:</b> <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	<b>2. * Status of Federal Action:</b> <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	<b>3. * Report Type:</b> <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
<b>4. Name and Address of Reporting Entity:</b> <input checked="" type="checkbox"/> Prime <input type="checkbox"/> SubAwardee * Name <input type="text" value="The Chickasaw Nation"/> * Street 1 <input type="text" value="520 E Arlington"/> Street 2 <input type="text" value="Box 1548"/> * City <input type="text" value="Ada"/> State <input type="text" value="OK: Oklahoma"/> Zip <input type="text" value="74821-1548"/> Congressional District, if known: <input type="text" value="2,4"/>		
<b>5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:</b>   		
<b>6. * Federal Department/Agency:</b> <input type="text" value="Bureau of Reclamation"/>		<b>7. * Federal Program Name/Description:</b> <input type="text" value="Reclamation States Emergency Drought Relief"/> CFDA Number, if applicable: <input type="text" value="15.514"/>
<b>8. Federal Action Number, if known:</b> <input type="text"/>		<b>9. Award Amount, if known:</b> \$ <input type="text"/>
<b>10. a. Name and Address of Lobbying Registrant:</b> Prefix <input type="text"/> * First Name <input type="text" value="Pete"/> Middle Name <input type="text"/> * Last Name <input type="text" value="Kirkham"/> Suffix <input type="text"/> * Street 1 <input type="text" value="6929 Conservation Drive"/> Street 2 <input type="text"/> * City <input type="text" value="Springfield"/> State <input type="text" value="VA: Virginia"/> Zip <input type="text" value="22153"/>		
<b>b. Individual Performing Services</b> (including address if different from No. 10a) Prefix <input type="text"/> * First Name <input type="text" value="Pete"/> Middle Name <input type="text"/> * Last Name <input type="text" value="Kirkham"/> Suffix <input type="text"/> * Street 1 <input type="text" value="6929 Conservation Drive"/> Street 2 <input type="text"/> * City <input type="text" value="Springfield"/> State <input type="text" value="VA: Virginia"/> Zip <input type="text" value="22153"/>		
<b>11.</b> Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.  * Signature: <input type="text" value="Thomas John"/> * Name: Prefix <input type="text"/> * First Name <input type="text" value="Thomas"/> Middle Name <input type="text"/> * Last Name <input type="text" value="John"/> Suffix <input type="text"/> Title: <input type="text" value="Undersecretary of Community Services"/> Telephone No.: <input type="text" value="580-559-0995"/> Date: <input type="text" value="06/25/2015"/>		
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the Chickasaw Nation  
Headquarters

Bill Anoatubby, Governor  
Jefferson Keel, Lt. Governor

June 25, 2015

Ms. Irene M. Hoiby, Grants Management Specialist  
Bureau of Reclamation  
Financial Assistance Services  
Mail Code: 84-27852  
Post Office Box 25007  
Denver, CO 80225

Dear Ms. Hoiby:

Included with this letter is the Chickasaw Nation's proposal, "Developing a Regional Drought Contingency Plan for the Arbuckle Simpson Aquifer Region." The drought contingency plan involves the identification of key monitoring tools to predict the onset and severity of drought, vulnerability assessment, mitigation actions, response actions and operational framework.

The Chickasaw Nation is committed to developing a regional water plan that addresses the water quantity and quality within the Choctaw and Chickasaw jurisdictional boundaries. The Chickasaw Nation will provide an in-kind match of 25 percent or up to \$78,590.

The Chickasaw Nation appreciates the opportunity to work with the U.S. Bureau of Reclamation to develop a regional drought plan. If you have questions, please contact Mr. Wayne Kellogg, at (580) 272-5076 or [wayne.kellogg@chickasaw.net](mailto:wayne.kellogg@chickasaw.net).

Sincerely,

A handwritten signature in blue ink, which appears to read "Thomas John".

Thomas John, Undersecretary  
Community Services  
The Chickasaw Nation

TLJ: sm

Enclosure



# Choctaw Nation of Oklahoma

## *Tribal Policy*

P.O. Box 1210 • Durant, OK 74702-1210  
(580) 924-8280

Gary Batton  
*Chief*

Jack Austin, Jr.  
*Assistant Chief*

June 4, 2015

Ms. Irene M. Hoiby  
Bureau of Reclamation  
Financial Assistance Services  
Mail Code: 84-27852  
PO Box 25007  
Denver, CO 80225

Re: Letter of Commitment for Fiscal Year 2015 Water SMART Grant Application by the Chickasaw Nation for **"Developing a Regional Drought Contingency Plan for the Arbuckle Simpson Aquifer Region"**

Dear Ms. Hoiby:

The Choctaw Nation of Oklahoma is pleased to confirm that we will provide an in-kind contribution valued at approximately \$121,770 in support of the above-referenced waterSMART grant application submitted by the Chickasaw Nation. The Nation's contribution is our financial commitment of the in-kind services that are valued at \$200,360 in the proposed project budget.

The Choctaw Nation and the Chickasaw Nation are committed to developing a Regional Water Plan that addresses the water quantity and quality within the Choctaw and Chickasaw jurisdictional boundaries. Developing partnerships and working with water management entities and a range of regional stakeholders is necessary to achieve this goal. The Choctaw Nation is hopeful that our in-kind contribution commitment will help a secure favorable consideration of its grant application with the Chickasaw Nation by the U.S. Bureau of Reclamation.

The Choctaw Nation's point of contact for this application and any ensuing project is Tye Baker, Senior Water Resource Manager. Please feel free to contact Mr. Baker at (800) 522-6170 ext. 2243 or [tbaker@choctawnation.com](mailto:tbaker@choctawnation.com).

Sincerely,

A handwritten signature in black ink, appearing to read "B. McClain".

Brian McClain  
Executive Director  
Tribal Policy  
Choctaw Nation of Oklahoma  
cc: Tye Baker, P.O. Box 1210, Durant, Oklahoma 74702  
Wayne Kellogg, 1628 E Beverly, Ada, Oklahoma 74820

## Bureau of Reclamation

### Proposal for WaterSMART Drought Contingency Planning Grant for Fiscal Year 2015

**Project Title: A Regional Drought Contingency Plan for the Arbuckle Simpson Aquifer Region**

**Co-Applicants:** The Chickasaw Nation  
2020 Lonnie Abbott Blvd  
Ada, OK 74820  
- and -  
The Choctaw Nation of Oklahoma  
P.O. Box 1210  
Durant, Oklahoma 74702

<b>Project Managers:</b>	Wayne Kellogg, P.G., P.E. The Chickasaw Nation 1628 E. Beverly Ada, OK 74820 (580) 272-5076 office (580) 399-4821 cell (fax) 580-272-2035 wayne.kellogg@chickasaw.net	Tye Baker Senior Water Resource Manager The Choctaw Nation of Oklahoma P.O. Box 1210 Durant, Oklahoma 74702 (580) 924.8280 x 2243 office (580) 775.1307 cell tbaker@choctawnation.com
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#### **Description:**

Located in south-central Oklahoma, this study focuses on the water and water needs of communities that rely on the Arbuckle Simpson Aquifer for their principal or sole source of water. The Arbuckle Simpson Aquifer was severely impacted by the recent drought, and many of those relying on the water it contains and discharges were affected. Spanning a period of 18 months and involving all of the water suppliers across the region as well as other stakeholders, the project will include a vulnerability assessment and the development of mitigation actions, response actions, and an operational and administrative framework for implementation, monitoring and future adaptation of a regional Drought Contingency Plan. This project will be jointly managed by the Choctaw and Chickasaw Nations (Nations).

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# 1. Technical Proposal

## 1.1 Executive Summary

During wet and normal years the Arbuckle Simpson is a prolific aquifer, supplying water to dozens of communities and providing recreational opportunities that draw tourists from all over the United States. During times of drought, the vulnerability of these communities is exposed. The severity of the most recent drought, the expectation that future droughts will be worse, and the apparent long-term trend in decreasing groundwater levels and springflow has many people deeply concerned. The Choctaw and Chickasaw Nations would like to ensure the sustainability of the aquifer. To that end, the Nations have proposed working with stakeholders on the development of a regional Drought Contingency Plan that follows the outline proposed by the Bureau of Reclamation and identifies specific water actions that can be implemented at both the local and regional level, not only in response to imminent or ongoing drought conditions, but also in preparation for an anticipated drier climate in the future.

The Nations will appoint a Task Force that will meet regularly to discuss drought vulnerability and develop mitigation actions, response actions and an administrative framework for monitoring, coordinating on actions and a process for updating the plan. The project is expected to take 18 months to complete, but the process is expected to go on for many years thereafter.

## 1.2 Background

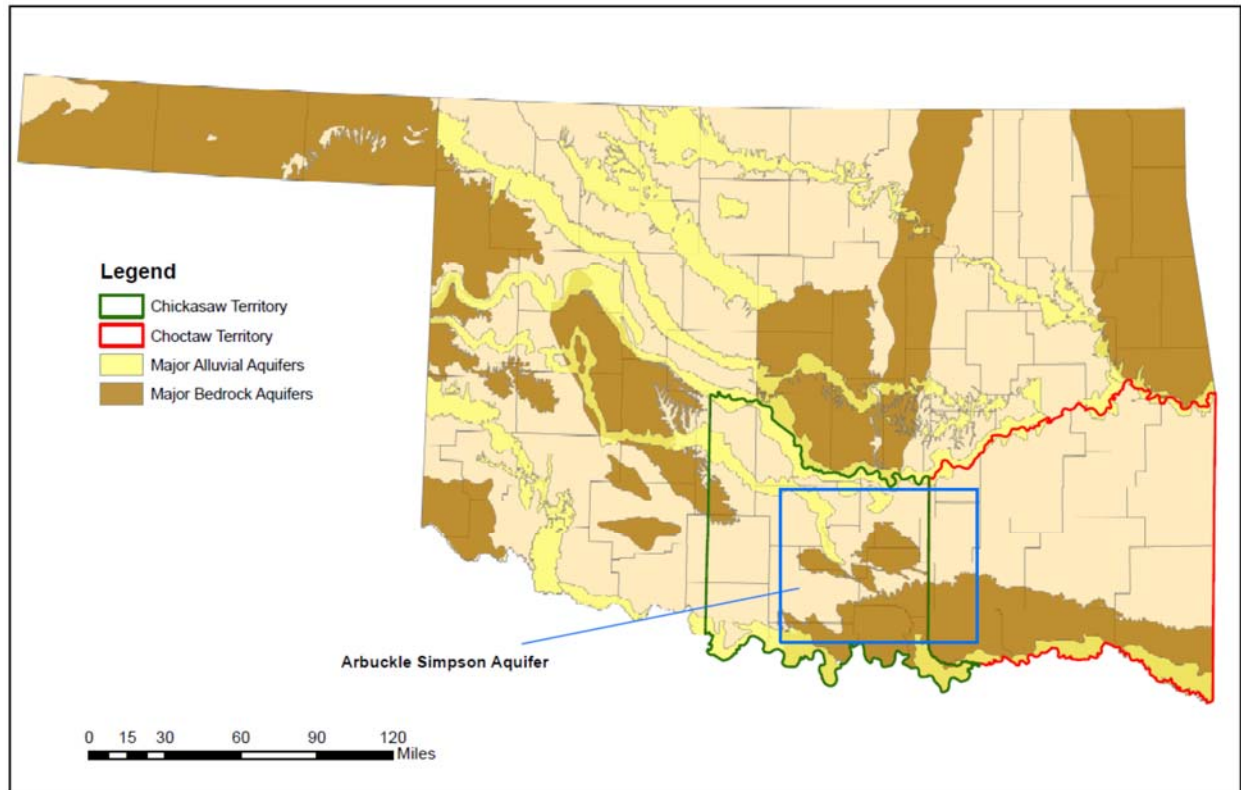
Pursuant to a series of federal-tribal treaties, federal statutes, and United States Supreme Court decisions that span more than 200 years, the Choctaw and Chickasaw Nations today occupy a homeland containing water resources that provide not only sustenance but also economic prosperity that extends well beyond their general 22-county region. To protect these crucial interests, the two Tribes pooled resources in 2011 to initiate development of a joint Choctaw-Chickasaw Regional Water Plan guided by seven “Essential” priorities of supreme importance to both Tribes as well as those residing in the Planning Region. They are Unity, Sustainability, Urban Needs, Town and Rural Needs, Tourism, Agriculture and Drought Defense.

The Plan itself is essential in that it directly benefits and supports a resource recognized by the Nations as integral to their continued economic, environmental and cultural vitality. In addition, recent challenges to the water resources of their shared homeland, if not properly addressed and appropriately managed, pose a real and direct threat to the Nations’ and the region’s long-term viability. In short, the Tribes view water planning as their legal, moral and fiduciary responsibility.

The Arbuckle Simpson Aquifer is located in south-central Oklahoma (see Figure 1). The aquifer covers approximately 500 square miles and lies in Carter, Johnston, Murray and Pontotoc counties, with a small portion in Coal County. Similar to the Edwards Aquifer in Texas, the Arbuckle Simpson is characterized by many springs and karst limestone features.

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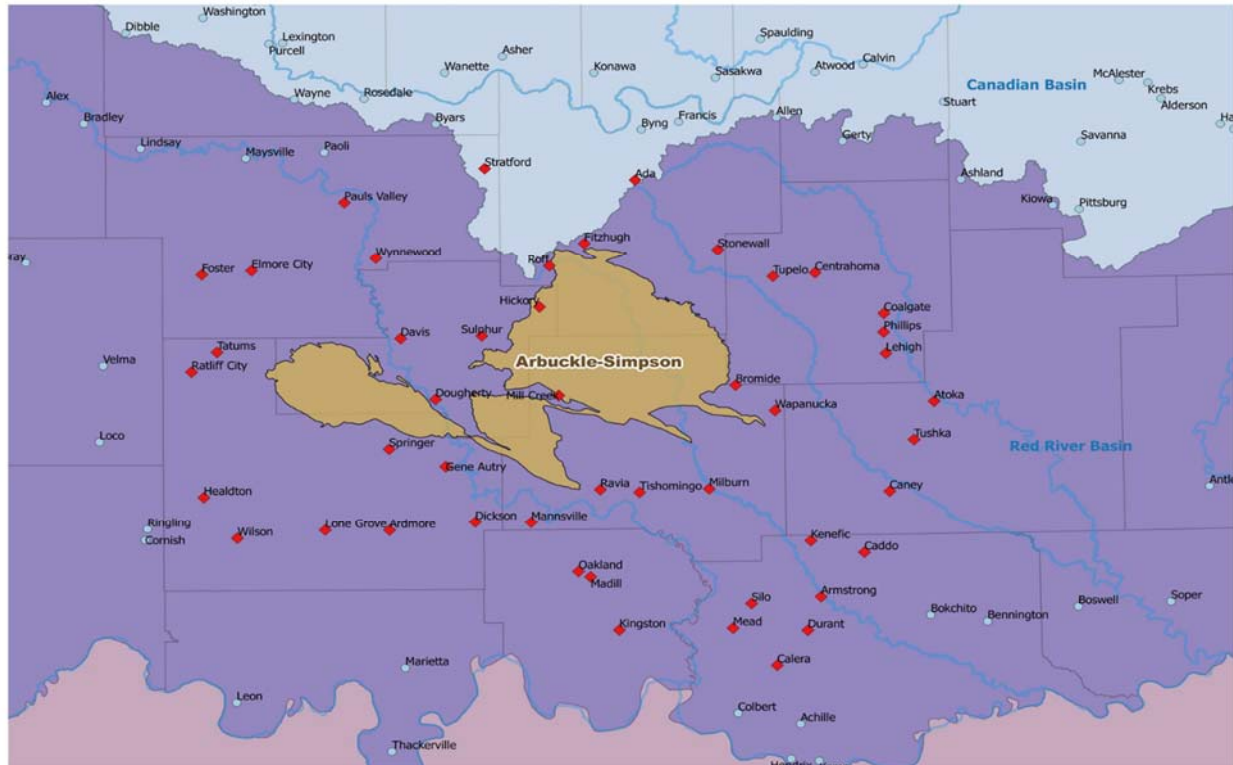
*Figure 1 – Location of the Arbuckle Simpson Aquifer.*

In 2009, the Oklahoma Water Resources Board (OWRB) completed a 5-year, \$6 million study on the Arbuckle Simpson Aquifer to determine the maximum annual yield (MAY). Partially funded by the Bureau of Reclamation, the study indicated only 78,404 AFY could be removed from the aquifer without depleting the springs and streams in the area. A full description of the study and results can be found in “Hydrogeology and Simulation of Groundwater Flow in the Arbuckle-Simpson Aquifer, South-Central Oklahoma,” USGS Scientific Investigations Report 2011-5029.

Subsequent to this study, the OWRB established an Equal Proportionate Share (EPS) for the aquifer, which reduced the amount that could be pumped from 2 ac-ft/ac to 0.2 ac-ft/ac. In addition, setbacks were established which allowed no drilling within a quarter mile of a spring capable of flowing 50 gpm, and any springs capable of flowing 500 gpm could not have wells within 2 miles of the spring that could pump in excess of 1600 ac-ft/yr on a cumulative basis. Furthermore, when these rules are implemented, wells will not be allowed to be drilled within one mile of a perennial stream that has flows in excess of 500 gpm. Wells can be drilled closer than these setback requirements only if the developer can prove to the OWRB Board that the well will not reduce the flow on springs or streams more than 25 percent.

The geographic extent of this proposed project is shown in Figure 2 and includes all of the communities marked in red. These 47 communities use, or have the potential to use water from the Arbuckle Simpson Aquifer or rely on the water discharging from Arbuckle Simpson springs.

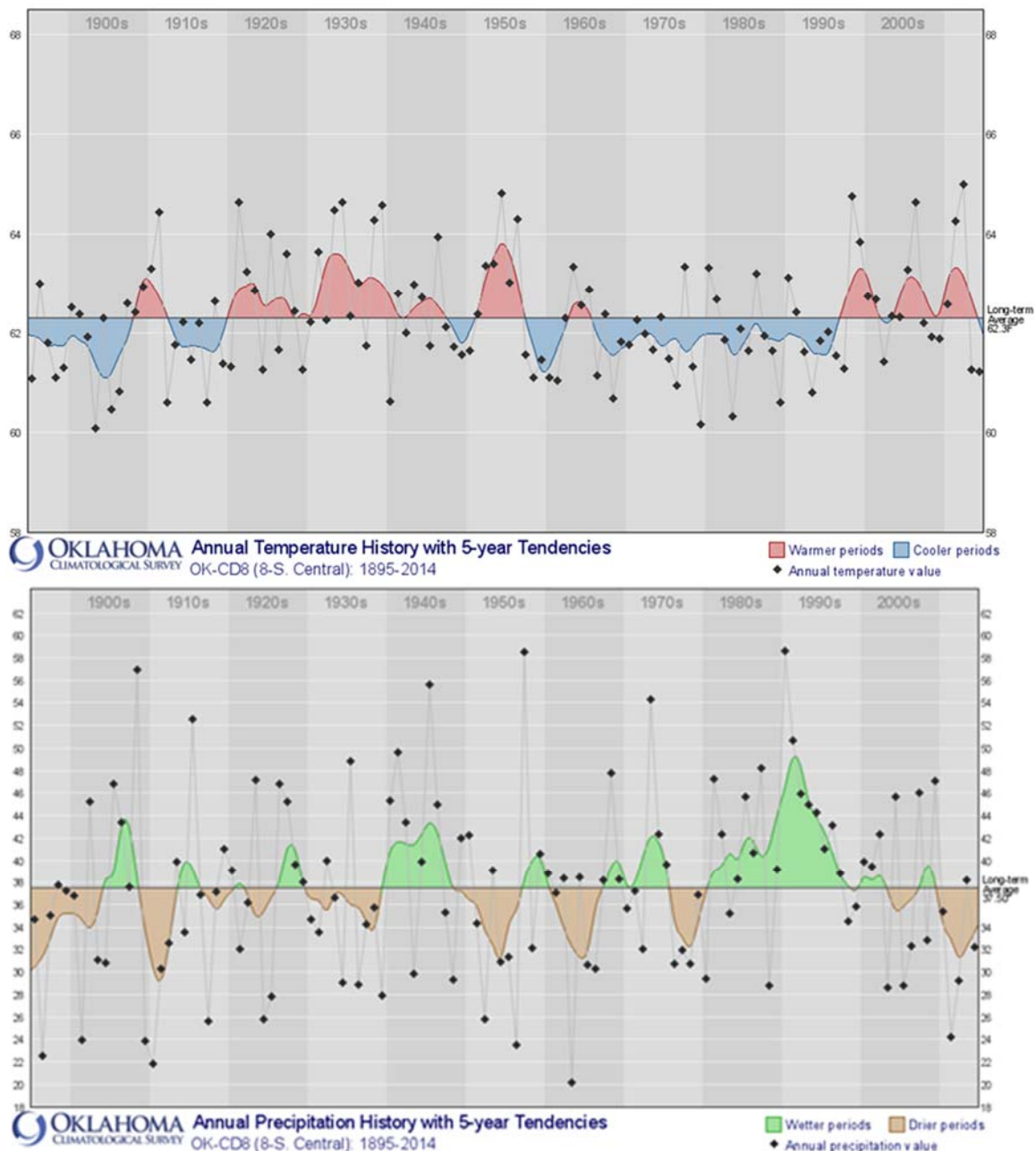
Three towns have populations in the 10,000 to 25,000 range (Ada, Ardmore and Durant), while all others have less than 10,000 residents. The total population of the study area is approximately 111,300. The area in light blue shows the Canadian River Basin; purple is the Red River Basin; and pink shows Texas.



*Figure 2. The proposed study area.*

The City of Sulphur, one of the communities highly dependent on the aquifer, is taking proactive steps to diversify their water supply to better deal with drought and help ensure the viability of the aquifer to maintain the economic resiliency of the region. Sulphur, in collaboration with the Bureau of Reclamation, the OWRB, the Arbuckle Master Conservancy District, Chickasaw Nation and the National Park Service under its Rural Water Program, investigated options to divert, convey, store and treat up to 1,997 acre-feet per year of water under the authority of an existing contract. As part of this study, the Bureau of Reclamation explored opportunities for Sulphur to serve as a regional water provider to nearby entities facing similar issues. The Bureau of Reclamation determined that if pumping restrictions of the Arbuckle Simpson are in place by 2020, a water supply deficit will exist for Sulphur around 2030. For other entities in the area, deficits would occur immediately (Sulphur Pipeline Regional Water Supply Project – Appraisal Report; Bureau of Reclamation, December 2013). The report suggests that the Sulphur Pipeline Regional Rural Water Supply Project is viable and appropriate for more detailed analysis in a feasibility study.





**Figure 3 – Historical annual temperature and precipitation for the South Central region of Oklahoma.**

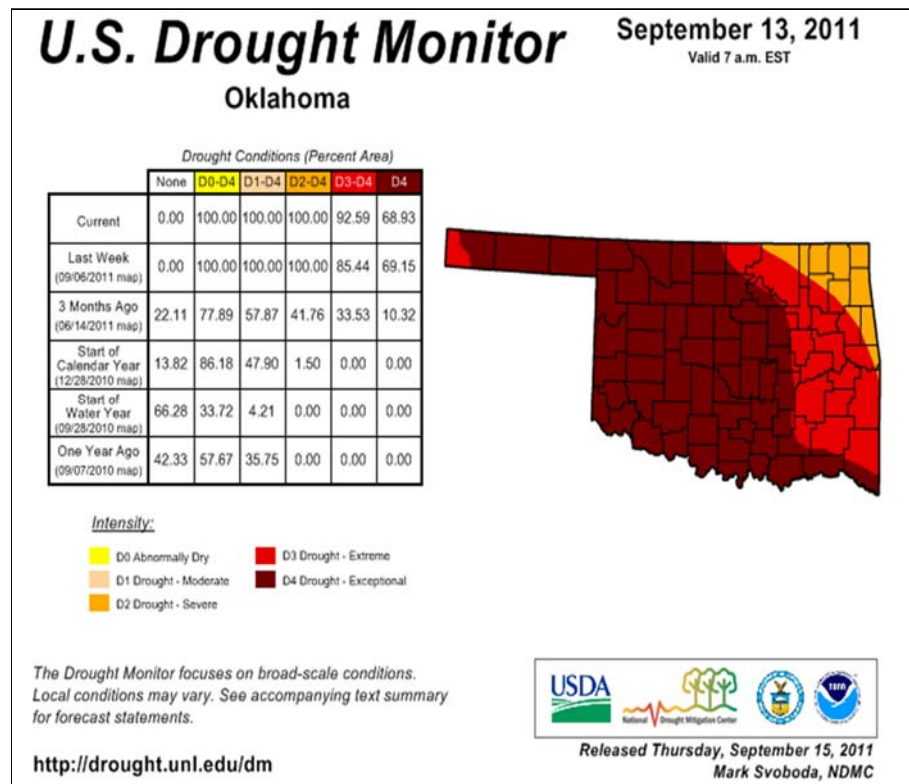
Beginning in 2010, the area served by the Arbuckle Simpson Aquifer experienced an exceptional drought that lasted until last month (see Figure 3). Below average rainfall for the that time period combined with prolonged high temperatures (including the highest average annual temperatures ever recorded for Oklahoma or any state in the nation during 2011), severely depleted the region’s stream and spring flow. In September 2011, the entire region and much of Oklahoma, was in an exceptional drought situation (see Figure 4).

The demand for water was also very high, particularly in areas with residential lawns and irrigated agriculture. The Arbuckle Simpson Aquifer is the only source of water for many of the

communities in the region, some of whom had serious concerns about their ability to continue serving customers and had to initiate emergency measures to get through the drought. For example, the City of Durant is supplied exclusively by the Blue River (a river fed by springs emanating from the Arbuckle Simpson); the river flowed less than 1 cfs during the worst portion of the drought, forcing the city to make an emergency connection to a small nearby lake. Tishomingo, which uses Pennington Creek as its sole source of water, saw water levels at their intake drop to within a few inches of being unusable during the worst portion of the drought.

The towns of Bromide and Wapanuka depend on Arbuckle Simpson springs for their water source. Unfortunately, those springs went dry during the drought and they had to drill emergency wells and haul in water in order to continue providing basic services. Lake of the Arbuckles, which serves the communities of Ardmore, Davis and Wynnewood, is fed by springs and streams originating in the aquifer. It was nearly nine feet below normal conservation pool in April 2015 before spring rains brought some relief; eclipsing the previous minimum lake level by a considerable margin. The City of Ada gets most of its water from Byrd's Mill spring, but low flows there forced Ada to rely more heavily on their three groundwater supply wells. Ada is now planning to drill a fourth well to be better prepared for the next drought.

Figure 5 shows municipalities that rely on the Arbuckle Simpson Aquifer as their source of water. The green dots indicate communities that get their water from groundwater supply wells; blue dots indicate surface water sources – either springs or creeks that are fed by springs. Lake of the Arbuckles supplies water to Ardmore, Wynnewood, and Davis. Lake of the Arbuckles receives its inflows from creeks emanating from the aquifer. There are also a number of rural water districts that depend on the Arbuckle Simpson for water. Figure 6 shows the service area of water suppliers in the region.



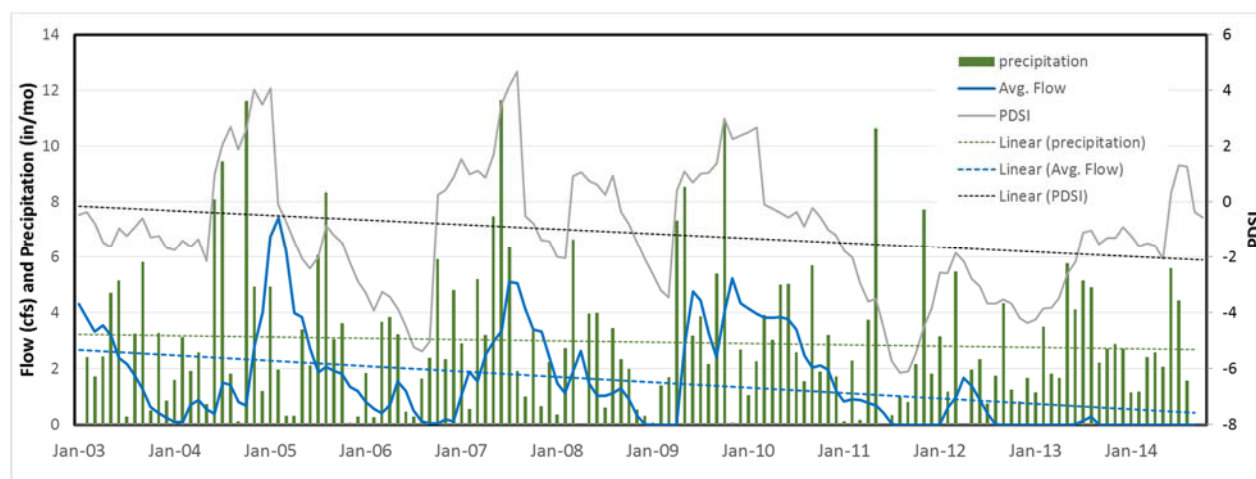
**Figure 4 – Drought in Oklahoma, September 13, 2011.**



In addition to municipal water supplies, many recreational areas were severely affected by the drought, such as Blue River Recreational Area, Turner Falls and the Chickasaw National Recreation Area, which depend on adequate flows of water from the springs to feed the creeks that run through their respective areas.

During the drought, Antelope and Buffalo Springs stopped flowing. Chickasaw National Recreation Area closed the Travertine Creek swimming areas last fall due to drought and low water flow conditions. Little Niagara, Bear Falls and Garfield Falls have only recently been reopened for swimming. Panther Falls and Black Sulphur Springs remain closed.

Antelope Springs, in the Chickasaw National Recreation Area, flows into Travertine Creek and has continuous monitoring. Figure 7 shows precipitation, the flow rate of Antelope Springs, and the Palmer Drought Severity Index (PDSI) for the time period of January 2003 to October 2014. The spring stopped flowing in mid-2012 and did not start flowing again until the recent rains in May 2015.



*Figure 7 – Trends in precipitation, spring flow and PDSI for Antelope Springs.*

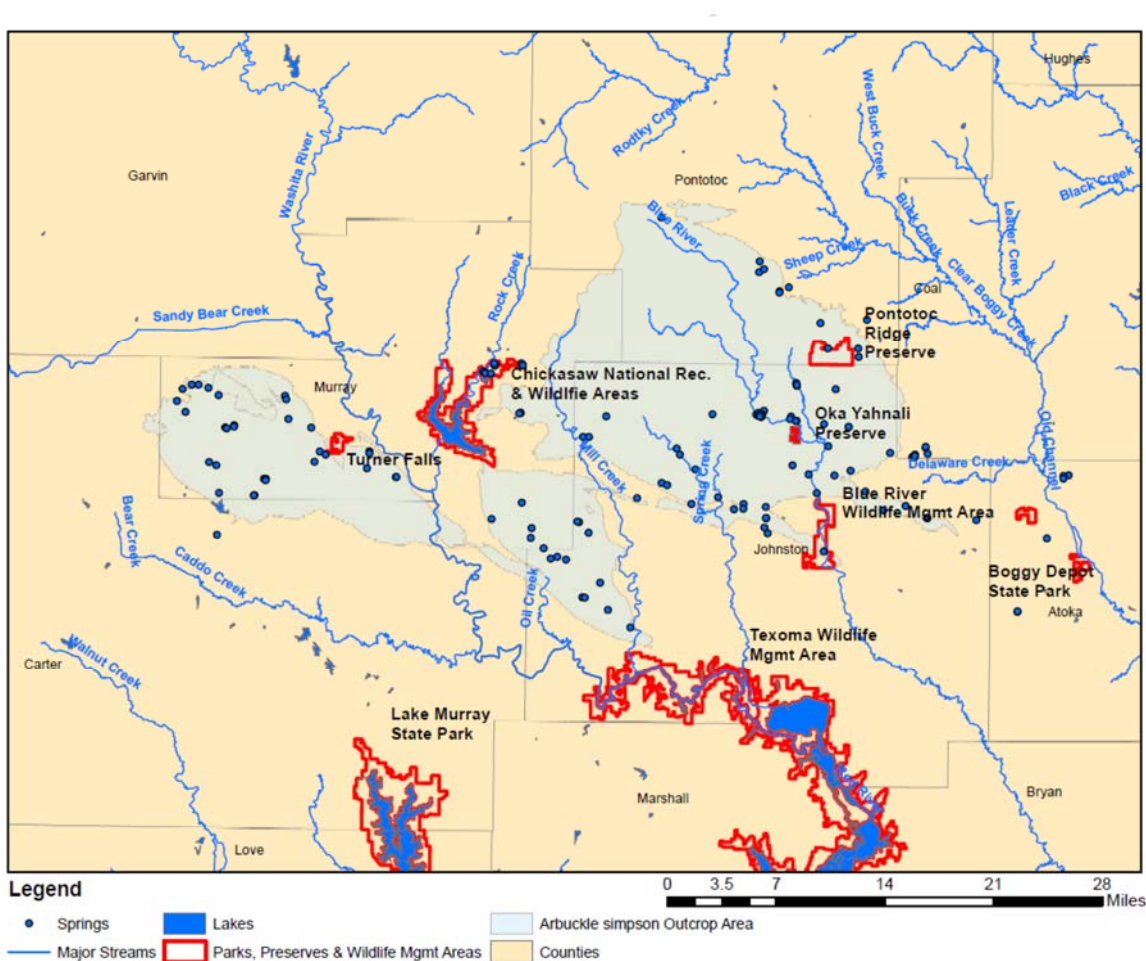
When the PDSI is below zero, flow from Antelope Springs declines. There appears to be some lag time between recovery of the soil moisture and recovery of spring flow, which may indicate the soil needs to be saturated before water seeps deeper into the subsurface to raise the water table and cause the spring to flow. The fact that the PDSI shows a significant declining trend over the past 10 years is of concern to everyone.

In recent years, significant declines have also been observed in water wells and in the flows of local streams. A recent intense, six-year state and federal study, sponsored by the Bureau of Reclamation, verified concerns that the aquifer's long-term viability is no longer ensured, and its inextricable value to the region—its history, culture and continued well-being of its many residents—could be undermined unless aggressive steps are taken. This investigation resulted in a new state-administered water management plan that dramatically impacts municipal, agricultural, mining and other water allocations. While this sustainable strategy, which reduces the amount of groundwater available for use per acre of land to one-tenth of the previous amount, should reduce the imminent threat, a regional long-term plan is required to address the

continued increased competition for water and land, vulnerabilities posed by a potentially warmer and drier climate and associated impacts to economic development.

Local recreation and tourism—Oklahoma’s third most profitable economic sector and widely considered to be the Arbuckle Simpson region’s most important sector—is almost wholly dependent upon water resources, especially in this physically, environmentally and culturally unique area. The Chickasaw National Recreation Area, near Sulphur, is Oklahoma’s oldest and one of the country’s oldest national parks. When flows in the park’s landmark streams are reduced, visitation and the local economic benefit follows suit. Turner Falls and the Blue River Recreation area are also favorite tourist destinations, dependant on flows in the streams that are fed by the springs of the aquifer. In addition, the Nature Conservancy operates two preserves in the area, Oka’ Yanhali and Pontotoc Ridge.

Every year, almost 2 million people visit the area, primarily to enjoy the water features, bringing in some \$100 million to the local economy. Federal Parks, Preserves and Wildlife Management Areas in and around the region are shown in Figure 8.



*Figure 8 – Parks, Preserves and Wildlife Management Areas dependent on the Arbuckle Simpson.*



The Chickasaw and Choctaw Nations are committed to ensuring the long-term sustainability of the Arbuckle Simpson Aquifer. Aside from their water planning activities, the Nations are also consortium members of the South Central Climate Science Center (SCCSC) along with the University of Oklahoma, Oklahoma State University, Texas Tech, Louisiana State University and the Geophysical Dynamics Lab in New Jersey. The Chickasaw Nation has two sustainability scientists stationed at the University of Oklahoma to serve as tribal liaisons for the 69 tribes located in the south-central region. The sustainability scientists develop workshops and training material to educate the tribes in the region on the impacts of drought and climate change.

The Chickasaw Nation has also created a Tribal Resiliency Committee to look at the impacts of climate change on different sectors within the Nation including water, air, human health, agriculture, energy, cultural resources and others. Initial meetings have been conducted in each of these sectors to begin formulating plans for dealing with a changing climate. The committee consists of a core group of environmental stewards and tribal members with experience in each of these sectors.

Climate scientists predict longer periods of drought punctuated by more intense flooding for this region. If that's the case, and that is certainly what we appear to see trending, we need to understand the full implications for water suppliers and those who depend on the aquifer for tourism, industry, agriculture and economic development. There is a pressing need for a regional Drought Contingency Plan that is useful for decision-making at the local scale, yet is applicable and makes use of information at the broader region-wide scale.

### 1.3 Technical Project Description

After formation of a Task Force (described in 1.3.1, below), the technical approach described in this section follows the outline of the Drought Contingency Plan suggested by the Bureau of Reclamation. Each task refers to a specific activity and anticipated outcome, as follows.

#### 1.3.1 Task 1 - Form Task Force and Identify Other Stakeholders

Stakeholder involvement in the project is extremely important. In fact, the Drought Contingency Plan will need to be adopted and implemented by stakeholders; consequently, they need to buy into and be active in the process. For regular meetings and in-depth discussions, a core group of stakeholders will be appointed. This "Task Force" will be composed primarily of water providers – towns, cities and rural water districts. These entities have responsibilities that include maintaining a reliable supply of water to their customers, even during extreme drought conditions, and have intimate knowledge of the water business as it affects them. Task Force members that have committed to participate in this process are listed below in Section 1.4.2. Upon notification to proceed on this project, the need for additional members will be discussed and gaps filled, as needed. One representative each from the Choctaw and Chickasaw Nations will also be members of the Task Force, bringing the cultural and economic perspective, but also helping assess the needs across the entire region. An employee from the Bureau of Reclamation will be asked to participate and advise in many of the Task Force meetings, bringing the latest

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thinking on climate change and drought management, and experience developing Drought Contingency Plans for other entities. Task Force meetings will occur once a month.

Other stakeholders will be identified and encouraged to participate in the process, providing input on aspects other than public water supply. Representatives from the agriculture sector, industry, mining, tourism and recreation, environmental interests and others will be invited to provide input. While the Task Force members will meet monthly, it is expected that facilitated stakeholder meetings will occur once every six months. There will be many opportunities for public input throughout the project and on the draft of the final Drought Contingency Plan.

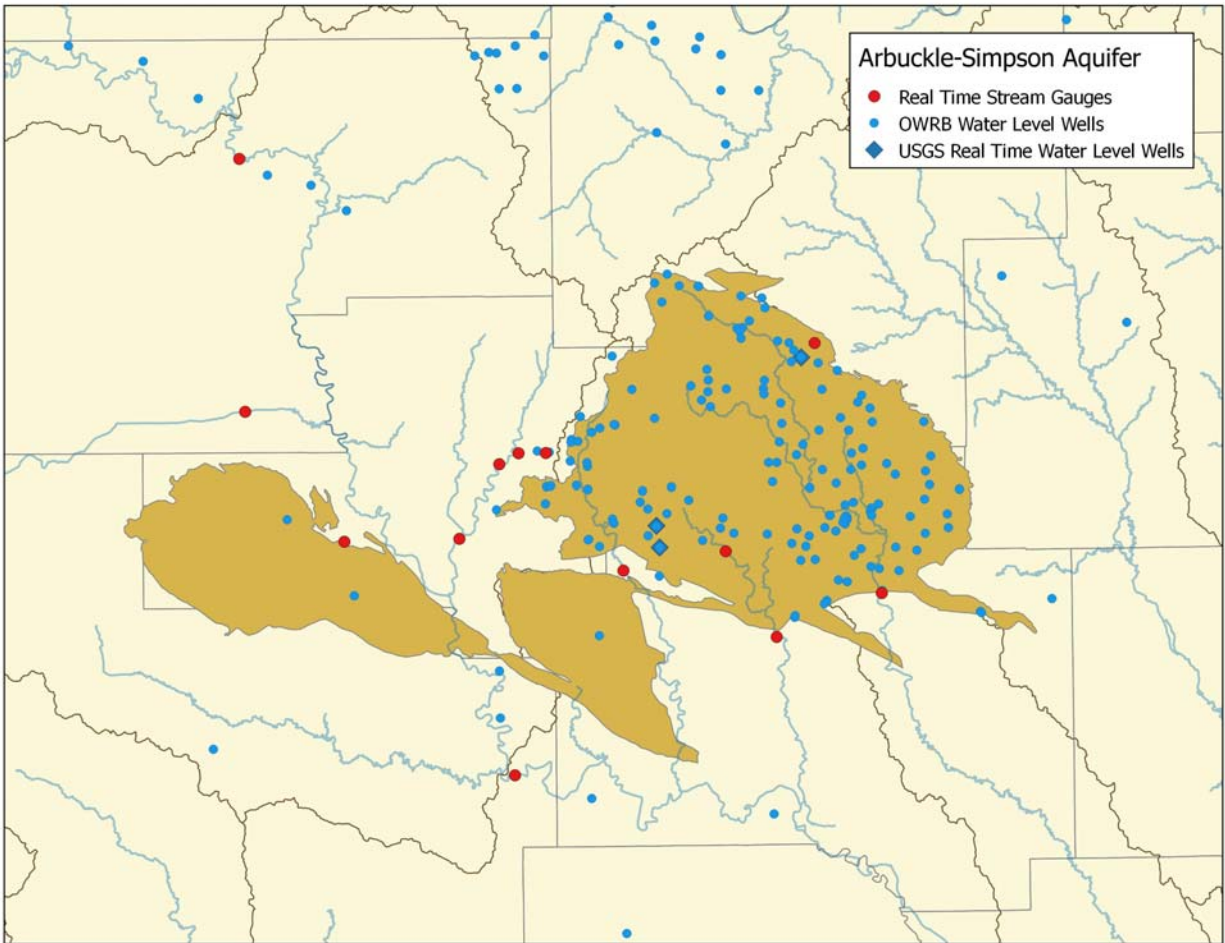
Once formed, the first charge of the Project Managers, Task Force members and Bureau of Reclamation will be to develop a detailed work plan, describing how each of the tasks listed below will be conducted, and lays out a detailed project schedule. Mechanisms for outreach and communication with the various participants will also be developed. Input on the work plan will be sought from other stakeholders as well.

Meeting venues at the City of Ada and the Chickasaw Nation headquarters have been identified for the Task Force and stakeholder meetings.

#### 1.3.2 Task 2 – Identify Drought Monitoring Network

The US Geological Survey (USGS) maintains a network of real-time streamflow and groundwater level monitoring stations throughout the nation, including the Arbuckle Simpson Area (Figure 9). The Choctaw and Chickasaw Nations provide financial support for many of the stations across their jurisdictional territory, supporting 17 gages through a combined contribution of approximately \$87,000 per year. Some groundwater level measurements correlate quite well with nearby springflow and stream flow measurements, providing the water industry with a good forecast of water availability. However, the Nations are currently working with the USGS to identify additional sites to monitor that would allow scientists and water managers to better understand the relationship between mining activities and water levels. It would also provide a more realistic assessment of the impacts of pumping at both specific locations and also in the region as a whole.

On a related note, the South Central Climate Science Center (SCCSC) at the University of Oklahoma (OU) is currently working on an EPSCOR project where they will establish weather observation stations throughout the state of Oklahoma. They hope to install surface and groundwater monitoring stations within a certain radius around each of their Mesonet sites. In addition, they hope to recruit volunteers to phone in to the University on a periodic basis to report observations related to weather. Input from the Task Force and other stakeholders on this initiative would be very useful and would be facilitated by this project.



*Figure 9 – Existing ground and surface water monitoring network.*

A top priority of this task will be to identify ALL weather and water monitoring sites across the region (there are some that are operated by non-USGS entities). This will be done by accessing all known online sources of data and then communicating with the Task Force members to identify any additional indicators of water availability that they currently use, and would like to use as part of the Drought Contingency Plan.

A critical component of this task will be working with water providers to determine at what point their ability to supply water to their customers becomes compromised as a result of drought conditions or water shortages. Issues with intake structure may arise when water drops to certain levels on lakes, or when groundwater levels fall so low that the pumps on wells cannot provide the volume of water needed. Furthermore, some of these entities have documented points at which they initiated conservation or curtailment actions on their customers or their own activities. These will be noted for each community.

The task will culminate in the identification of a network of existing monitoring sites to be used for the early identification, and ongoing monitoring of droughts. Trigger points for action to be taken will also be identified. New sites, proposed to those with budgets for weather and water monitoring, will be listed in the appendix of the Drought Contingency Report.



### 1.3.3 Task 3 – Assess Vulnerability

Most of the communities that rely on the Arbuckle Simpson Aquifer utilize that feature as their sole source of water, either as users of the groundwater directly, or from spring-fed streams (see Figure 5 in Section 1.2). This makes them especially vulnerable to reductions in groundwater levels and drought conditions in general. The risk of not being able to provide potable water to their customers was highlighted during the latter stages of the latest drought when Pennington Creek, which provides water for the city of Tishomingo, almost ran dry. Other communities faced similar issues, as described in Section 1.2. Diversification or regionalization of supply may be ways to reduce the vulnerability, but these are options that need to be explored for each community and the region as a whole.

This task will focus on identifying where the vulnerabilities lie for each stakeholder. Each community will be slightly different. For example, some water providers were especially concerned during the worst part of the hottest and driest year on record (2011), whereas other communities' supplies were more vulnerable as a result of the duration of below average rainfall conditions over the five-year period.

In Durant's case, water managers were able to make an emergency connection to a local reservoir to bring water into the treatment plant when the Blue River went almost dry. These types of emergency measures may or may not be available elsewhere and directly affect how vulnerable a water provider may be. Tishomingo currently has no other options that are readily available to the city. An additional problem for water suppliers is that when flows are low, water temperatures typically escalate and algae blooms occur more frequently. Higher temperatures and increased concentrations of organics in raw are the major contributors to the formation of Trihalomethanes (THMs), otherwise known as disinfection byproducts (DBPs), which are EPA regulated carcinogens in treated water. A joint project between the Nations and the Bureau of Reclamation, looking at ways to help reduce DBPs in potable water across the entire Choctaw and Chickasaw jurisdictional territory, is in its final phases and is expected to be completed this summer.

Complicating matters, it appears that there is a longer term trend in spring flow reduction across the region (see Section 1.2). There has been much speculation as to the causes – from the pit de-watering activities of local mines to historical drilling of free-flowing artesian wells, to climate change. Either way, the team will analyze existing data to determine if there is a trend in springflow or groundwater that cannot be explained by recent changes in water use, temperature and precipitation alone.

Aside from the water supplier's perspective, there have been other impacts from the drought in the region. River cane (*Arundinaria*) and Black Willow (*Salix Nigra*) are plant species that require a lot of water and that are culturally important to both the Chickasaw and Choctaw Nations. Dense stands of cane (also known as canebrakes) have been compared to supermarkets, offering material for many purposes (see Kniffen et al 1987, referenced in USDA Plant Guide on the Giant Cane). Cane provided the Choctaw and Chickasaws with fuel for candles, hair

ornaments, game sticks, musical instruments, toys, weapons, baskets and tools. The Nations used the stems for arrow shafts, blowguns and darts. Furthermore, river cane produces an abundant crop of seeds, similar to wheat in taste and nutritional value, and is said to have medicinal properties as well.

Black willow also provided material for baskets, but perhaps more importantly was used to treat a plethora of ailments, including rheumatoid arthritis, infections, diarrhea, respiratory problems and as a dermatological aid. Granaries made of black willow were said to be rodent proof and the roots were used as a dye and leather-tanning agent.

The reason for the recent decline in numbers of both of these species is not fully understood, but the trend in declining water levels across the region is likely a contributing factor. The Chickasaw Nation has initiated a program to re-seed and propagate both species across their jurisdictional territory.

In the agriculture sector, many beef producers in south-central Oklahoma were forced to sell their breeding stock because the severity of the drought dramatically impacted the source of food for their animals. Many ranchers experienced significant financial hardship and some went out of business completely. South-central Oklahoma saw a 30 percent reduction in herd size at the peak of the drought in 2011, and has yet to recover to pre-drought numbers. Cattle ranchers, during the drought, had on average an additional \$350 invested in each cow through additional feeding costs. For some, loss of surface water in ponds, creeks and streams was the first limiting factor. Some ran out of water, so lack of feed became a moot point. That caused many to cull herds, sell early and even sell off breeding stock. According to Jim Reese, Oklahoma Secretary of Agriculture in 2011, the drought caused Oklahoma ranchers to sell their cattle earlier than they usually would, with a 76 percent increase in sales from 2010. Ranchers were selling cows (female cattle) for about \$800-\$900 a head in 2011, and are now buying back similar cows (same age, quality) for \$2,000 or more.

To complement this proposed project, the Chickasaw and Choctaw Nations are working with a team from OU on a SCCSC project to quantify the impacts of climate change on the hydrology (and water availability) of the entire Red River Basin, including its tributaries. That project will wrap up this summer, with results available for access by all. Members of that team will be invited to participate as stakeholders on this project and may be asked to be on the Task Force.

#### 1.3.4 Task 4 - Develop Mitigation Actions

The most recent drought experienced by the region is over, making now the best time to begin developing plans to improve resiliency from future droughts. The recent reduction in the Maximum Annual Yield of the aquifer is the type of action that might be proposed in this task. Task Force members and scientists concerned with the region have postulated all kinds of solutions, including aggressive spring setback rules for wells, construction of recharge features (similar to what has been done over the Edwards Aquifer in Texas), regionalization of supply through a network of pipelines and construction of well fields to import water from outside the

region. The Antlers Aquifer, just to the south, is one alternative source of water; the alluvium of the Red River is another. Many of these communities have contemplated expanding or improving the reliability of their water supplies through various means, the Sulphur example is described in an earlier section, but most of these projects are not even at the feasibility stages yet.

In a related project, the Nations are working with the US Army Corps of Engineers on a project to identify suitable locations for wastewater reuse in southeast Oklahoma. A list of 12 communities has been identified for further investigation, including Ada and Durant. The city of Sulphur is also contemplating indirect wastewater reuse whereby treated wastewater would be conveyed back into Lake of the Arbuckles to supplement supply. If suitable customers for the water exist, treated wastewater offers an almost constant and highly reliable source of water – the availability of treated wastewater is typically not affected by drought conditions.

Working with Task Force members and stakeholders, the Nations will identify new mitigation actions for the region and help vet and prioritize existing mitigation actions that have already been considered for the region. Some of these mitigation actions may benefit single communities, while others may be more regional in nature.

#### 1.3.5 Task 5 - Identify Response Actions

Because of the recent drought, information on what actions were taken by these communities is readily available. Response actions are triggered by specific stages of the drought to reduce the impacts of the drought. Response plans might be as simple as curtailment of outdoor water use when certain conditions are met, or may be more sophisticated, depending on the number of sources being drawn upon and the size and complexity of the distribution system. In most cases for this region, documented drought response actions are non-existent.

Similar to the task described above, the team will work with the Task Force members and stakeholders to identify and help determine the effectiveness of response actions that have been contemplated for communities throughout the region. Identified trigger points on a monitoring network and a new and improved set of response actions are needed and will also be developed for each community. Unlike the mitigation actions described above, most of the response actions will be specific for each community and applied at the local scale.

#### 1.3.6 Task 6 - Develop Operational and Administrative Framework

In addition to ensuring that all stakeholders have access to the real-time ground and surface water monitoring data, the Nations will help by making available a website that can be used to monitor the effects of drought across the region, and assess where communities are with respect to the identified trigger points. The Nations will maintain the website and also provide technical resources and a forum for communicating and sharing ideas.

Wayne Kellogg from the Chickasaw Nation and Tye Baker of the Choctaw Nation are the proposed Project Managers. Mr. Kellogg has agreed to serve as administrator of the program, once it becomes operational. In addition to helping monitor the key weather and water monitoring stations, the Nations will also help communities implement response actions, when

the time is right, through media outlets they control and other resources.

While not in place yet, the Nations are contemplating the creation of a funding program that would allow communities across their entire 22-county jurisdictional area to access low cost loans and grants for water-related projects. This program would complement the existing State Revolving Fund (SRF) program. Implementation of mitigation actions might be funded through this program. The USDA Oklahoma Rural Development program is another potential resource that the Nations are already working with to help some of these smaller communities improve water resiliency and mitigate future droughts.

It is anticipated that the Drought Contingency Plan be a living document. That is to say, while the monitoring stations, trigger points and action items will be the latest and greatest when the document is first published, changing conditions will dictate the need to update the plan fairly regularly, especially if drought conditions worsen. During the project phases, the Task Force will meet approximately once a month. Thereafter it is expected that the Task Force will continue to meet at least annually to assess hydrologic conditions and review the status of mitigations and response actions. The Chickasaw Nation will take the lead in facilitating these future meetings with support from the Choctaw Nation. Further detail on the process for updating the Drought Contingency Plan is provided in the following section.

#### 1.3.7 Task 7 – Document Plan Update Process

Project findings, including a list of mitigation and response actions, and details on when these actions are to be taken will be summarized in a report for the Task Force members, stakeholders and the Bureau of Reclamation. Thereafter, it is anticipated that the Nations will sponsor annual meetings so that Task Force members and stakeholders might compare notes, share experiences and assess the need to update the plan. If it is determined by the Task Force members that the plan needs to be updated – either by changing conditions, additional or lost monitoring stations, or other reasons – the Nations will convene a work session with members and other stakeholders to determine what actions or changes need to take place.

### 1.4 Evaluation Criteria

There are four main areas in which this proposal will be evaluated: the need for a Drought Contingency Plan, the diversity of stakeholders, project implementation and nexus to the Bureau of Reclamation. Although covered in other parts of this proposal, the following sections describe specifically how the evaluation criteria are addressed and why this project deserves funding.

#### 1.4.1 The need for a Drought Contingency Plan

The Arbuckle Simpson Aquifer is the principal and, in some cases, the sole source of water for more than 110,000 people living on the aquifer. The aquifer is also the source for almost 100 known springs, including Byrds Mill Spring, Ada’s primary drinking water source, and provides flow to the Blue River, which supplies Durant and an additional 16,000 customers. The U.S. Environmental Protection Agency has designated the aquifer’s eastern portion as a “Sole Source Aquifer,” a mechanism to protect drinking water supplies in areas with limited water supply alternatives. Its water is also a significant source for mining, irrigation and other economic

activities in the region. Depletion of springflow and declining groundwater levels will leave residents with very few immediate alternatives for water.

According to the *2012 Update of the Oklahoma Comprehensive Water Plan*, the state "could be considerably impacted by a changing climate—including reduced precipitation and higher temperatures—resulting in fundamental changes in water supplies, demand patterns, and availability." The Oklahoma Climatological Survey, which conducted a review and assessment of climate change research in support of the OCWP, concluded that: 1) the earth's climate has warmed during the last 100 years; 2) the earth's climate will very likely continue to warm for the foreseeable future; 3) much of the global average temperature increases during the last 50 years can be attributed to human activities, particularly increasing greenhouse gases in the atmosphere; and 4) Oklahoma will be impacted.

Many of the reasons the region needs a Drought Contingency Plan are described in the background section (Section 1.2). To summarize, the Arbuckle Simpson Aquifer in south-central Oklahoma has historically had an abundance of water. The severity of the recent drought, the soon-to-be-implemented Equal Proportionate Share rules for the aquifer and growing demand for water are making the communities that rely on the Arbuckle Simpson increasing vulnerable to water shortages. The expectation that future droughts will be worse and an apparent long-term trend in decreasing springflow and associated groundwater levels is exacerbating the problem. The vulnerability and impacts these communities face are described in Section 1.3.3, including drinking water supply shortages, water quality concerns, economic impacts to the agriculture and recreation/tourism industries and environmental issues.

While a couple of communities relying upon the Arbuckle Simpson Aquifer implemented emergency actions during this latest drought, the region as a whole requires a comprehensive strategy that reflects drought's potential impact on all stakeholder interests. The region is known for its relative abundance of springs and streams and therefore, when some dried up for the first time in recorded history during the latest drought, many people were caught by surprise.

The Choctaw and Chickasaw Tribes and local interests are convinced that a stakeholder-developed plan is essential to protect and preserve the Arbuckle Simpson aquifer while ensuring the continued economic vitality of the region. Collaborative strategies developed by water providers (municipalities and rural water districts), tourism/recreation representatives, landowners, farmers and ranchers and other appropriate interests are required to guide the sustainable use of the aquifer beyond that resulting from state-administered programs.

#### 1.4.2 Diversity of stakeholders

A wide range of regional stakeholders, representing numerous economic, environmental and social sectors—including Tribal, agriculture, municipalities, public water supply, energy, recreation and tourism, environmental protection and climate science—are committed to being involved in the planning process or will help support the planning process.

*Those committed to the planning process include:*

- Lead applicant Chickasaw Nation, and co-applicant, Choctaw Nation. Not only do the Nations represent Tribal governments, their business and social endeavors include agriculture production, manufacturing, water planning, educational facilities, recreational resource management and environmental stewardship.
- Arbuckle Master Conservancy District (AMCD) is responsible for the operation and management of the Arbuckle Lake water distribution system in Garvin, Murray and Carter counties. The Wynnewood Refining Company and cities of Ardmore, Davis, Wynnewood and Sulphur are members of the AMCD; Arbuckle Lake is the primary source of their water supply, and is a Bureau of Reclamation lake. AMCD will aid in planning related to mitigation actions as well as tourism and recreation industry needs.
- The South Central Climate Science Center (SCCSC) at University of Oklahoma (OU) will help with drought monitoring. They plan to establish weather observation stations throughout the region with a goal of establishing surface and groundwater monitoring stations within a certain radius around each of their Mesonet sites. Additionally, they plan to recruit volunteers to report weather-related observations on a periodic basis.
- The cities of Ada, Ardmore, Davis, Durant, Sulphur, Tishomingo and Wynnewood are municipalities in the region that will help plan mitigation actions. Durant is home to several manufacturing operations, while Wynnewood is home to the Wynnewood refinery, which produces gasoline, diesel fuel, military jet fuel, solvents and asphalt. Additionally, the city of Davis owns Turner Falls, one of several popular and economically important water-related recreation areas in the region.
- The Nature Conservancy and the Chickasaw National Recreation Area will aid in planning with regards to the tourism and recreation industry needs as well as environmental issues.

*Those who have expressed support for the planning process include:*

- Rural water providers: Bryan Co. RWD #5 and #2; Buckhorn RWD; Garvin Co. RWD #6, Johnston Co. RWD #3, Murray Co. RWD. #1, Pontotoc Co. RWD #7, #8 and #9.
- The cities of Roff, Mill Creek, Bromide, Wapanuka and Dougherty.
- Industrial and energy sector representatives Wynnewood Refining Co., Holcim U.S., Inc. and OG&CE.
- Arbuckle Simpson Aquifer Protection (ASAP) Committee. ASAP is a consortium of municipalities in the Arbuckle Simpson aquifer area that rely on the aquifer for their water supply. The members include Ada, Durant, Roff, Sulphur, Davis, Ardmore, Mill Creek, Tishomingo, and Wynnewood.
- Agriculture: Agriculture producers Fred Chapman, Jr. (Ardmore) and Clyde Runyan (Mill Creek) have been contacted and asked to participate in the planning process. Both have been active in previous water planning efforts in the region.

#### 1.4.3 Project Implementation

A Task Force composed primarily of water providers that depend on the Arbuckle Simpson Aquifer—towns, cities and rural water districts—is currently being assembled. Representatives from the Chickasaw and Choctaw Nations with experience in key water use sectors will also be on the Task Force. Additional stakeholders from climate science, environmental, recreation, agriculture, mining and industrial sectors will be directly involved in the planning process or will support the activities. Representation of most water uses across the region will ensure stakeholder buy-in and implementation of the plan when completed.

The next steps will be to identify existing and new weather and water monitoring sites, and also to work with climate scientists to develop a better understanding of what the region's future climate will be. These initial steps will help assess the vulnerability of individual communities and the region as a whole to the risks and impacts of drought; they will also provide early warnings of approaching drought.

After development of a detailed work plan, the Task Force members and additional stakeholders involved in the planning process will meet regularly over an 18-month period to evaluate various mitigation actions, strategies and programs to build drought resiliency, as well as response actions and activities, and then select those best for the communities and the region. Early on in the planning process, the Task Force will develop the operational and administrative framework for the plan, including a web site and communication plan, adjusting responsibilities as the plan materializes and is put into action.

The Nations will share monitoring site data, mitigation and response actions, and other drought information on a web portal. After the project completion date, the Nations will facilitate regular annual meetings for the Task Force and stakeholders to review and update the plan. The frequency of these follow-up meetings will be stepped up when drought conditions return.

#### 1.4.4 Nexus to Bureau of Reclamation

The proposed planning area encompasses the Bureau of Reclamation's Arbuckle Master Conservancy District. Lake of the Arbuckles, the host project, is located about six miles south of Sulphur in Murray County and supplies water to the cities of Ardmore, Wynnewood and Davis. The lake is fed by spring-fed creeks emanating from the Arbuckle Simpson Aquifer, which is the focus of the Drought Contingency Plan.

Adjacent to the Lake of the Arbuckles is the Chickasaw National Recreation Area, operated by the National Park Service, a sister agency under the U.S. Department of Interior. The Park attracts some 3.4 million visitors each year.

The Bureau of Reclamation recently completed an appraisal of the proposed Sulphur Pipeline Regional Water Supply Project. To address projected shortages when new rules on pumping of the Arbuckle Simpson Aquifer are put in place, the pipeline from Lake of the Arbuckles to the city of Sulphur was deemed appropriate for progression to the feasibility stage.

Another Bureau of Reclamation project, looking into the possibility of indirect wastewater reuse by the city of Sulphur and the Arbuckle Master Conservancy District is ongoing.

Bureau of Reclamation funds enabled the Oklahoma Water Resources Board to conduct an intense, six-year hydrologic study of the Arbuckle Simpson Aquifer. Completed in 2009, this landmark investigation resulted in a new state-administered water management plan that dramatically impacts municipal, agricultural, mining and other water allocations from the aquifer, reducing the amount of groundwater available for use per acre of land to one-tenth of the previous amount. The proposed Drought Contingency Plan constitutes the logical next phase in the development of an updated comprehensive water management strategy for the region and its water use interests.

The entirety of the Arbuckle Simpson Aquifer region is contained within the jurisdictional territory of the Choctaw and Chickasaw Nation. The Tribes' existing government-to-government relationship with the U.S. Department of the Interior and Bureau of Reclamation in collaboratively addressing tribal challenges will greatly benefit both development and successful implementation of the Arbuckle Simpson Drought Contingency Plan.

## 2. Existing Drought Contingency Plans

No formal drought contingency plans exist for the Arbuckle Simpson Aquifer region or any of the communities within that region.

## 3. Required Permits or Approvals

No permits are anticipated during this planning phase. Permits may be required prior to implementation of the plan.

## 4. Letters of support

Letters of support follow.





# SOUTH CENTRAL CLIMATE SCIENCE CENTER

201 Stephenson Parkway, Suite 2100, Norman, OK 73019

Phone: 405 - 343 - 4444 • Fax: 405 - 343 - 4444 • Email: [info@southcentralclimate.org](mailto:info@southcentralclimate.org) • [www.southcentralclimate.org](http://www.southcentralclimate.org)

June 14, 2015

Wayne Kellogg, P.E., P.G., CSP  
Engineer, Geologist, Safety  
Chickasaw Nation  
1628 East Beverly  
Ada, OK 74820

Dear Wayne,

Thank you for your invitation for me to serve as a Task Force member for your proposed WaterSMART: Drought Contingency Planning Grant. I am able to help develop more details on the scope of work, participate in several meetings over a period of two years, and review the final report. My expertise is in regional and applied climatology, and I was a lead author of the Great Plains chapter of the 2014 National Climate Assessment.

As you are aware, our South Central Climate Science Center works closely with the Southern Climate Impacts Planning Program, which directly helps communities in drought-prone areas become more resilient to drought conditions. The Climate Science Center itself, through our Tribal consortium members (The Chickasaw Nation and Choctaw Nation of Oklahoma), works closely with Tribes on impacts of climate variability and change on natural and cultural resources. These organizations are available for data, guidance, and advice.

I wish you the best on your proposal! If you have further questions, please call me at 405-325-2583 or email me at [renee@ou.edu](mailto:renee@ou.edu).

Sincerely,

Renee A. McPherson  
University Co-director, South Central Climate Science Center  
Associate Professor of Geography and Environmental Sustainability  
University of Oklahoma

#### Lead Organization

U.S. Geological Survey

#### Consortium Members

University of Oklahoma • Texas Tech University • Louisiana State University  
The Chickasaw Nation • The Choctaw Nation of Oklahoma • Oklahoma State University  
NOAA's Geophysical Fluid Dynamics Laboratory

# Arbuckle Master Conservancy District

STEVEN R. JOLLY  
District Manager

P.O. Box 753  
Davis, Oklahoma 73030  
580/369-3121  
580/369-3202 Fax

May 29, 2015

Ms. Irene M. Hoiby  
Bureau of Reclamation  
Financial Assistance Services  
Mail Code: 84-27852  
P.O. Box 25007  
Denver, CO 80225

Re: Bureau of Reclamation  
Water Smart: Drought Contingency Planning Grant for Fiscal Year 2015

Dear Ms. Hoiby:

We are pleased to support the Chickasaw/Choctaw Nations proposal "Developing a Regional Drought Contingency Plan for the Arbuckle Simpson aquifer region." The Drought Contingency Plan involves the identification of key monitoring tools to predict the onset and severity of drought, vulnerability assessment, mitigation actions, response actions and operational framework. We would be willing to serve on the task force to help develop this plan.

Sincerely,



Steven Jolly  
District Manager, A.M.C.D.

## DIRECTORS

JOHN PERRY - Wynnewood  
STEVE CHILTON  
Wynnewood Refining Co.

DEBBIE THOMSON - Davis  
BOBBYE GOWAN - Sulphur

SAM W. BRIMER - Ardmore  
CHRIS SANDVICK - Ardmore  
SCOTT CHAPMAN - Ardmore



**Cody Holcomb, P.E., MBA**

**City Manager**

231 South Townsend

Ada, Oklahoma 74820-6443

580-436-8001 Fax 580-436-8052

June 18, 2015

RE: Drought Contingency Planning

To Whom It May Concern:

The City of Ada relies on the Arbuckle Simpson aquifer as its sole water supply source. Recent restrictions on use of the aquifer and the recent drought have placed stress on our system, highlighting the need to identify and develop solutions to reduce demand and increase supply.

The City is interested in working with the Choctaw and Chickasaw Nations and the Bureau of Reclamation to explore the possibility of developing mitigation and response actions so that we are better prepared for the next drought, when it inevitably occurs. It makes sense for us to work with the federal government, the Nations and other communities that utilize the same source of water in order to develop water actions that are compatible with one another.

The City is committed to working on this project, both as a Task Force member and as a key stakeholder. If you have any questions, please do not hesitate to contact me to discuss further.

Respectfully Submitted,

Cody Holcomb  
City Manager

C:  
Guy Sewell, Mayor  
Angie Dean, Assistant City Manager  
Frank Stout, City Attorney



# CITY OF TISHOMINGO



June 15, 2015


Ms. Irene M. Hoiby  
Bureau of Reclamation  
Financial Assistance Services  
Mail Code: 84-27852  
PO Box 25007  
Denver, CO 80225

Re: Bureau of Reclamation  
Water Smart: Drought Contingency Planning Grant for Fiscal Year 2015

Dear Ms. Hoiby:

We are pleased to support the Chickasaw/Choctaw Nations proposal "Developing a Regional Drought Contingency Plan for the Arbuckle Simpson aquifer region." The Drought Contingency Plan involves the identification of key monitoring tools to predict the onset and severity of drought, vulnerability assessment, mitigation actions, response actions and operational framework. We would be willing to serve on the task force to help develop this plan.

Sincerely,

  
Tom Lokey  
Mayor



# THE CITY OF DURANT

## Office of the City Manager

June 17, 2015

To whom it may concern,

The City of Durant draws its water from the Blue River, which is fed by the Arbuckle Simpson Aquifer. In 2011, the river ran almost completely dry, forcing us to take emergency actions to continue providing water to our customers. This situation, combined with a very high projected rate of growth and the expectation that future droughts may be just as bad, or worse, has led to the city investigating the possibility of developing new supplies, including water from the Red River, groundwater from the Antlers Aquifer, and wastewater reuse. While all these possibilities are still on the table, we would like to work with the Choctaw Nation and the Bureau of Reclamation to explore the possibility of developing regional and local mitigation actions and response actions so that we are better prepared for the next drought. The City is committed to working on this project, both as a Task Force member and as a key stakeholder.

If you have any questions, please don't hesitate to contact me.

Sincerely,

Sarah Sherrer, Assistant City Manager





Southern Climate Impacts Planning Program  
LSU: 225.578.8374 | OU: 405.325.7809  
scipp@mesonet.org | www.southernclimate.org

June 22, 2015

Ms. Irene M. Hoiby  
Bureau of Reclamation  
Financial Assistance Services  
Mail Code: 84-27852  
PO Box 25007  
Denver, CO 80225

Re: Bureau of Reclamation  
Water Smart: Drought Contingency Planning Grant for Fiscal Year 2015

Dear Ms. Hoiby,

We are pleased to support the Chickasaw/Choctaw Nations proposal “Developing a Regional Drought Contingency Plan for the Arbuckle Simpson aquifer region.” The Drought Contingency Plan involves the identification of key monitoring tools to predict the onset and severity of drought, vulnerability assessment, mitigation actions, response actions, and operational framework. We would be willing to serve on the task force to help develop this plan.

SCIPP is a NOAA Regional Integrated Sciences and Assessments (RISA) Team in the South Central United States, including the territories of the Chickasaw and Choctaw Nations. We have worked closely with both Tribal Nations on drought and other hazards in the past, as well as on broader climate education and assessments of vulnerability to climate change. SCIPP leads the Southern Plains Drought Early Warning System “pilot” of the National Integrated Drought Information System (NIDIS) and has been engaged in drought planning and preparedness with many entities, including tribal nations, federal and state agencies, professional associations and private-sector businesses. We bring the experience of these activities to bear in the discussion that will be led by the Chickasaw and Choctaw Nations.

I look forward to continuing our interactions with Oklahoma’s tribal nations as they build resilience to drought, climate change, and extreme weather events. If you have any questions, please call me at 405-325-3044 or email at [mshafer@ou.edu](mailto:mshafer@ou.edu).

Sincerely,

Mark Shafer  
Director, Southern Climate Impacts Planning Program

Louisiana State University  
Geography and Anthropology Dept.  
Howe-Russell Building  
Baton Rouge, LA 70803

The University of Oklahoma  
Oklahoma Climatological Survey  
120 David L. Boren Blvd. Suite 2900  
Norman, OK 73072

Texas A&M University -  
Dept. of Geography  
University of Nebraska-Lincoln  
National Drought Mitigation Center

**Application for Federal Assistance SF-424****16. Congressional Districts Of:**

\* a. Applicant

2, 4

\* b. Program/Project

2, 4

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment

Delete Attachment

View Attachment

**17. Proposed Project:**

\* a. Start Date:

10/01/2015

\* b. End Date:

09/30/2017

**18. Estimated Funding (\$):**

* a. Federal	187,081.00
* b. Applicant	200,361.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	387,442.00

**\* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**☐ a. This application was made available to the State under the Executive Order 12372 Process for review on☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.☒ c. Program is not covered by E.O. 12372.**\* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**☐ Yes☒ No

If "Yes", provide explanation and attach

Add Attachment

Delete Attachment

View Attachment

**21. \*By signing this application, I certify (1) to the statements contained in the list of certifications\*\* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances\*\* and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ \*\* I AGREE

\*\* The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**Authorized Representative:**

Prefix:

\* First Name:

Thomas

Middle Name:

\* Last Name:

John

Suffix:

\* Title:

Undersecretary of Community Services

\* Telephone Number:

580-559-0995

Fax Number:

580-272-1252

\* Email:

grants.admin@chickasaw.net

\* Signature of Authorized Representative:

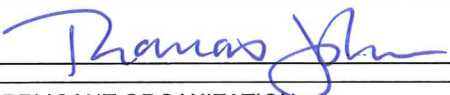
\* Date Signed:

06/24/2015





9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL 	TITLE Undersecretary of Community Services
APPLICANT ORGANIZATION The Chickasaw Nation	DATE SUBMITTED 06/24/2015