

December 9, 2011

Mr. Ed Fite
15307 N. Swannanoa Rd.
Tahlequah, OK 74464

Re: ASAP Committee's Proposed Draft Order Establishing a Tentative Maximum Annual Yield for the Arbuckle-Simpson Aquifer

Dear Mr. Fite:

On behalf of the Arbuckle-Simpson Aquifer Protection Committee (herein "ASAPC"), I am pleased to enclose a proposed draft Order Establishing a Tentative Maximum Annual Yield for the Arbuckle-Simpson Aquifer. As you are aware, the Oklahoma Legislature passed SB 288 in 2003 to ensure the sustainable management of the Arbuckle-Simpson Aquifer. To facilitate that goal, SB 288 directed the Oklahoma Water Resources Board (herein "OWRB") to conduct a hydrologic study on the Arbuckle-Simpson Aquifer and, based upon the science, to set a maximum annual yield for the Aquifer.

The OWRB completed its hydrologic study in 2009 and indicated at an informal meeting in Ada, Oklahoma that, based upon the science, the equal proportionate share will be approximately .2 acre-feet per acre per year. Also in 2009, the OWRB requested local stakeholders within the Aquifer reach an agreement as to the implementation of a maximum annual yield and present said agreement to the Board. Pursuant to the OWRB's request, ASAPC was formed.

ASAPC is comprised of municipalities, rural water districts, county commissions, and other local stakeholders in the Arbuckle-Simpson Aquifer area. For the first time in our region's history, these varied interests, which supply approximately 150,000 area citizens with drinking water, worked cooperatively to draft an implementation plan that is equitable to water suppliers, consumers, and producers, alike, and that also ensures a continued sustainable yield. After many months of dedicated effort, ASAPC is delighted to present its proposed draft Order.

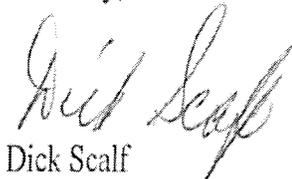
Members of ASAPC had hoped to address the Board in open session about the hard work and unprecedented cooperative effort this intermunicipal consensus represents. Sadly, ASAPC was denied this opportunity. Nonetheless, ASAPC believes it vital that the Board have a full and complete understanding of the extent of our efforts—indeed, *years* of work have been invested in this proposed draft Order. Because approximately 150,000 Oklahoma citizens rely on ASAPC members for drinking water, seeing the Arbuckle-Simpson Aquifer managed so as to provide a sustainable source of high-quality potable water is paramount. ASAPC tenders this letter to provide some sense of the groundbreaking regional cooperation and diligent process involved in reaching this point. ASAPC hopes that the OWRB will work with the communities most affected by SB 288's implementation, as it indicated it would two years ago.

When SB 288 was passed, those depending on the Arbuckle-Simpson Aquifer knew hard decisions would arise. ASAPC formed as an acknowledgement of and solution to said hard decisions. When presented with a tough decision, ASAPC always proceeded with the question—what is equitable for all? I firmly believe that the proposed draft Order provides an equitable and balanced implementation plan. Moreover, the proposed draft Order provides for the sustainable management of the Arbuckle-Simpson Aquifer, which is critical for the continued economic growth and development of South-Central Oklahoma.

Ultimately, those depending on the Arbuckle-Simpson Aquifer will be the ones most affected by the Board's maximum annual yield determination. On behalf of ASAPC, I hope that the OWRB seeks to do what is best for those living in the Arbuckle-Simpson Aquifer area as a whole, rather than doing what is best for interests outside the Aquifer.

Please do not hesitate to contact me should you have any questions at (580) 320-8432.

Sincerely,



Dick Scalf
Mayor, City of Ada

enclosure.

cc: Hon. Mary Fallin
Sen. Brian Bingman, President Pro
Tempore
Rep. Kris Steele, Speaker
Sen. Josh Brecheen
Sen. Sean Burrage
Sen. Brian Crain
Sen. Jerry Ellis
Sen. David Holt
Sen. Ron Justice
Sen. Bryce Marlatt
Sen. Susan Paddack
Sen. Frank Simpson
Rep. Lisa Billy
Rep. Dale DeWitt
Rep. Tommy Hardin
Rep. Wes Hilliard
Rep. Chuck Hoskin
Rep. Guy Liebmann
Rep. Charles Ortega
Rep. Pat Ownbey

Rep. RC Pruett
Rep. Brian Renegar
Rep. Phil Richardson
Rep. Paul Roan
Rep. Dustin Roberts
Rep. Dan Sullivan
Rep. Todd Thomsen
Hon. Gary Sherrer, Oklahoma Secretary
of the Environment

**BEFORE THE OKLAHOMA WATER RESOURCES BOARD
STATE OF OKLAHOMA**

IN THE MATTER of Determining the Maximum)
Annual Yield for the Arbuckle-Simpson Aquifer)
underlying parts of Carter, Coal, Johnston,)
Murray, and Pontotoc Counties)

**ORDER ESTABLISHING THE TENTATIVE MAXIMUM
ANNUAL YIELD OF THE ARBUCKLE-SIMPSON AQUIFER**

On this _____ day of _____, 201__, there came on for consideration an Order to establish the maximum annual yield for the Arbuckle-Simpson Aquifer. Based on the hydrologic surveys and investigations made, the Oklahoma Water Resources Board (herein "Board") makes and enters the following Order:

BACKGROUND

1. The Arbuckle-Simpson Aquifer is a major groundwater basin located under parts of the following Oklahoma counties: Carter, Coal, Johnston, Murray, and Pontotoc.
2. The Aquifer is exposed at the surface in three uplifted areas, which generally correspond to three prominent geologic features: the Arbuckle, Tishomingo, and Hunton anticlines. *See* Osborn, Noel I., 2009, Arbuckle-Simpson Hydrology Study, Final Report to the U.S. Bureau of Reclamation, p. 6.
3. On September 25, 1989, the Environmental Protection Agency designated the Hunton Anticline of the Arbuckle-Simpson Aquifer as a Sole Source Aquifer, *see* 54 FR 39230, which means the Aquifer is the sole or primary source of drinking water for the overlying area and, if contaminated, would create a significant hazard to the public. *See* 42 U.S.C. § 1424(e), Safe Drinking Water Act of 1974. Moreover, by designating the Arbuckle-Simpson Aquifer as a Sole Source Aquifer, the Environmental Protection Agency declared that the Aquifer was a valuable resource deserving special consideration under water management plans. *See* Region 6 Sole Source Aquifer (SSA) Program: Frequently Asked Questions.
4. Currently, the Hunton Anticline of the Arbuckle-Simpson Aquifer is the only Sole Source Aquifer in the State of Oklahoma.
5. In 2002, the Central Oklahoma Water Resource Authority proposed purchasing water from landowners who held water use permits in the Arbuckle-Simpson Aquifer and transporting it to communities in Central Oklahoma for public water supply. Local residents, citizens' groups, and the National Park Service, however, were concerned that such large-scale withdrawals would decrease flows of springs and streams emanating from the Aquifer, which would ultimately cause a loss of recreational opportunities, tourism destinations, aquatic habitat and water supplies.

6. In response, the Oklahoma Legislature passed Senate Bill 288 (herein "SB 288"), which imposed a moratorium on the issuance of any temporary groundwater permit for municipal or public water supply outside of any county that overlies a "Sensitive Sole Source Groundwater Basin." See SB 288, codified at 82 O.S. §§ 1020.9A and 1020.9B. A Sensitive Sole Source Groundwater Basin is defined as

a major groundwater basin or subbasin all or a portion of which has been designated as a "Sole Source Aquifer" by the United States Environmental Protection Agency pursuant to the Safe Drinking Water Act as of the effective date of this act, including any portion of any contiguous aquifer located within five (5) miles of the known areal extent of the surface out-crop of the sensitive sole source groundwater basin.

82 O.S. § 1020.9A(B)(1).

7. The Arbuckle-Simpson Aquifer is the only Sensitive Sole Source Groundwater Basin in the State of Oklahoma.

8. Pursuant to SB 288, the moratorium remains in effect until the Oklahoma Water Resources Board completes a study of the Arbuckle-Simpson Aquifer and determines a maximum annual yield that ensures that any individual permit for the removal of water will not "reduce the natural flow of water from springs or streams emanating from said basin or subbasin." 82 O.S. § 1020.9A(B)(2).

9. Scientific investigation indicates that a reduction of twenty-five percent (25%) or less in the natural flow of springs and streams emanating from the Arbuckle-Simpson Aquifer is consistent with the mandates of SB 288.

10. The Oklahoma Water Resources Board, in conjunction with the United States Geological Survey (herein "USGS"), Oklahoma State University, the University of Oklahoma, and the Oklahoma Climatological Survey, conducted the Arbuckle-Simpson Hydrology Study from 2003-2009.

11. The objectives of the Arbuckle-Simpson Hydrology Study were as follows:

- a. Characterize the Arbuckle-Simpson Aquifer in terms of geologic setting, aquifer boundaries, hydraulic properties, water levels, groundwater flow, recharge, discharge and water budget;
- b. Characterize the area's surface hydrology, including stream and spring discharge, runoff, base flow, and the relationship of surface water to groundwater;
- c. Construct a digital groundwater/surface water flow model of the Arbuckle-Simpson Aquifer system for use in evaluating the allocation of water rights and simulating management options;
- d. Determine the chemical quality of the Aquifer and principal streams, identify potential sources of natural contamination, and delineate areas of the Aquifer that are most vulnerable to contamination;

- e. Construct network stream models of the principal stream systems for use in the allocation of water rights; and
- f. Propose water management options, consistent with state water laws, that address water rights issues, the potential impacts of pumping on springs and stream base flows, water quality, and water supply development.

FINDINGS OF FACT

12. The Board made a hydrologic survey and investigation of the Arbuckle-Simpson Aquifer which is located under parts of the following counties in Oklahoma: Carter, Coal, Johnston, Murray, and Pontotoc. *See* Attachment 1, US Geological Survey (2011), Figure 1, Map of the Arbuckle-Simpson Aquifer Outcrop. The hydrologic surveys and investigations reviewed for this Order include:

- a. Christenson, Scott, Osborn, N.I., Neel, C.R., Faith, J.R., Blome, C.D., Puckette, James, and Pantea, M.P., 2011, Hydrogeology and simulation of groundwater flow in the Arbuckle-Simpson aquifer, south-central Oklahoma: U.S. Geological Survey Scientific Investigations Report 2011-5029, 104 p.
- b. Osborn, Noel I., 2009, Arbuckle-Simpson Hydrology Study, Final Report to the U.S. Bureau of Reclamation;
- c. Faith, Jason, Blome, C., Pantea, M., Puckette, J., Halihan, T., Osborn, N., Christenson, S., and Pack, S., 2010, Three-Dimensional Geologic Model of the Arbuckle-Simpson Aquifer, South-Central Oklahoma: U.S. Geological Survey Open-File Report 2010-1123;
- d. Hydrosphere Resource Consultants, 2007, Arbuckle-Simpson Aquifer Special Study: Stream Water Management Network Model;
- e. Seilheimer, Titus, Oklahoma Cooperative Fish and Wildlife Research Unit, 2009, Instream Flow Assessment of Mill Creek, A Stream Draining the Arbuckle-Simpson Aquifer;
- f. Young, Roger, Kennedy, B., Russian, C., 2009, Analysis of Seismic Reflection Data from the Hunton Anticline, Final Report;
- g. Puckette, Jim, 2009, Analysis of Bit Cuttings, Wire-Line Logs and Flow Tests from a Deep Test Well in the Arbuckle-Simpson Aquifer, Johnston County, Oklahoma, Final Report;
- h. Vieux, Baxter and Moreno, M., 2008, Arbuckle-Simpson Hydrology Study: Distributed Water Resources Assessment, Final Report;
- i. Halihan, Todd, Mouri, S., and Puckette, J., 2009, Evaluation of Fracture Properties of the Arbuckle-Simpson Aquifer, Final Report;
- j. Smith, David, Deszcz-Pan, M., and Smith, B., 2009, Depth Section Imaging for Portions of an Airborne Geophysical Survey of the Hunton Anticline, South-Central Oklahoma, Final Administrative Report;
- k. Halihan, Todd, Puckette, J., Sample, M., and Riley, M., 2009, Electrical Resistivity Imaging of the Arbuckle-Simpson Aquifer, Final Report;

- l. Puckette, Jim, Halihan, T., and Faith, J., 2009, Characterization of the Arbuckle-Simpson Aquifer, Final Report;
 - m. Rahi, Khayyun, and Halihan, T., 2009, Estimating Selected Hydraulic Parameters of the Arbuckle-Simpson Aquifer from the Analysis of Naturally-Induced Stresses, Final Report;
 - n. Tarhule, Aondover, 2009, Hydroclimatic Reconstruction of the Arbuckle-Simpson Aquifer using Tree Rings;
 - o. Christenson, Scott, Hunt, A.G., and Parkhurst, D.L., 2009, Geochemical Investigation of the Arbuckle-Simpson aquifer, South-central Oklahoma, 2004-2006: U.S. Geological Survey Scientific Investigations Report 2009-5036, 50 p.;
 - p. Geochemistry of the Arbuckle-Simpson Aquifer, U.S. Geologic Survey, Fact Sheet 2009-3013;
 - q. Seilheimer, Titus, 2008, Instream Flow Assessment of Streams Draining the Arbuckle-Simpson Aquifer;
 - r. Tejan, Ellen, 2008, Indicators of Hydrologic Alteration (IHA) Analysis of Selected Streams of the Arbuckle-Simpson Aquifer, South Central Oklahoma;
 - s. Osborn, Noel I., 2008, Arbuckle-Simpson Hydrology Study, 2007 Annual Report;
 - t. Osborn, Noel I., 2007, Arbuckle-Simpson Hydrology Study, Annual Report Federal Fiscal Year 2006;
 - u. Osborn, Noel I., 2005, Arbuckle-Simpson Hydrology Study, Annual Report Federal Fiscal Year 2005;
 - v. Fairchild, Roy, Hanson, R., and Davis, R., 1990, Hydrology of the Arbuckle Mountains Area, South-Central Oklahoma (Circular 91); and
 - w. All reports and information referenced therein.
13. The Hunton Anticline of the Arbuckle-Simpson Aquifer is the only Sole Source Aquifer in the State of Oklahoma.
14. The Arbuckle-Simpson Aquifer is the only Sensitive Sole Source Groundwater Basin in the State of Oklahoma.
15. The Arbuckle-Simpson Aquifer provides water, both surface water and groundwater, to approximately 150,000 Oklahoma citizens.¹
16. SB 288 mandates the conservation of the Arbuckle-Simpson Aquifer to provide for the sustainable use of water withdrawn from the Aquifer while preserving stream and spring flow. As such, SB 288 permits the sustainable withdrawal of water from the Arbuckle-Simpson Aquifer, pursuant to the results of the Arbuckle-Simpson Aquifer Hydrologic Study that, among other things, scientifically estimates the quantity of groundwater withdrawals that will conserve the flow of springs and streams that are hydrologically connected to the Aquifer.

¹ The recent Arbuckle-Simpson Hydrologic Study states that approximately 39,000 Oklahoma citizens rely upon the Arbuckle-Simpson Aquifer. However, this number does not represent the people, municipalities, and rural water districts that rely upon the Aquifer's stream flow. Rather, the number only represents those individuals and entities physically overlying the Aquifer.

17. The total area of outcrop of the Arbuckle-Simpson Aquifer is approximately 520 square miles and is comprised of limestone, dolomite, and sandstone of the Arbuckle and Simpson Groups, dating to the Late Cambrian to Middle Ordovician age. The Arbuckle group is as thick as 6,700 feet in the western portions of the Aquifer, thinning to an estimated 3,000 feet in the eastern portions. The overlying Simpson Group, consisting of sandstones, shales and limestones varies in thickness from about 2,300 feet in the western parts of the Aquifer to about 1,000 feet in the east. Saturated thickness is over 6,000 feet in some portions of the Arbuckle Group alone. US Geological Survey, 2011.

18. The Board is unable to determine the amount of water in storage in the Arbuckle-Simpson Aquifer at the time of the hydrologic survey.

19. In a recent study by the US Geological Survey (2011), the average recharge rate for the 2004-2008 period of record used for model calibration was determined to be 5.58 inches per year, and ranged from 2.57 inches in 2006 to 11.61 inches in 2007. The approximate discharge rate for the Arbuckle-Simpson Aquifer is 5.58 inches per year.

20. The average transmissivity of the Arbuckle-Simpson Aquifer is estimated to be 12,000 ft² per day. Storage coefficients calculated by the US Geological Survey (2011) using regional methods ranged from 0.00211 to 0.07475.

21. No known significant source of natural pollutants of the Arbuckle-Simpson Aquifer have been identified. However, owing to the existence of sinkholes and solution cavities, the possibility of pollution from natural and man-made sources exists.

22. The Arbuckle-Simpson Aquifer Hydrologic Study indicates the withdrawal of 0.2 acre-feet per acre of land over the Arbuckle-Simpson Aquifer, equivalent to a twenty-five percent (25%) reduction of flow, is protective of the natural flow of springs and streams emanating from the Arbuckle-Simpson Aquifer.

CONCLUSIONS OF LAW

23. The Board is given authority by the Oklahoma Groundwater Law, 82 O.S. §§ 1020.4, 1020.5, 1020.6, and 1020.9A to make hydrologic surveys and investigations, enter orders to make tentative determinations, hold hearings on the tentative determinations and issue final determinations of the maximum annual yields of each groundwater basin and subbasin. The Board is also given authority to cooperate with state and federal agencies engaged in similar surveys and investigations and may accept and use the findings of such agencies.

24. According to 82 O.S. § 1020.5, after completing a hydrologic survey, the Board is to make a tentative determination of the maximum annual yield of groundwater to be produced from a basin or subbasin upon the following:
- a. total land area overlying the basin or subbasin;
 - b. amount of water in storage in the basin or subbasin;
 - c. rate of recharge to and total discharge from the basin or subbasin;
 - d. transmissivity of the basin or subbasin; and
 - e. potential for pollution of the basin or subbasin from natural sources.
25. The maximum annual yield is to be based on a minimum basin life of 20 years from the date of the order establishing the final determination of the maximum annual yield.
26. The maximum annual yield cannot reduce the natural flow of water from springs or streams emanating from the basin or subbasin by more than twenty-five percent (25%) of the natural stream flow, which the Arbuckle-Simpson Hydrologic Study indicated to be an appropriate conservation measure that satisfied the requirements of SB 288.
27. After a tentative maximum annual yield for a basin is set and upon request by an interested person, hearings are to be called and held locations central to the area of the major groundwater basin. The hydrologic survey and information relied on to make the tentative order are to be made available for all interested persons.

ORDER

IT IS THEREFORE ORDERED by the Oklahoma Water Resources Board that the Arbuckle-Simpson Aquifer be and the same is hereby declared to be a major groundwater basin under the provisions of Oklahoma Groundwater Law.

IT IS FURTHER ORDERED that the tentative determination of the maximum annual yield for the Arbuckle-Simpson Aquifer is 66,560 acre-feet $((640*520)*.2)$ and the equal proportionate share (acre-feet per acre per year) of the yield to be allocated to each acre of land overlying the basin, based on the maximum annual yield and total overlying land area, is 0.2 acre-feet per acre per year.

IT IS FURTHER ORDERED that, pursuant to 82 O.S. § 1020.11 and OAC 785:30-5-1, any groundwater permit issued after the date of the order establishing the final determination of the maximum annual yield be issued as a regular groundwater use permit at 0.2 acre-feet per acre per year.

IT IS FUTHER ORDERED that implementation of the 0.2 acre-feet per acre per year equal proportionate share be phased in over a twenty (20) year period for existing permits. Immediately upon the order establishing the final determination of the maximum annual yield, the equal proportionate share for all users of the Arbuckle-Simpson Aquifer shall be the lesser quantity of the currently permitted amount or 1.0 acre-foot per acre per year. Thereafter, the equal proportionate share shall be decreased as set forth below:

EPS (acre-feet per acre per year) Phase-In Period for Existing Permits	
YEAR	EPS
1.	1.0*
2.	1.0*
3.	1.0*
4.	1.0*
5.	1.0*
6.	0.8*
7.	0.8*
8.	0.8*
9.	0.8*
10.	0.8*
11.	0.6*
12.	0.6*
13.	0.6*
14.	0.6*
15.	0.6*
16.	0.4*
17.	0.4*
18.	0.4*
19.	0.4*
20.	0.2

** The amount of permitted withdrawals during the phase-in period will be the lesser of the amounts stated in the table above, or the permitted amounts if they are less in any given year.*

Provided, that no temporary groundwater permit holder shall be allowed to increase the quantity of water specified in the temporary groundwater permit.

IT IS FURTHER ORDERED that the Oklahoma Water Resources Board shall set an appropriate well setback for all major springs within the Arbuckle-Simpson Aquifer. Major springs will be identified by the Oklahoma Water Resources Board based upon scientific data and public comment. Wells placed outside the setback area shall be deemed not likely to degrade or interfere with springs emanating in whole or in part from the Arbuckle-Simpson Aquifer.

IT IS FURTHER ORDERED that a location exception shall be granted from the well setback requirement if the person requesting the exception shows and the Oklahoma Water Resources Board determines in an individual proceeding that placing the well within the setback area prevents inequitable or unreasonable treatment and is not likely to interfere with springs emanating in whole or in part from the Arbuckle-Simpson Aquifer. A mitigation plan is required for all wells placed within the well setback area, which plan may include, but is not limited to, mitigation efforts, conservation techniques, and monitoring requirements. The following situations are examples to show that compliance with the well setback would be inequitable or unreasonable:

1. No objection is received from any landowner having a well located within the established well setback distance of the proposed well requested to be authorized;
2. The amount or dimensions of land dedicated to the permit precludes the drilling of a well in compliance with the setback requirement; and
3. The well requested to be authorized is a well which was drilled, completed and used prior to the date of the maximum annual yield determination and which does not meet the setback requirement.

IT IS FURTHER ORDERED that, if a site-specific management plan is required, the plan and its requirements shall be included as a condition of any water use permit that may be issued.

IT IS FURTHER ORDERED that hearings, upon request by any interested person, be held at a central location within the area of the major groundwater basin, that the hydrologic survey and information relied on to establish the tentative order be made available to interested persons, and that notice of the hearings be given as required by law. After said hearings, a proposed final order shall be prepared and submitted to the Board for consideration as required by law.

DONE in open and regular meeting of the Oklahoma Water Resources Board on this
_____ day of _____, 201__.

OKLAHOMA WATER RESOURCES BOARD

REVISED FINAL DRAFT SB 288 ORDER
November 7, 2011

ATTACHMENT 1

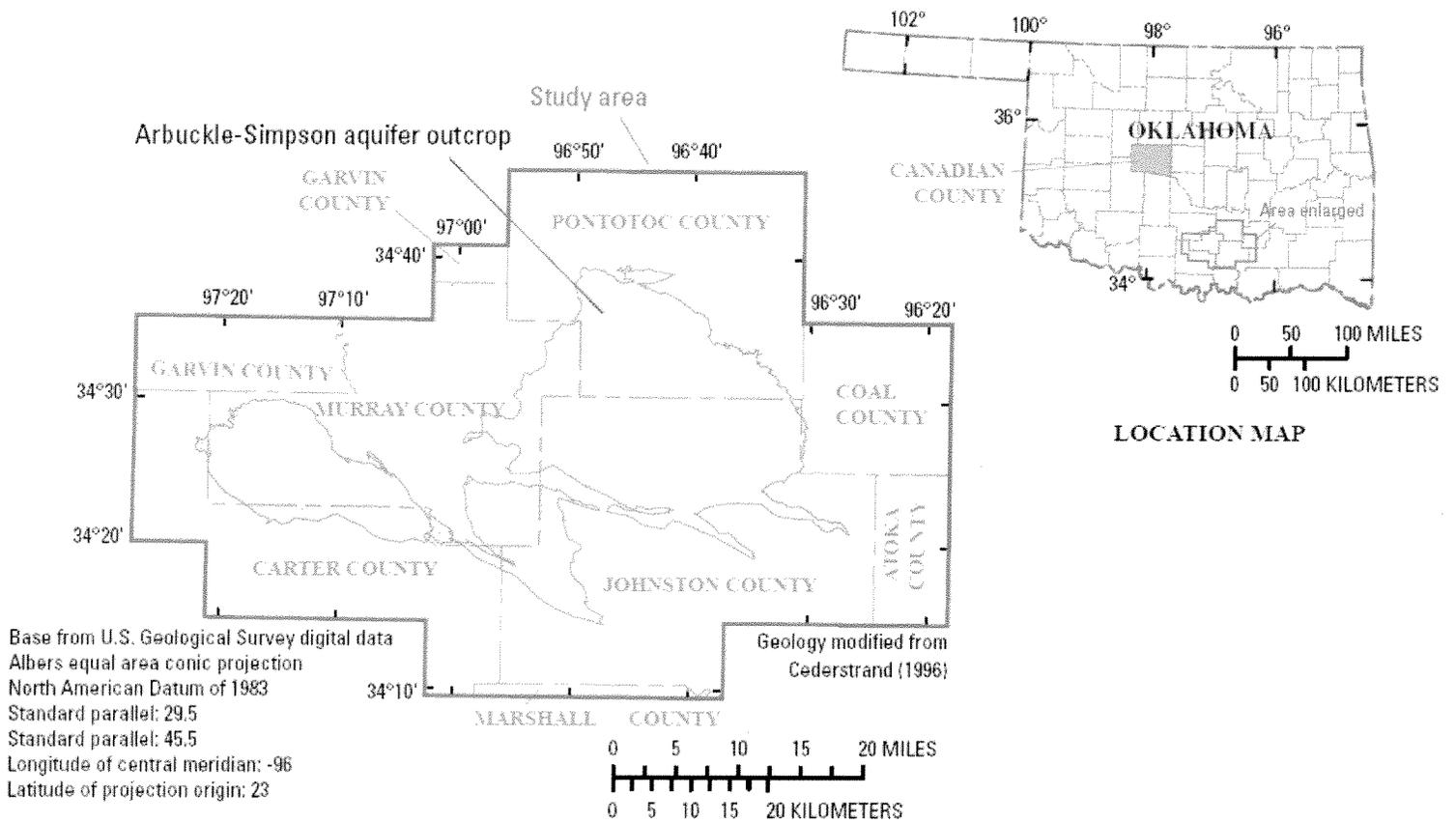


Figure 1. The Arbuckle-Simpson aquifer outcrop, south-central Oklahoma.