

Come to Ardmore!

The Second Biennial Field Conference of the AAPG Mid-Continent Section
Hosted by the Ardmore Geological Society



Woodford Outcrop, Henry House Creek

All this for a single registration fee:

1½ days in the field
Plenary session with posters
Icebreaker Friday + dinner Saturday
Symposium on the geology of
southern Oklahoma

Final Announcement & Registration Information

**Don't delay! Only 125
will participate!**

Guests welcome!



Exploring the Arbuckles:
Outcrops to Resources
October 17-19, 2014

You're Invited!

On behalf of the Ardmore Geological Society, I encourage you to participate in this fall's biennial AAPG Mid-Continent Field Conference. A big part of the appeal of this great opportunity is that registration is limited to 125 participants. This will ensure a real hands-on experience on the outcrop. But it also means you shouldn't delay! Register today at aapgms.org/field-conferences/2014.

Our conference will provide a unique opportunity to learn the history of the Southern Oklahoma Aulacogen; rifting, sedimentation and inversion. These processes have created the opportunity to visit in outcrop the hydrocarbon-producing formations of southern Oklahoma, the historically conventional reservoirs as well as the unconventional reservoirs responsible for the current surge in drilling activity in the area. There will be something for everyone: complex structural examples as well as stratigraphy. This is not going to be a highway road cut geological tour. Most of the outcrops we will visit are on private land or in quarries not accessible to the "casual observer." Exposures visited will be explained by authoritative scientists fully covering their geological significance.

Come early for the annual AGS golf tournament (see p. 7 for details) and by all means bring a guest. This promises to be a great opportunity for learning, sharing, and networking with kindred earth scientists—and a whole lot of fun too.

Please join us.

Tom Olsen
Conference General Chair



Diabase dikes intruding Troy Granite



Woodford, fractured chert and organic rich siliceous shale

Friday 17 October

The conference officially begins at the Holiday Inn Ardmore I-35 on Friday afternoon, October 17, at 2:30, with a special symposium entitled **Select Topics of Southern Oklahoma Geology**. Offered by experts from industry, government and academia, this introduction to the geology of the area will focus on the Woodford Shale and other producing formations. Presentations will include:

Woodford Shale play update: Expanded extent in the oil window

Brian J. Cardott, Oklahoma Geological Survey

What is the potential of producing oil from the Woodford Shale, especially near the start of the oil window? How accurately can the oil window be defined? The emphasis of this presentation will be to answer these questions.

Shale gas and oil resource plays require a thermally mature hydrocarbon source rock and a brittle (e.g., Barnett style) or conventional-reservoir (e.g., Bakken style) lithology. Lacking both (1) a hydrocarbon source rock with a significant amount of oil generative organic matter at the optimum thermal maturity to generate, preserve, and expel hydrocarbons, and (2) a lithology that is susceptible to producing natural and induced fractures will negate a viable resource play.

Facies architecture and sequence stratigraphy of the Ordovician Bromide Formation (Oklahoma): A new perspective on mixed carbonate-siliciclastic ramp

Jesse Carlucci, Ph.D., Midwestern State University, Department of Chemistry, Geoscience, and Physics

The depositional history and environmental context of the Upper Ordovician Bromide Formation of south-central Oklahoma are reconsidered using lithofacies analysis and

One and a Half Days of Varied & Fascinating Geology!

the characterization of sequence stratigraphic patterns at a variety of scales. Inner-ramp, middle-ramp and outer-ramp environments are present in the Bromide. The ramp stratigraphy, facies associations and bounding surfaces suggest three 3rd-order depositional sequences, and a transition from a clastic-dominated ramp (late Whiterockian) to a carbonate-dominated ramp (Mohawkian) show that the Bromide was considerably more complex than the simple transgressive-regressive cycle traditionally used to describe accommodation dynamics in the basin.

Structural Analysis of Ardmore Basin Using Balanced Cross Sections

Molly Simpson Carpenter, Chesapeake Energy; Derya Kilic, Turkiye Petrolleri A.O.; and Bryan Tapp, University of Tulsa

Subsurface studies in the Ardmore Basin compare the structural style of Sho-Vel-Tum and Eola-Roberson Fields to better understand the structural and tectonic evolution of the Ardmore Basin. The field studies are in the northern portion of the Ardmore Basin and evaluate the various models of deformation that have been proposed for this dynamic region.

Woodford Shale: Correlating Rock Properties in Outcrop and Core with Wireline Log Characteristics

Jim Puckette, Oklahoma State University

The Devonian-Mississippian (Frasnian-Tournaisian) Woodford Shale in the southern Mid-Continent region was examined in core and outcrops to document changes in composition and the effects of these changes on wireline log responses. Modern and vintage wireline logs from nearby wells were compared to outcrop and core gamma-ray curves to increase confidence in correlations. Properties of the Woodford Shale that affect log response were documented including the relative percentage of chert, concentrations of U, Th and K, phosphate, carbonate content, silt and clay.

The Symposium is free for all conference participants, but you will need to pre-register.



Following the Symposium we will adjourn to the Ardmore Convention Center, connected to the Holiday Inn, for a traditional Icebreaker reception, but with a twist: as the party concludes we will invite to the podium area geology legend Robert W. Allen, followed by Professor Jonathan D. Price, for an entertaining and fascinating conclusion to the evening.

Bob will speak on the subject, "I Never Worked a Day in My Life." Ardmore Geological Society's geologist laureate will relay some personal history, the importance of samples, and the discovery of the Golden Trend. He has seen major changes in the industry during his 60-plus years in the business. We can all learn something from someone with that much experience. Bob was awarded the AAPG Special Award in 2010, the Oklahoma City Geological Foundation's Legends Award also in 2010, and the Distinguished Service Award from the University of Oklahoma's Mewbourne College of Earth and Energy.

Jon's talk, "Oklahoma's Volcanic Past: the Significance of Rifting and the Region's Magmatic History," will focus on the magmatism that shaped Oklahoma and the surrounding region. The Aulacogen's magmatic products are exhibited in outcrop— some of which we will see on the following day — and basement-penetrating drill hole samples and provide insight into the tectonic history of the region and the general nature of continental rifting. They also control the modern and ancient weathering profile of the Wichita and Arbuckle Mountains and influence the deformation of southern Oklahoma.

Throughout the evening around the perimeter of the meeting room various poster presentations will be on display exploring several geologic subjects of interest in the Arbuckle and Mid-Continent regions. Admission to the Icebreaker and presentations is included with the professional, student and guest/spouse registration. **Note:** Local attendees may wish to register for the Friday events only. The cost is \$45 and includes the Symposium, two drink tickets and hors d'oeuvres.

The Field Experience, Saturday-Sunday 18-19 October

Participants will be divided into three groups and the field conference will proceed in half-day sections with each group beginning at a different site. Everyone will make all the same stops over the day and a half. Buses will depart promptly from the Ardmore Convention Center/Holiday Inn parking lot at 8:00 am Saturday and return by 5:00 pm. Departure for the field Sunday will likewise be at 8:00 am, returning at 1:00 pm. The following half-day routes with stops are planned:

ARBUCKLE ANTICLINE

OHMEGCO

Development of shale-oil and gas resources over the past 15 years has demonstrated that shales are much more diverse in composition and physical properties than previously realized. This field trip location will provide a hands-on opportunity to walk a previously unexamined and complete section of the Woodford Shale while armed with a synthetic spectral gamma ray log of the outcrop. Comparisons will be made between the gamma-ray response and the different lithologies of the shale while moving up and transitioning between the depositional successions. The lower, middle, and upper informal members of the Woodford will be highlighted. Lithofacies and sequence stratigraphic correlations of the outcrop to the subsurface and to another complete Woodford outcrop section located a few miles away (Henry House Creek) will be discussed. A complete section of the Woodford can be measured at this locality as both the lower unconformable Hunton and overlying Sycamore can be identified. **NOTE: Alternate activities based on physical abilities. Measured outcrop is very steep with loose talus. Recommend boots with lugs, walking stick helpful.** Correlative units are weathered but easier to observe in same outcrop farther west.

TURNER FALLS OVERLOOK

From the Turner Falls Overlook the East Timbered Hills are visible. Cambrian igneous rocks are exposed here, but due to time constraints and accessibility these will not be observed during the field conference. These rocks consist primarily of extrusive units and felsic intrusions belonging to the Carlton Rhyolite Group and are overlain unconformably by clastic and carbonate sedimentary strata of Upper Cambrian to Orovician Timbered Hills and Arbuckle Groups. Diabase intrusions penetrate the rhyolite succession and represent the youngest phase of Cambrian igneous activity related to the development of the Southern Oklahoma Aulacogen in the Arbuckle region.

Honey Creek and Turner Falls are part of the active karst environment in the Arbuckle Mountains. The source of Honey Creek is a spring 7 miles to the southwest of Turner Falls. Active and inactive travertine and tufa deposits are records of five distinct stages of Pleistocene climate change. Turner Falls is actually building outward as a result of deposition of travertine at this time.

The Cool Creek Formation of the Arbuckle Group is exposed at the overlook. Sedimentary structures of peritidal carbonates and a diversity of morphologic growth forms of algal stromatolites can be observed.

CEDAR VILLAGE (affectionately known as the Fried Pies outcrop)

Standing in a vertical position, the Chimney Hill Group, the Henryhouse and Haragan of the Hunton Group can all be found bordered by the older Sylvan Shale and the younger Woodford Shale. Several unconformities exist between members and formations of the Chimney Hill and Hunton Groups. The contact between the Sylvan and the Chimney Hill Group is abrupt. There appears to be some channeling of the basal Keel Formation into the underlying Sylvan Shale. Previous to Stanley's 2001 work others had not mentioned an erosional surface at the top of the Sylvan. The Bois d'Arc and Frisco Formations are absent at this site; otherwise this location would represent the entire Hunton Group. The excellent exposure of the Sylvan-Hunton contact on the south and the Hunton-Woodford contact on the north make this a most interesting site, spanning about 70 million years. The contacts are sharp and well defined. Still further northward you may see the contact between the Woodford and the Sycamore Limestone. Pyrite clusters and shards of selenite can be found in the Sylvan Shale. The Keel Formation contains silicified oolites and green flecks of glauconite which help identify it in the sub-surface. The limestone units may contain fossil brachiopods, bryozoans, and crinoid flotation bulbs.

NORTHERN ARBUCKLES

BORAL AGGREGATES DAVIS QUARRY

Deformed Viola Limestone is quarried for aggregate at this location. Quarrying operations provide an opportunity to examine one of the many folds of the northern Arbuckle Mountains near the Washita Valley Fault, in this case an asymmetrical syncline. Associated faults have been mapped in the area and fractures are numerous. Some fractures are calcite filled with solid hydrocarbon residue also present in the fractures. Hydrocarbons of unknown composition seep from fractures in the quarry walls. The surface syncline is riding on a thrust fault dipping southwest. The south-west Davis Field was discovered below the thrust complex and produces from the basal Oil Creek Sandstone in an anticlinal trap. Active wells are present on the west side of quarrying operations that produce from the subthrust anticline.

HUNTON ANTICLE QUARRY (access is obtained by a walk of about 1/8th of a mile on an old washed-out road with high weeds, with a moderate uphill grade)

Whole-fossil wackestones and carbonate mudstones of the lower Devonian Bois d'Arc and Haragan Formations are exposed within a broad, symmetric anticline along the east and south sides of the quarry walls. The abandoned quarry operations provide a unique opportunity to observe a faulted anticline in three dimensions. This small-scale fold in proximity to the Reagan Fault provides an analog to the overall structural style of the Arbuckle Mountains. Outside and north of the main quarry, good exposures of the Woodford Shale (upper Devonian – lower Mississippian) can be observed, consisting of laminated, black, phosphatic shale, interbedded with thin, light gray chert beds. Multiple studies have been performed on the Woodford Shale at this location due to its importance as a source rock and unconventional reservoir.

EASTERN ARBUCKLES

MILL CREEK GRANITE QUARRY

The rock being quarried is the Troy Granite, which is cut by numerous diabase dikes. The quarry produces crushed stone that is used mainly as railroad ballast. This quarry is the best exposure of diabase dikes in Oklahoma and probably in the central interior of the United States. The diabase dikes are part of a swarm that is widespread throughout the core of the eastern Arbuckle Mountains. They intrude the 1400 to 1365 Ma granitoids of the eastern Arbuckles. The dikes strike predominantly N 60° W parallel to the rifted margin of the Southern Oklahoma Aulacogen. Most

the diabases are related to Cambrian opening of that structure. In addition an unknown but probably small number of low-Th diabase dikes were emplaced near the edge of the host granitoids. These, along with a suite of silicic northwest-trending microgranite porphyry dikes, record a Mesoproterozoic structural grain that may have influenced Paleozoic structure.

U.S. SILICA OIL CREEK SAND QUARRY

The basal sand of the Oil Creek Formation is 350 feet of stacked beds of pure quartzose sand. Uniformity of the grain size inhibits the ability to see sedimentary structures. One interpretation is that this sand is the product of storm-influenced sedimentation in an inner-shelf setting. Each storm deposit consists of a sand bed 1-10 inches thick derived from wave action and erosion inshore, capped by a clay layer several millimeters thick deposited after the storm. Textural and compositional evidence suggest that the sand grains have passed through an eolian cycle, and that the sand was probably transported to its present location from the north. The sand is unconsolidated with high porosity and high permeability. In spite of its age, the sand has remained friable because the deposit was not subjected to diagenetic cementation. A sample placed in water soon disaggregates into loose sand grains and a milky clay fraction held in suspension. The sand is 99.9% pure silica sand with clay impurities that are removed by scrubbing/flotation. Iron is the chief impurity in the sand, and the sands mined by hydraulic methods at this quarry have only about 0.010% iron (as Fe₂O₃), making them suitable for such applications as optical glass, lenses, and other uses where a very pure sand is required. It has been estimated by Tom Olsen that in the Cumberland Field (5S-7E) to the southeast in Bryan County the Basal Oil Creek has produced in excess of 1 million barrels of oil per well.

AMOS CONLEY ROAD (proposed; due to a recent change of ownership of this property it is unknown if this exposure will be accessible at the time of the field conference)

The road cut exposes the Timbered Hills Group, of Cambrian Age. The Reagan overlaps the underlying Troy Granite on the nonconformity surface. The Honey Creek Limestone can also be seen in this road cut. The Reagan Sandstone and the Honey Creek exhibit thickening and thinning as a response to the underlying topography of the granite surface present at the time of deposition. The Fort Sill Formation shows abrupt gradation of limestone into dolomite in the vicinity of the buried hills. The inference is that both thinness and dolomitization here are related to deposition in extremely shallow water around the shores of granite islands.

Featured Saturday Evening Speaker and Dinner

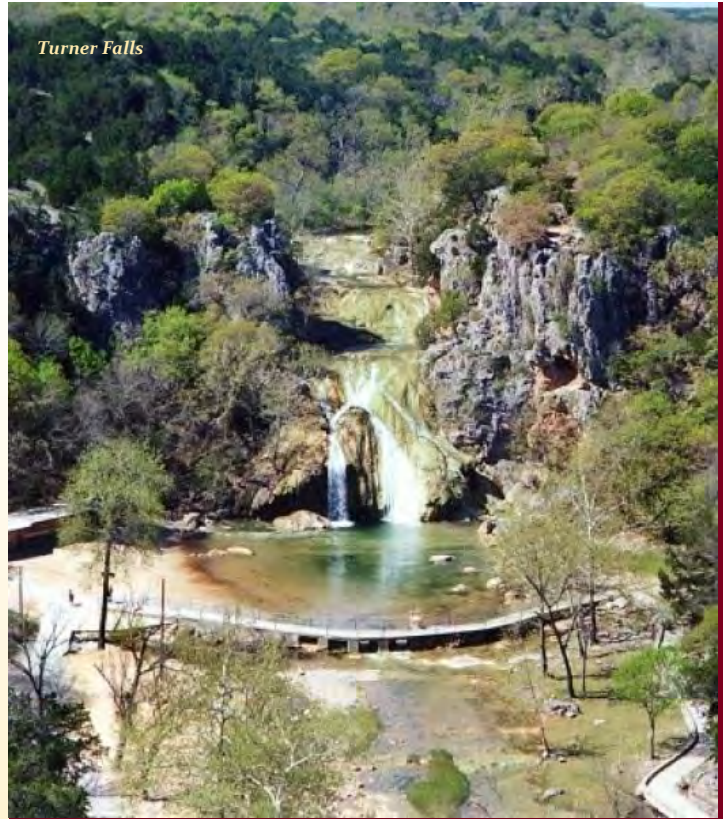
Don Clarke, consulting petroleum geologist and
AAPG Distinguished Lecturer

Hydraulic Fracturing and Earthquakes: Ethically,
How Do We Move Forward and Do the Right
Thing?

6:00-8:30 pm, Ardmore Convention Center

Abstract: During the course of a year, a committee of professionals of diverse expertise, with backgrounds in academic research, private industry, and government service convened five public information-gathering meetings and produced a consensus report that assessed the current situation related to induced seismicity in the United States for various energy technologies including hazards, risks, government roles and responsibilities, proposed research needs and suggestions on how to move forward. The report stands as an example of how a group of objective professionals with varying viewpoints can come to a consensus and produce a useful, scientifically-grounded document to help guide developments with emerging energy technologies.

All registrants – professionals, students and guests – receive a ticket to the dinner and special presentation by Don Clarke. Locals may wish to attend the social hour and dinner only, in which case the price is \$49 per person and is available through pre-registration.



Turner Falls

Below: Vertical Hunton Group at Cedar Village (Fried Pies)



Folded and thrust Arbuckle group

SAFETY FIRST IN THE FIELD, 'RUGGED CASUAL' IN TOWN

Feel free to wear some decent duds on Friday and Saturday upon return, but for the trail come prepared. There will be some walking, and although the weather should be fine in October, make sure you are dressed for the elements. Eye protection and a hard hat are recommended.

Bring layers for the day and raingear just in case. You will be provided a backpack and water will be available on the route.

**EVERYONE MUST SIGN LIABILITY
WAIVERS! NO OPEN-TOED FOOTWEAR!**

Options in Ardmore

Ardmore is a progressive, attractive city bustling with activity. Founded before statehood, its history is diverse and rich. Ardmore was born with the establishment of the Santa Fe Railroad in 1887 while Oklahoma was still Indian Territory. Initially the community's roots were agricultural, with cotton as the primary crop. At one point, it boasted the largest inland cotton market in the United States. This was the beginning of a city destined to become one of the premiere towns in the State of Oklahoma. The overwhelming number of people farming in the area quickly depleted the area soil, and the cotton industry all but disappeared.

The decline of the cotton industry did not slow this progressive community. Soon oil was discovered! This discovery rapidly converted the economy from one based on agriculture to one based on energy. Quickly Ardmore became one of the wealthiest and fastest growing cities in the Southwest. After waning in the latter part of the last century, the oil industry is once again a mainstay of the town's economy. Learn what to see and do during your visit at visitors.ardmore.org.



Can't commit to the entire weekend's worth of activities? You are welcome to register for just the Friday activities and/or Saturday evening dinner with featured speaker. See descriptions on pp. 2, 3 and 6.



Hunton Henryhouse Falls

AGS Golf Tournament!

11:30 am lunch / 1:00 pm shotgun start, Friday 17 October
Dornick Hills Golf & Country Club
\$100 AGS members / \$125 non-members (Limit: 80 golfers)
Includes lunch, greens fees & beverages (transportation on your own)

Out-of-towners, bring your clubs to Ardmore! This year the Ardmore Geological Society has timed its annual golf tournament to coincide with our hosting the Conference. It will be held at the beautiful Dornick Hills Golf and Country Club, just east of Highway 77 one mile north of the intersection with State Highway 142.

A lunch buffet will be served starting at 11:30 am with the 4-man scramble's shotgun start at 1:00 pm. Sign up through conference pre-registration or contact Tracy Yarborough, (580) 226-7600, ext. 232 or tracy@glcos.com, to register separately from the field conference. Tracy can also help with arrangements for corporate teams (@\$525), AGS membership (join now and pay the member price!), and if the weather is looking iffy, a report about whether the tournament is a "go."

All surplus revenue from the tournament will go toward the Jerome Westheimer Memorial Geoscience Scholarship, which currently supports two students at the University of Oklahoma. So come have a good day on the links and feel good about it at the same time—regardless how you play!

Guest/Spouse Program

We look forward to welcoming lots of spouses and guests to our hometown during the field conference. The guest/spouse fee of \$85 includes the Friday Icebreaker and Saturday night dinner in addition to the following:

Saturday 18 October, 9:30 am-3:30 pm

We'll leave the Convention Center/ Holiday Inn parking lot on the trolley bound for Historic Downtown Ardmore, where you will find many antique shops and consignment malls, boutique apparel stores, jewelry and a quilting store. We'll provide everyone with a walking tour brochure of historic buildings, a restaurant map card and discount cards from downtown merchants and restaurants.

Lunch will be your choice. Ardmore features many one-of-a-kind places to eat—Ten Star Pizza Kitchen, Cuppycakes Sweet and Treats, Edamame American Sushi Bar and the Famous Hamburger Inn just to name a few!

At 2:00 the trolley will take us to The Goddard Center to view the featured artists' exhibit and some of the Permanent Collection on display. That collection includes over 300 works of art, featuring Oklahoma artists as well artists from across the United States, Europe and Mexico. We will depart the Goddard Art Center and return to the Convention Center at 3:30pm.

Sunday 19 October, 8:30 am-12:30 pm

Departure by bus from the Convention Center parking lot will take place at 8:30 am for an exploration of the Arbuckle Mountains—a geotour for non-geologists! Get the "Reader's Digest" version of some of the outcrops of the main field trip, and some not on the main tour, many unique to this part of the country. Learn some of the geologic history of the Ardmore Basin and Arbuckles. The rocks can tell an amazing story that spans millions of years. No major hikes, step out of the bus, get a short explanation without a lot of terminology, snap a picture. No notes required, no final exam. Return is at 12:30.

Schedule of Events

Friday

AGS Golf Tournament (Dornick Hills)	11:30 am-5:00 pm
Conference registration open (Holiday Inn)	12:30 pm-7:30 pm
Symposium: Select Topics of Southern Oklahoma Geology	2:30 pm-4:30 pm
Icebreaker & posters (Ardmore Convention Center)	5:30 pm-7:30 pm
Keynote Speakers	7:30 pm-8:30 pm

Saturday

Breakfast (free if staying at Holiday Inn)	6:30 am-7:30 am
Conference registration open & box lunch pickup	6:30 am-8:00 am
Field conference	8:00 am-5:00 pm
Guest/spouse program to historic downtown Ardmore	9:30 am-3:30 pm
Social hour, dinner & featured speaker Don Clarke (ACC)	6:00 pm-8:30 pm

Sunday

Breakfast (free if staying at Holiday Inn)	6:30 am-7:30 am
Field conference	8:00 am-1:00 pm
Guest/spouse program to the Arbuckles	8:30 am-12:30 pm
Field conference returns; hotel departures	1:00 pm



The new Holiday Inn Ardmore I-35 is centrally located between Oklahoma City and Dallas on the I-35 corridor. Easily accessible from Exit 33, this full-service hotel offers an onsite bar and restaurant, fitness center, complimentary parking, complimentary WiFi, and 24-hour business center.

All guest rooms are well appointed with plush bedding, spacious work areas, and just for this conference, **free breakfast is provided for guests!**

A special group rate of **\$115** has been negotiated (exclusive of taxes).

Please make your reservations before **Friday, Sept. 26** to ensure you receive the conference rate. To book directly with the hotel call the front desk at (580) 226-3333, or go to www.holidayinn.com/ardmore-ok to book on line. Be sure to use the **Group Code MCC** when booking.

Registration Information

To ensure everyone has the best field experience possible, the conference is limited to 125 participants (and only five slots at the student discount), so you are advised to sign up early. There are three easy ways to register:

Register online (a credit card is required)

Go to <http://aapgmcs.org/field-conferences/2014> and click on **REGISTER NOW**.

By mail (check or credit card)

Complete the registration form on the next page and send it, along with your payment, to:

MCS Field Conference Registration
P.O. Box 3471
Tulsa, OK 74101-3471

Make checks payable to: **MCS AAPG Field Conference**

By fax (credit card only)

Fax your registration form, including credit card information, to: **(918) 585-1004** (wait until the end of the voice message; the fax machine will start automatically)

All full field conference, social event, optional tour and guest/spouse fees must be paid IN FULL at the time of registration. All fax registrations not including credit card information or mail-in registrations received without credit card information or a signed check from a U.S. bank will be returned. If completing a hard-copy form, use one form per professional or student registrant. If registering a guest or your spouse, be certain to provide the individual's name for the badge. **Professionals may not register as spouses or guests. All field trip leaders, speakers and poster presenters must be registered.**

Changes to your registration, including contact information and in particular monetary transactions (adding or deleting optional activities or cancelling outright), must be made in writing. Send your request to MCS AAPG Field Conference Registration, P.O. Box 3471, Tulsa, OK 74101-3471; or email sondra@gemworldevents.net. A fee of \$75 will be charged for all cancellations in full. NO REFUNDS will be issued after September 15, 2014.

Registration fees (NOTE—Space is limited to 125 total professionals and students!)

Professional	\$195
Student	\$50 (limit 5 at this price)
Spouse/Guest	\$85
Friday Symposium ONLY	FREE
Icebreaker & Friday Evening Presentations ONLY	\$45
Saturday Night Dinner ONLY	\$49
AGS Golf Tournament (transportation on your own)	\$100 member/\$125 non-member

All full registrations (professional, student and spouse/guest) admit the holder to the Friday seminar, posters, Icebreaker and keynote speakers and Saturday dinner with presentation. Professional and student registrants will also receive a backpack and comprehensive field guide. Pick up your badges and tickets to optional events just off the lobby of the Holiday Inn Ardmore I-35, 2207 N. Rockford Road, during the following hours:

Friday 17 October	12:30 pm– 7:30 pm
Saturday 18 October	6:30 am– 8:00 am

Ardmore Convention Center



Site of the opening Icebreaker, special poster displays and keynote presentations—as well as Saturday's social hour and dinner—the Ardmore Convention Center is a singular facility, the envy of many a small city. It is attached to the Holiday Inn, which will make it convenient for everyone attending from out of town. All buses will depart from and return to the Center's parking lot each day.

Registration Form

2014 AAPG Mid-Continent Biennial Field Conference • 17-19 October • Exploring the Arbuckles: Outcrops to Resources

Register online, or mail this form to MCS Field Conference Registration, P.O. Box 3471, Tulsa, OK 74101-3471.

First Name Last Name First Name for Badge

Company/Institution

Address City State/Country ZIP/Postal Code

Phone Number Fax Number Email (Required)

Please check all that apply:

- | | | |
|--|---|--|
| <input type="checkbox"/> Owner/Partner/Officer | <input type="checkbox"/> Engineer | <input type="checkbox"/> Speaker |
| <input type="checkbox"/> Manager | <input type="checkbox"/> Independent Consultant | <input type="checkbox"/> Poster Presenter |
| <input type="checkbox"/> Chief/Sr. Geologist | <input type="checkbox"/> Student | <input type="checkbox"/> Sponsor |
| <input type="checkbox"/> Staff Geologist | <input type="checkbox"/> Professor/Instructor | <input type="checkbox"/> Organizing Committee Member |
| <input type="checkbox"/> Geophysicist | <input type="checkbox"/> Retired | <input type="checkbox"/> Other |

Professionals and students may not register as guests or spouses. Use one form for each Professional or Student registration.

Indicate Registration Item	Cost	No.	Total
Professional (Limit: 125 Professionals & Students)	\$195	1	_____
Student (Limit: 125 Professionals & Students)	\$50	1	_____
—Optional 'Select Topics' Symposium (Friday 2:30-4:30; Limit: 80)	FREE	—	- 0 -
Spouse/Guest(s)	\$85	—	_____
AGS Golf Tournament (Friday 11:30-4:00—check one: <input type="checkbox"/> AGS mbr @\$100 / <input type="checkbox"/> AGS non-mbr @\$125)	—	—	_____
'Select Topics' Symposium ONLY (Friday 2:30-4:30; Limit: 10)	FREE	—	- 0 -
Icebreaker & Friday Evening Presentations ONLY (Friday 5:00-8:30)	\$45	—	_____
Saturday Night Dinner ONLY (Saturday 6:00-8:30)	\$49	—	_____
		GRAND TOTAL:	_____

First and last name of Spouse/Guest(s) for badge(s): _____

Payment Information

- VISA MasterCard Discover Card American Express Check (payable to **MCS AAPG Field Conference**)

Card Account No. Exp. Date CVV (from back of card) Total amount to be charged

Name as it appears on card (please print) Authorized signature

Billing address for card (if different from above)

List any special needs (dietary, accessibility, etc.) you may require: _____

I will be 21 years of age or older on or before October 14, 2014: Yes No

Provide a name and phone number to contact in case of an emergency: _____

FULL PAYMENT MUST ACCOMPANY THIS FORM IF MAILED. NO PURCHASE ORDERS. The AAPG Mid-Continent Section does not invoice for registration fees. Checks must be drawn on a U.S.-based bank account and in U.S. dollars only. Credit cards are charged in U.S. dollars only. A fee of \$75 will be charged on all cancellations in full. NO REFUNDS WILL BE ISSUED AFTER SEPTEMBER 15, 2014.

By registering for the 2014 MCS Field Conference, I release and agree to indemnify the Mid-Continent Section of the American Association of Petroleum Geologists (MCS-AAPG) and the Ardmore Geological Society (AGS) and their agents, officers, servants and employees of each, from all liability for any loss, damage or injury sustained by me while involved in any way with the 2014 Mid-Continent Section Field Conference, except that each of MCS-AAPG and AGS is not released from such liability to the extent the same is caused by its actual negligence or willful misconduct. By registering I further acknowledge that I have read and understand and agree to this waiver and release.

We are Grateful to our Sponsors!

Platinum (\$5000+)



Gold (\$2500-\$4999)



WOODSON EXPLORATION, L.L.C.



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Quivera Exploration LLC (Tom Olsen)

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Interested in heightening your profile within the industry? Helping ensure the success of this showcase event? Then join this growing list of sponsors. For information on the benefits accompanying each level of sponsorship, please contact Conference General Chair Tom Olsen, The Quintin Little Co., Inc., PO Box 1509, Ardmore, Oklahoma 73402; 580-226-7600 x 234; tolsen@qlcos.com.

For updated conference information, go to aapgmcs.org/field-conferences/2014 or email info@gemworldevents.net.



Ardmore Geological Society

PO BOX 1552

Ardmore, OK 73402

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