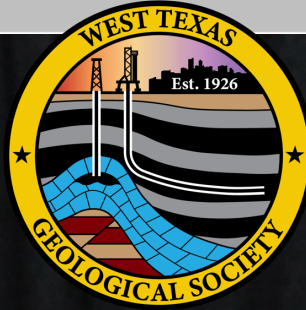


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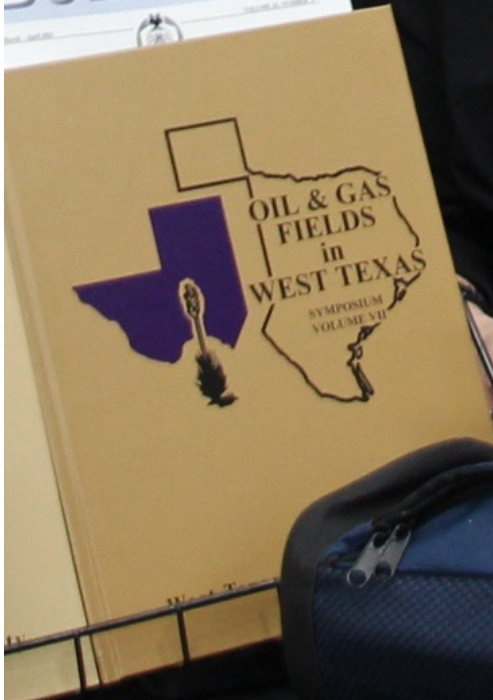
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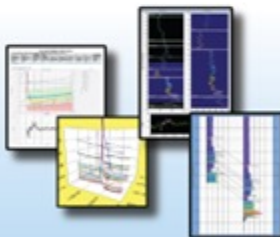
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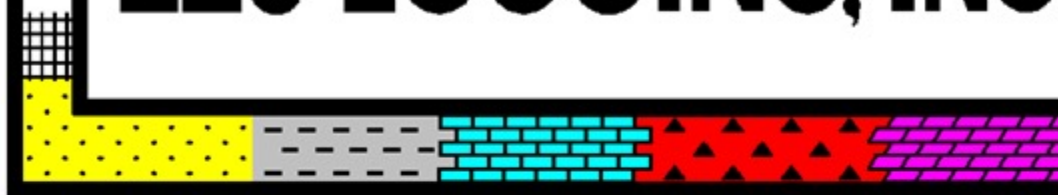
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Golf Tournament	Joe Ramirez	Premier-Corex	432-664-4753	Joe.ramirez@premiercorex.com
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Petroleum Technical Library				
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Publications				
Publicity & PR				
Scholarship	Judd Tudor	Drill2Frac	432-638-8409	Judd.tudor@drill2frac.com
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Fall Symposium	Judd Tudor	Drill2FRAC	432-638-8409	Judd.tudor@drill2frac.com
Honorary Life/Pioneer Nominating	Pat Welch	Primerock Resources	432-553-8418	jpfwelch@gmail.com

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From the 2025-2026 First Vice-President - Adam Ball

WTGS Members,

It has been a year since I last wrote this same letter, but this time I am not recovering from surgery and influenced by pain medication. October is probably my favorite month for Midland since the weather becomes milder overall and is perfect for driving around in a convertible. I guess that is until the wind picks up and blows leaves and pound of dirt in your face.

The past couple of months have been incredibly challenging for many in our community. The consolidation of more companies in the industry has affected many professionals in various fields. The low oil prices are also not helping any of the operators looking to explore new areas or untested benches in already held acreage. Some companies are also going through layoffs currently which can be very scary. We also lost Shellie Crossland back in July of this year. Shellie was a pillar of WTGS and the larger geologic community in West Texas, and her absence is still felt today within our community. Though we have been given some tough battles recently, I am amazed by the resilience and tenacity of our community.

Many people reached out to WTGS to help in any way they could over the past couple of months, which has been very appreciated. Other profound members of our community have stepped up in response to these adversities and provided immense support. I am very thankful for our community and how it has shined brightly even in dark times.

Another example of the shining support from the community this year was for Andy Roark. Andy fell nearly 130 feet while conducting a field study and the community rallied together to help him on the road to recovery. Andy expressed his thanks to many. He is doing well today and even presented at IMAGE! Another bright spot recently was the WTGS Fall Symposium.

The symposium in mid-September was a success with great attendance, talks, and festivities. The symposium is always a wonderful time to see familiar faces and catch up as well as meet new ones. I unfortunately missed some of the extracurricular activities due to illness but was able to attend the main symposium, which was a great time. I am confident that next year's is going to be even bigger and better, being it will be WTGS 100th year anniversary!

If there is one thing that I have taken away from the last couple of months, it is to be both mindful and thankful for those around you. This community is strong and willing to help others in need. It has also brought me (and hopefully many others) immense joy and lasting friendships. I feel a sense of duty to help our community whenever possible to give back what it has provided me over the years.

Adam Ball

2025-2026 1st Vice-President





Remembering Shellie

BY PAT WELCH

I worked with Paula Sanchez for many years and loved every minute. When I became President Elect of WTGS in 2020, you can imagine my horrors when Paula confided in me that she was ready to retire.

We created a search committee and began building a list of roles and responsibilities, collecting resumes and we received several decent candidates, but one stood out among the rest. Shellie Crossland was a project manager at Premier, formerly Weatherford Labs, formerly Rotary Labs and I had seen her work taking care of their client's projects. She was confident and worked well with many different types of personalities. Shellie had grown up in Midland, graduated from Lee High School as a member of the National Honor Society and she had attended Midland College and UTPB.

Her resume was good but what separated her was the way she respected geologists and enjoyed working with them, witnessed by her work and helping Paula with the Symposium many times. She was the clear choice among our search committee, and thankfully she accepted the position in 2021.

Shellie really saved us in a time of great need for the society. She approached the Executive Director role with joyful enthusiasm, but she was always willing to ask for help. WTGS accomplishes a lot every year and with 600 members it's not an easy job. Shellie handled herself so well at every challenge. This is a stronger organization because of her dedication, enthusiasm, and willingness to work hard for the needs of WTGS. The Fall Symposium was her highlight of the year; she enjoyed the hustle and bustle of getting everything ready, and truly appreciated all the exhibitors, speakers, sponsors and attendees.

Shellie also assisted the West Texas Geology Foundation, as the WTGS Executive Director has a non-voting position on the board. She spent hours working on the scholarship applications, checking for every detail and creating a spreadsheet she would share so we could efficiently process them all.

We honored Shellie with the WTGS Honorary Life Member Award at the Fall Symposium this year. We must strive as she did to always show our appreciation for one another. There was never a time that I talked to Shellie that she didn't voice her appreciation. We are a remarkable organization of oil & gas professionals, and we had the opportunity to be guided by Shellie Crossland as our Executive Director for the last five years.





Remembering Shellie



BY PAUL PAUSE'

We all knew Shellie through her work as Executive Director of the WTGS. She was always enthusiastic, helpful, capable, cheerful, and - like Paula before her - occasionally tough. Dealing with a bunch of damn geologists, sometimes she had to be. But there was such a big part of Shellie that was also gentle and generous.

The SWS AAPG meeting was in Abilene last year. As things were winding down after the evening social event, a few of us thought it would be fun to end the night by walking over to The Leaf, a nice little cigar shop there. Shellie joined the group. As we left the icebreaker, Shellie was carrying a big, clear plastic to-go box with a HUGE piece of chocolate cake that she hadn't been able to eat before we headed out. She went on and on about how much she was going to enjoy that chocolate cake: "I love chocolate cake! Have you ever seen such a beautiful piece of cake? Look at the size of this cake! I am really going to love this piece of cake! I can't wait to dig into this cake! Have I said how much I love chocolate cake?!" "Look at all that frosting!"

Shellie! enough with the chocolate cake already . . . !

She was so looking forward to enjoying that piece of chocolate cake.

Well, we're walking down the street and up ahead are a few people sitting on the sidewalk, backs up against the building, facing out to the street. Sleeping bags, blankets, and jackets tucked in around them. Some of Abilene's homeless, I guess. They didn't put out their hands, or say anything, they kept to themselves, and we kept on walking. I was walking next to Shellie, and just as we passed the sidewalk sitters, she stopped. She looked over her shoulder at them, looked down at the cake, then turned and started back to them. I walked back with her. Shellie walked up to one of the guys in the group, leaned in a little, and held out her cake to him: "We thought you might enjoy sharing this with your friends." The guy broke into a huge grin. He didn't even say thank you, but he didn't have to. The look on his face said it all. Then Shellie leaned in a little more and simply said "God bless you." She turned and we both walked to catch up with the rest of our group. Shellie had a smile on her face that was every bit as big as the guy who now had her cake.

That is the Shellie I'd like us to remember most.

Thank you, Shellie.

God bless *YOU*.





Remembering Shellie

BY PAULA (MITCHELL) SANCHEZ

I remember the morning Shellie called and asked if she could come by the office and talk to me. When she arrived, she said she had heard from a little birdie that I was thinking about retirement and wanted to leave her resume. After a while I made the decision to retire and added her resume to a few others. Pat, Stonnie and I interviewed Shellie and I can honestly say we made the best decision that she would be the perfect fit.

I have heard and read Shellie described as crazy, loud and that she would always bring a smile to those around her, all true, but she was much more than that. She was kind, caring, compassionate, fun loving, happy, hardworking and a trait I think she inherited from her mom, Tonya, she gave the best hugs. She will be missed by so many.

RIP my friend.





West Texas Geological Society 100 Year Anniversary: A Core Workshop of Early Permian Basin Field Discoveries

Robert F. Lindsay & Robert C. Trentham

In January 2026 the West Texas Geological Society will celebrate its 100th Anniversary. It has been over a century since the earliest field discoveries were made in the Permian Basin. With the support of the West Texas Geological Society, a Core Workshop is planned to revisit early field discoveries.

In identifying early cored wells, several cores were found to require additional work. As an example, core from Westbrook Field (1st discovery of commercial oil in the Permian Basin) and Artesia Field (3rd discovery) have not been slabbed. These cores require funding for core slabbing, boxing, photography, etc. for inclusion in the core workshop. We anticipate a few additional cores may need similar preparation. All cores will require a minimum of core photography and thin section preparation to adequately describe the core for inclusion in the core workshop. Donations of core analysis, drilling history, etc. would also be of great value to the core workshop.

We estimate the cost of core preparation to be a minimum of \$25,000. Funding will be managed by the West Texas Geological Society.

Below are 23 key fields that have been identified. These field discoveries opened the Permian Basin to additional exploration and development, and established it as a Super Basin:

Westbrook (1920) UCLFK
Big Lake (1923) GRBG
Big Lake (1929) ELLN
Artesia (1924) GRBG-SADR
McElroy (1925) GRBG *
McCamey (1925) GRBG-SADR *
Wheat (1925) BCYN *
Penwell (1925) SADR
Empire (1926) YTES
Maljamar (1926) GRBG
Hendricks (1926) YTES
Yates (1926) SADR
Waddell (1927) GRBG-SADR
Shipley (1928) ?
Kermitt (1928) ?
Pecos Valley (1928) YTES *
Vacuum (1929) GRBG-SADR
Keystone (1929) YTES
Eunice Monument (1929) GRBG *
North Ward-Estes (1929) YTES/QUEN *
Sand Hills (1931) TUBS
Sand Hills (1935) MCKT, SIMP
Goldsmith (1935) SADR *

*Fields with cores identified and available

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The Core Workshop will be published as a pdf volume. If you have information on any of these fields, please consider contributing a write-up to the publication.

If you would like to contribute a core to the WTGS Core Workshop, the core will be temporarily housed at the University of Texas at the Permian Basin (UTPB) for description by the core workshop organizers, UTPB graduate students, or core contributors themselves. Upon completion of the WTGS Core Workshop donated cores will be returned to the core contributors. If the core contributor would like, cores can be housed permanently at UTPB at no expense. We envision creating a core inventory where these cores, thin sections, etc. would be available for study by any company, university, or individual.

Please contact us with any questions you may have about financial support. Please earmark your contribution for the WTGS 100-Year Core Workshop, and send to it to the attention of Shellie Crossland at the **West Texas Geology Foundation**, PO Box 1595, Midland, TX 79702.

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WTGS & PBGS CLAY SHOOT





PaleoScenes No. 23

Grizzly Adams

Submitted by Jeff Smith

In the late 1970s, we had a really neat TV show called *Grizzly Adams*. It was about an old trapper out in the mountains in the west in the 1800's, and he had a sidekick, an old mule skinner, played by a great character actor named Denver Pyle. It was a TV show that was on for a couple of years. It was really enjoyable. We had no idea where it was actually filmed.

My wife Kathy and I had met a new couple here in Midland named Keith and Joan Wiersum. Keith had gotten his geology degree at the University of Wisconsin at Madison although it took him a while to get it, because he got permission to go on a leave. He went to Africa as a pilot for the Red Cross for one year in a horrible, horrible nasty war over there in Nigeria-the Biafran War. He did that for a year and when that was over with, he, well, he kind of stumbled around and got over to Egypt, because he heard there was some archaeological stuff there.

So, he hung out in Egypt by himself for a while, going around to see everything and then he somehow got over to Lebanon, did the same thing over there, then went back to Wisconsin and finally got his degree. With his diploma in hand, he got on his 800cc BMW motorcycle and went to Tucson, Arizona, looking for a hard rock geology job. His lady friend Joan, who was definitely the better half, drove in her car and she got out there with him. And anyhow, while he was out there looking for some kind of employment, another guy that went to school with him and was here in Midland called him and said, "Hey, there's a mud-logging company here called Simco that really needs to hire somebody."

So Keith got on his 800cc motorcycle and came here to Midland and got a job mud-logging with Simco. He always drove his motorcycle to and from rigs and he ended up out in the Delaware Basin logging for Rhoden Oil company. After a while, they really liked him and they hired him as a staff geologist. Rhoden eventually got bought out by the precursor to EOG Resources so Keith got looking for something else and he got a job with Depco Petroleum up in Denver. But let's not get ahead of ourselves.

While they were here in Midland my wife, Cathy, and I got to be friends with Keith and Joan. We'd go on trips together and probably around 1977 or '78, we took them with us and our five year old daughter, Sara, on a trip to Ruidoso. We went up to Bonito, the big reservoir.

I said that we were going to ride the road up here where it's a beautiful country and it has a trout stream flowing all along it. So we did that. Went up there and all of a sudden, here's a guy sitting in the middle of the road, wearing a gun, with his hands up, palms out telling us to stop. Well, I'm the type that if a guy tells me to stop and turn around, that's what I'm going to do. But Keith had been doing lots of traveling, he was about six foot three, and he said to the guy, "What the hell are you doing? Who the hell are you?"

The guy goes, "I'm security."

Keith said, "Are you a law enforcement?"

The guy said, "No, I'm security."

Keith said, "This is U.S. citizen land and I'm a U.S. citizen. Get out of my road. You have no authority."

The guy tapped his gun, but Keith said again that he had no authority. He said, "If that's your authority, put it where the sun don't shine, we're coming through."

So, we went through. We got a little ways up and discovered when we looked off to the side of the road why he stopped us. He was security for a film crew. There were a whole bunch of people off to the side of the road in a really nice spot. All kinds of stuff set up, and they were filming. We didn't know what, though.

We kept on driving and got to the end of the road where I showed them a bunch of places up there I really liked- Bonito Lake, the nice trout stream, etc. and then we turned around to come back. We got down by the film crew again and Keith said, "Stop!" I stopped and we got out of the car.

He said, "We're going over there." And our wives are going, "No, no, no," but we did. We all went over there. They treated us really, really nice; they were just very gracious. The actors all came over to talk to my daughter and pat her on the head. They fed us and gave us drinks and we sat there in chairs and watched them film. It was actually a really neat day, which never would have happened if I hadn't met Keith and him being that kind of person.

So, a couple of years later, I was on a business trip to Denver, and I couldn't get into the hotels I liked so I stayed at the Cosmopolitan Hotel. I walked into the bar and there was only one person sitting there-Denver Pyle. I went up and sat down next to him. He and I and the bartender were talking and chatting and I said, "Mr. Pyle, we saw you guys filming at Ruidoso a couple of years ago. My daughter was five years old and you all were just so gracious and kind to her."

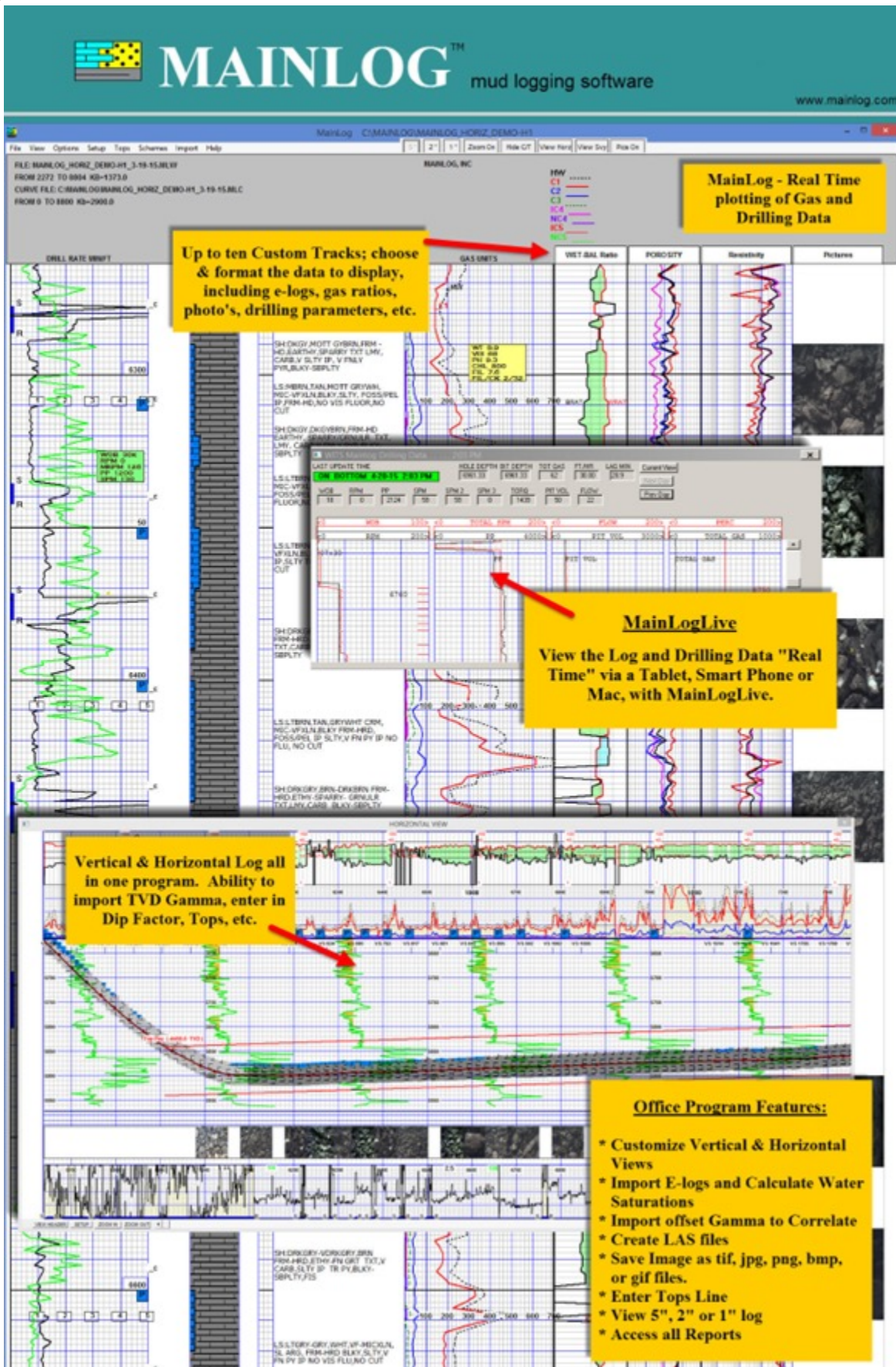
He said, "Yeah, I remember that." And we talked and talked. He finally said to the bartender, "Give me a hotel stationery." And he got the hotel stationery. He wrote a letter to my daughter. Denver Pyle, the old mule skinner, wrote my daughter a letter.

But Keith, he was a guy that all he wanted to do was fly all over the place all the time. So, Joan got a job as an American Airlines flight attendant, and they moved to where they were only about 15 minutes from DFW. Keith and the kids-by then they had a couple of kids-would fly all the time. He could get on a computer at home and check the website that they had for employees and he could see what flights were going where and what seats were open. Then he'd grab the kids, they'd run down there, and they might fly-usually First Class- to Costa Rica for a night, fly to Bolivia for a night, or just go someplace to go hiking around, meet a few people, see some sights. Did that all the time; flew all over.

One time, he said he was hoping he could get to every country in the world eventually. Back there, I don't know, it was maybe 6 or 7 years ago I said, "Hey, Keith, I bet you've never been to Mongolia." He said, "Nope, never have." I said, "Well, they're getting ready to have a great big Golden Eagle festival over there." Guess what? He went and sent me a photo of himself with a Golden Eagle on his arm. So that's my buddy Keith. He had no problem going wherever he wanted to go. And we would never have seen the Grizzly Adams if it hadn't been for Grizzled Keith.



Grizzly Keith and his better half, Joan



2025 WTGS GOLF TOURNAMENT





September

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4	5	6
7	8	9 LUNCHEON	10	11	12 ANNUAL FIELD TRIP	13
14 FIELD TRIP CONT...	15	16 FALL SYMPOSIUM	17	18	19 GOLF TOURNAMENT	20
21	22	23	24	25	26	27
28	29	30				

October

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4
5	6	7	8	9	10	11
12	13	14 LUNCHEON	15 PPE	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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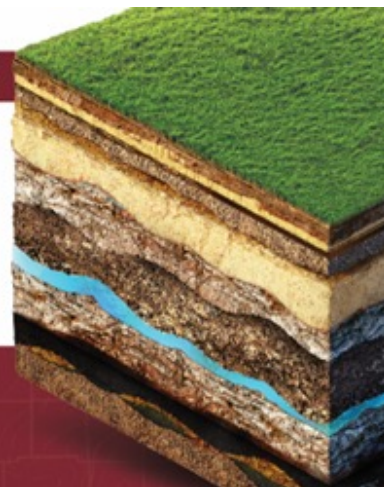
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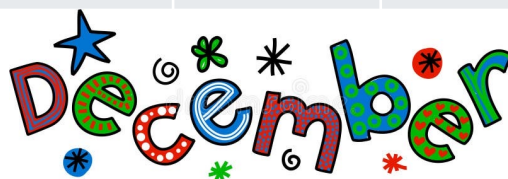
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SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
						1
2	3	4	5	6	7	8
9	10	11 LUNCHEON	12	13	14	15
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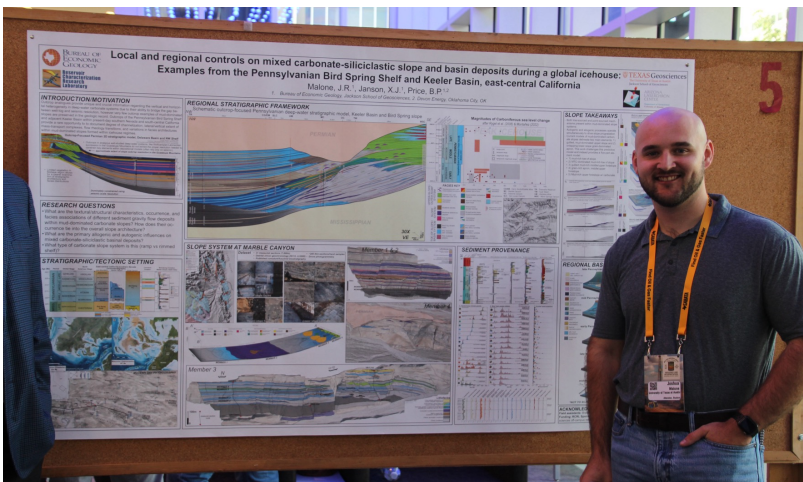
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	1	2	3	4	5	6
7	8	9 LUNCHEON	10	11 X-MAS PARTY	12	13
14	15	16	17	18	19	20
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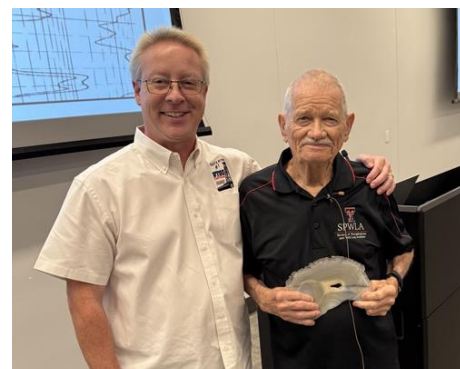


2025 WTGS FALL SYMPOSIUM





SEPTEMBER LUNCHEON



Anatomy of a Re-Entry

George B. Asquith, Ph.D.

Professor of Geosciences at Texas Tech University and
a former recipient of the Pevehouse Chair in Petroleum Geology

In 1980 a company drilled a 2114ft. well in northern Kentucky. After the well was logged [5/11/80] it was P/A. Nine years later the well was re-entered to evaluate a Mississippian Cypress Sandstone [1772ft. - 1802ft.]. The Cypress zone of interest is a thin porosity zone from 1772ft. to 1782ft with an average density porosity of 15.5% and an average resistivity of 25ohm-m. Using a R_w of 0.07 the water saturation [S_w], bulk volume water [BVW] and OOIP for the Cypress porosity zone [1772ft. – 1782ft.] are listed below:

$$PHI_{den} = 0.155 \quad R_t = 25\text{ohm-m} \quad S_N = 55\text{ohm-m} \quad S_w = 0.342 \quad BVW = 0.053$$

$$R_{xo}/R_t = \{1.85 * [(S_N/ILD) - 1]\} + 2 = 4.2 \quad R_{xo} = (R_{xo}/R_t) * ILD = 105\text{ohm-m}$$

$$OOIP_{stb}/40ac. = 263,746BO$$

Looks great but remember “effective log interpretation requires more than the evaluation of oil saturation it requires the identification of moveable oil” Millican, Raymer and Alger, 1964. Therefore, the next step is to calculate Moveable Hydrocarbon Index [MHI = $[(R_{xo}/R_t)/(R_{mf}/R_w)]^{0.5}$]. A value R_{mf}/R_w is needed, However, R_{mf} is not available because mud data was not listed on log header. However, the value for R_{mf} can be determined from a wet sandstone (1720ft. - 1755ft.) above the zone of interest by assuming MHI = 1.0.

$$1.0 = (R_{xo}/R_t)/(R_{mf}/R_w) \quad R_{mf} = R_w * (R_{xo}/R_t) \quad ILD = 3.3\text{ohm-m} \quad S_N = 23\text{ohm-m}$$

$$R_{xo}/R_t = 13.0 \quad R_w = 0.07 \quad R_{mf} (R_{za}) = 0.91\text{ohm-m}$$

$$MHI = (4.2/(0.91/0.07))^{0.5} = 0.56 \quad MHI < 0.70 \text{ should be productive.}$$

Now with values for R_t (25), R_w (0.07), R_{xo} (105), and R_{mf} (0.91) Mobile OOIPst/40ac. can be calculated by the Y Method (Doll and Martin, 1954),

$$Y = (0.91/105)^{0.5} - (0.07/25)^{0.5} \quad Y = 0.04 \text{ mobile [SoF]}$$

$$\text{Mobile OOIP}_{stb}/40ac. = (7758 * Y * 10^{40ac.}) / 1.2 \quad \text{Mobile OOIP}_{stb}/40ac. = 103,440BO$$

However, if there was no wet zone to obtain R_{mf} [R_{za}], data from the re-entry zone [1772ft. – 1782ft.] can also be used.

$$SSP = -K * \text{LOG}[(R_{mf}/R_w)] \quad T_f = 78.5F \text{ from temperature gradient [1.1F/100ft]}$$

$$K = (T_f * 0.133) + 60 \quad K = 70.4 \quad R_w = 0.07 \quad SSP = -80mv$$

$$R_{mf} [R_{za}] = R_w * [10^{(SSP/K)}] \quad R_{mf} [R_{za}] = 0.96\text{ohm-m}$$

$$MHI = [(4.2/(0.96/0.07))^{0.5}] \quad MHI = 0.55 \quad MHI < 0.70 \text{ should be productive.}$$

Now with values for R_t (25), R_w (0.07), R_{xo} (105), and R_{mf} (0.96) Mobile OOIPst/40ac. can be calculated by the Y Method (Doll and Martin, 1954),

$$Y = (0.96/105)^{0.5} - (0.07/25)^{0.5} \quad Y = 0.043 \text{ [SoF]}$$

$$\text{Mobile OOIP}_{stb}/40ac. = (7758 * Y * 10^{40ac.}) / 1.2 \quad \text{Mobile OOIP}_{stb}/40ac. = 111,198BO$$

After 51/2” casing was set the well was perforated [1774ft – 1780ft] and IP for 196bopd and no water. The well was never stimulated with acid or fracture treatment. The well produced 75,000+BO from 1989 to 2015. According to the person who did the re-entry the cost was only \$32,000.

OCTOBER LUNCHEON



Basement Rocks!

Review from 2024 WTGS Fieldtrip

Benjamin Davis

Basement geology has taken on a renewed interest in light of recent seismicity in the Permian Basin. During the 2024 Fall WTGS symposium field trip, we explored key exposures of Precambrian rocks west of Van Horn, Texas—one of the few accessible outcrops in the state. Led by Andy Roark, the trip also included stops in the western Guadalupe Mountains, but this talk will focus primarily on the Van Horn exposures.

Studies of the Precambrian rocks in West Texas have a long history of publications from great geologists. The first geologic survey was done by William H. von Streeruwitz, "Geologist of West Texas" under the Dumble Survey, in 1890 where he recognized the first over-thrust in Texas. The next seminal publication was released by the B.E.G in 1953 by UT President Peter Flawn and the USGS legend Phillip B. King. P.B. King worked on the footwall of the main Streeruwitz thrust, and much like his classic work in the Glass Mountains, all of the stratigraphic relationships he defined are still used today.

The basement geology in this area is divided into two major groups: the high-grade metamorphic and igneous rocks of the Carrizo Mountain Group (CMG), and the low-grade metasedimentary rocks of the Allamore, Hazel, and Tumbledown formations. These units are structurally complex, having undergone multiple deformation events, and are separated by the prominent Streeruwitz thrust fault, which emplaced CMG rocks over the Allamore metasediments with a northward sense of motion.

Exposures from talc mines, I-10 road cuts, and private ranch exposures in the Beach Mountains will be discussed, highlighting the structural and lithologic diversity of these Precambrian units and their relevance to modern tectonic interpretations.

BIO

Ben Davis is a geology advisor with more than 20 years in the petroleum industry, including 15 years focused on the Permian Basin. He received his M.S. in Geological Sciences from the University of Texas at Austin, where his research examined talc deposits near Van Horn, Texas. Earlier in his career, Ben worked Gulf Coast salt tectonics and early unconventional plays. Since relocating to Midland, he has work on regional play analysis across the Permian, seismicity, and 3D reservoir modelling.





NOVEMBER LUNCHEON

James Harcourt

Manager Geologic Advisory Unit at Texas Railroad Commission

James will discuss the new requirements for Permian Basin Class II Pressure Reviews which include an expanded Area of Review (AOR) and additional pressure and volume evaluation requirements and discuss the roll and responsibilities of the newly formed Geologic Investigative Unit (GIU) and Subsurface Investigative Unit (SSI), and explain and demo the Drilling Insight and Casing estimator Site (DICE) which provides information useful to individuals and companies engaged in oil and gas operation in Texas.



DECEMBER LUNCHEON



Vintage Logs, Proxy Logs, and Archie Equation in Shaly Carbonate: Sharon Ridge Field San Andres Investigation

Dr. Richard Erdlac

The Permian Basin contains numerous vintage oil fields with a predominance of vertical wells. How does one approach such a field for investigation of bypassed oil when there is a scarcity of more modern well logs for field analysis?

The Sharon Ridge field in Scurry County is an example of such a vintage oil field, with nearly 3,000 wells of which 2,160 wells were drilled from 1923 to 1985. Most well logs were comprised of traditional gamma ray, neutron, spontaneous potential, density, sonic, and resistivity curves, though not all of these logs are found in every well. Interpreting these older well logs in combination with newer well logs with spectral gamma ray and photoelectric curves, requires using the newer well as 'proxy logs' to help interpret the older well logs.

The Sharon Ridge field is listed in IHS data as producing from both San Andres and Clear Fork formations, though investigations around a target area suggested that most production is from the Clear Fork with bypassed San Andres. Both of these formations are naturally radioactive from lithology other than shale. Historic production zones were often defined on gamma ray and neutron logs alone and missed zones that were considered to be shale rich due to high radioactivity but were actually of lower shale content. Alterations to the Archie equation for shaly carbonate are required for S_w and S_o calculations, using information from proxy logs to adjust the Archie parameters for interpreting the older well logs.

The standard Archie equation is fine for a clean, shale free formation. In the case of a shaly formation, several alternative Archie equations were developed by various companies that depend upon shale volume and the shale type being laminar, structural, dispersed, or a combined configuration within the formation. One particular equation in a Gulf Oil E&P formation analysis manual was independent of the shale type distribution and was based on experience with computer processed logs. As expected, when shale volume is zero, the equation collapses to the standard Archie equation.

Several newer wells drilled in the field that ran spectral gamma ray logs were used in a technique that generated a synthetic interpretation of a potassium-thorium curve for the vintage logs that only had a total gamma ray curve. In this manner an estimate of shale volume was made for these wells and helped identify new target zones.

Values for tortuosity, cementation, and saturation exponents were acquired from previous investigations in the San Andres. Formation water resistivity was acquired using published information, and (limestone) porosity was obtained from old neutron log calibration for each vintage well being investigated. Finally, the true formation resistivity was determined using the deep reading resistivity log of the newer wells in the field as proxy data to generate a synthetic interpretation of the formation resistivity in the target wells. A spreadsheet was generated using these parameters and the shaly formation Archie equation to provide a continuous calculation of possible oil saturation in the San Andres target area.



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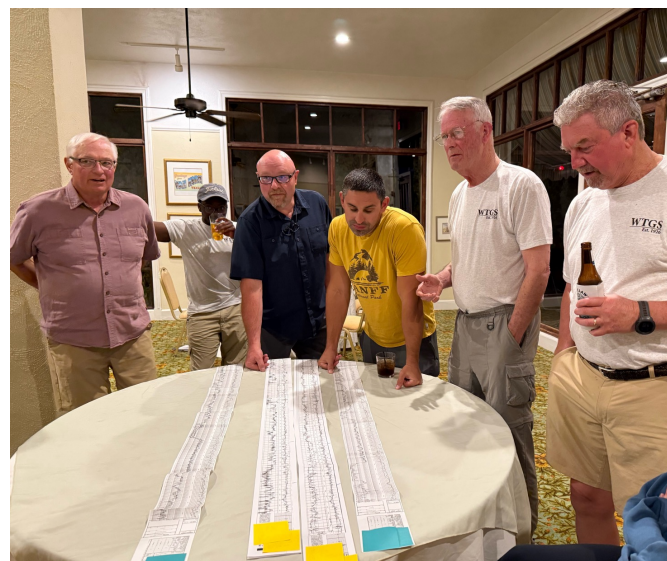
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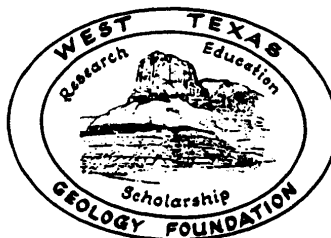
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2025 WTGS FALL FIELD TRIP





West Texas Geology Foundation M.O.S.T Award news

Nine West Texas educators are being honored and recognized by the West Texas Geology Foundation as Most Outstanding Science Teachers (M.O.S.T). The award goes to science teachers in grades 7 through 12 in the West Texas area who show excellence in the science classroom inspiring students to be observant, curious and investigative about the world of science around them.

WTGF Board Member and M.O.S.T. Committee Chairman Emily Emerald, Geologist at Chevron, managed the process of selecting these valuable individuals who have exhibited these traits.

The Nine recipients are;

Kim Betcher - Young Women's Leadership

Rodney Gray - San Vicente ISD

Joshua Hardt - Odessa College (Dual Credit)

Kari Harvey - Abell Junior High School

Tracy Hyatt - Alpine Middle School

Monique Macias - Legacy Freshman High School

Shamone Minzenmeyer - Central High School San Angelo

Rebecca Orcutt - Odessa High School

Sara Whitefield - San Jacinto Junior High School

Each recipient and their respective school will be awarded a MOST Plaque made from mineral slabs and the teacher will be awarded \$5000.

Congratulations to these fine educators. The WTGF appreciates your devotion and time in opening the minds of secondary and high school students to the wonders and importance of science.

THANK YOU

TO OUR 2025 SYMPOSIUM COMMITTEE



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How to submit Articles, Forms, Photos, News Items, Calendar Notices, Advertisements, and Letters to the WTGS Bulletin:



The WTGS Bulletin is a bi-monthly publication: January-February; March-April; May-June; July-August; September-October; November-December

All submissions need to be received by the 10th day of the month before the upcoming publication. I.e. A submission for September-October would need to be received by August 10th.

Technical Articles:

- Text submissions should be submitted in either PDF or DOCX format
- Approved Fonts: Arial, Times
- Body Font Size: 11
- Title at Top, Centered, Bolded
- Authors and Contact information underneath, centered
- Illustrations, Pictures, Graphics should be integrated into the article at appropriate sections. Utilize PNG, TIFF, PDF, or BITMAP files for pictures, as these are lossless formats
- Include the Illustrations, Pictures, Graphics separately in lossless format for potential resizing needs

Permian/OilField Perspective Articles and Letters:

- Text submissions should be submitted in either PDF or DOCX format
- Approved Fonts: Arial, Times, Franklin, Georgia
- Body Font Size: 11
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Forms:

- Text submissions should be both digital and hard copy. Digital in either in PDF or DOCX format. Formatting can remain per how the form was originally designed
- Illustrations, Pictures, Graphics integrated into form should ideally utilize PNG, TIFF, PDF, or BITMAP files.

Photos:

- Submit any relevant photos to the WTGS Bulletin! It could be utilized on one of our covers, or write out short captions for us to display as in our Permian/Oil Field Perspective Section!
- Acceptable Files: TIFF, PNG, PDF
- If using JPG/JPEG: Maximize quality, and save as Baseline (“Standard”) for maximum quality and the least amount of compression
- If files are large, create and share a link to files through GoogleDrive or DropBox

Calendar Notices/Short Items:

- Relevant community calendar notices and other short items may be informally sent through email
- For Calendar Notice, please note: Society, Date, Event Type, Event Speaker (if relevant), Event Title

Submissions to WTGS Editor-in-Chief: Haleigh Fitzgerald (HFitzgerald@diamondbackenergy.com)

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