Abstract
Cryptocurrency has been a rapidly growing phenomenon since the release of Bitcoin, the most well-known cryptocurrency, in 2011. What was primarily meant to revolutionize the modern financial system has since evolved into a fascinating emerging market that is starting to have effects on many other industries beyond the financial world. Oil & Gas is one of these other industries that has surprisingly found common ground with Bitcoin and cryptocurrencies. This common ground is a result of global efforts to preserve the planet, shift away from non-renewable energy sources, and eliminate greenhouse gas emissions. Unfortunately for both Bitcoin and the Oil & Gas industry, these efforts have resulted in negative press that has pushed both industries to find greener ways of conducting their usual business. For Bitcoin, this negative press regarding its unsustainability has specifically surrounded the transaction processing mechanism of its network, which is generally referred to as Bitcoin mining, and the high amount of energy this process consumes. While the Oil & Gas industry has been scrutinized for a long list of practices, natural gas venting and flaring is where common ground has been found with Bitcoin.

As those in the industry are aware, most natural gas that is flared or vented is capable of being used as a viable energy source. Some creative Bitcoin miners realized this fact and thought to use this gas in a win-win scenario for both the Bitcoin mining and Oil (Continued on Page 21)
Well, our good friend, FEAR, is back in the markets. This time it is driven by the fear of a looming recession projected by equity funds and banks as the FED looks at inching up interest rates to combat inflation. Inflation itself is at ~9%, the highest it has been since November 1981. To this point inflation has primarily been galvanized by price increases in goods and services throughout the U.S. economy but mostly by fuel prices. Domestic fuel prices are still at ~$5.00/gallon for gasoline and diesel across most of the nation. The recession fears provoked by high inflation have caused a drop in WTI oil prices by ~14% in the past couple of weeks to just below $100.00/BBL (inversely we have seen the opposite with natural gas due to Europe’s ridiculous situation). These recession fears are understandable if you are of the position that we are in a typical cycle. If you look at Figure 1, you can see a comparison of Brent crude prices (WTI would track $3 to $8 below the Brent prices) from 2007-2008 tracking against prices from 2021 to present. The data eerily tracks quite closely to one another, so if you are using this type of recent history as an indicator of a near term recession, then the fear is quite justifiable. However, I do not think some basic economic factors are being taken into account. Primarily Supply & Demand. Quite simply hydrocarbon supply is nowhere near where it needs to be in order to reach the global demand for energy in the next 2-3 years. Most, if not all, refineries are running in the 90% to 94% capacity range currently. While gasoline and diesel supply has picked up recently from refiners, they are still not producing enough to keep up with transportation, shipping, and travel demand while alleviating existing high prices. It also begs the question on how long these facilities can stay at this rate of production since most of these midstream facilities are mature and have not had the necessary upkeep and investment needed over the decades to stay at this pace. As soon as midstream facilities slow down for their annual maintenance in the early fall, expect more tightening in the market. While +$100/BBL oil prices are not good for any economy and will surely stimulate inflation, consumer reaction to the high prices has been contradictory. While consumers are frustrated with inflation, they do not appear to be frustrated enough to stop spending and/or traveling (at least for the near term). This makes sense. People were bottled up for a long time and cash was being stockpiled. Now that restrictions are no longer limiting travel, people want to get out and travel again. However, that creates its own issues. Heathrow Airport has recently asked airlines to stop selling tickets and minimize summer flights. Their reasoning is that they do not have the staff and the high demand for flights is not allowing the airport itself to keep up with the pace of flights. How did they not see this coming and is lack of staff the real problem? The unemployment rate in both the U.S. (3.6%) and Britain (3.8%) are below 4% and job growth and demand in several sectors is still quite high in both countries. So, what we are seeing is that demand and capital is still there from consumers and businesses, but work force and supply chain factors (qualified employees and materials) are not able to keep pace with the markets and demand stresses placed on them. One would think that these factors would initiate a rethinking of government policy to bring relief to its consumers and economy and reshape its domestic and international energy policy. However, we have seen zero attempt by the Biden Administration to rethink its energy policy and instead we have seen the opposition. After chiding its domestic refiners and producers and insinuating the industry was behind high prices, the administration began nuzzling up to sanctioned foreign nations (Iran and Venezuela) and mounting political pressure on OPEC+ to raise its production. Basically, looking outward instead of inward. The refusal to relent on Biden’s Climate Agenda has

(Continued)
put us in the current situation and it appears that stubbornness will continue forward, at least in the near term. Rig count is currently at ~750 rigs running, well over the ~590 rigs that were running at the beginning of 2022. Domestic production will slowly pick up as prolonged, high oil and natural gas prices encourage producers to invest in themselves and their projects. Liquidity is a problem for the oil and gas industry still, but that could soon change as political pressures will mount on Biden’s administration. His recent trip to Saudi Arabia indicated an overlooking of human rights issues and trying to mend fences and re-establish traditional middle east ties. So, for the remainder of this year, we should expect volatility to continue and oil and gas prices to remain high as we approach midterm elections. If there is a recession, it will be mild and short lived.

Figure 1. Overlay of Brent Crude price in 2007-08 vs 2021 to date. (Source: https://twitter.com/JavierBlas/status/1547581520151339008)

IN MEMORIAM
We regret to note the passing of the following members:

- **Stewart Chuber, #221** of Schulenburg, Texas who died on July 1, 2022
- **Robert B. Owen, #1801** of Corpus Christi, Texas who died on June 24, 2022
- **Lawrence W. Staub, #1564** of Richardson, Texas who died on January 20, 2022
- **Marshall C. Crouch III, #1365** of Denver, Colorado who died on April 16, 2022
- **Michael A. Srozynski, #3247** of San Antonio, Texas who died on June 2, 2022
- **William I. Temple, #3533** of Austin, Texas who died on March 7, 2022
Many thanks to the members listed below for their continuing support of our society.

**Promoter – $2,500**
- Charles A. Lundberg III — Dallas, TX
- Thomas A. Smith — Austin, TX
- Larry R. Wollschlager — Midland, TX

**Oil Finder – $1,200**
- Ralph J. Daigle — The Woodlands, TX
- David A. Eyler — Midland, TX
- Marc D. Maddox — Midland, TX
- Patrick A. Nye — Corpus Christi, TX
- Barry J. Rava — Houston, TX
- D. Craig Smith — Midland, TX

**Driller – $750**
- Michael N. Austin — Westminster, CO
- Dawn S. Bissell — Corpus Christi, TX
- James A. Gibbs — Dallas, TX
- Kenneth J. Huffman — Mandeville, LA
- Robert C. Leibrock — Fort Worth, TX
- Walter S. Light, Jr. — Houston, TX
- Brian K. Miller — Midland, TX

**Prospector – $500**
- Avinash C. Ahuja — Corpus Christi, TX
- Gregg S. Alletag — Oklahoma City, OK
- Craig F. Anderson — Houston, TX
- Robert W. Anderson — Houston, TX
- James K. Applegate — Denver, CO
- Raymond N. Blackhall — Cypress, TX
- Wilbur C. Bradley — Wichita, KS
- Bruce M. Brady III — Midland, TX
- Paul W. Britt — Houston, TX
- Lanny O. Butner — Wichita, KS
- Brian S. Calhoun — Corpus Christi, TX
- George S. Carlstrom — Littleton, CO
- Wendell R. Creech — Midland, TX
- David W. Cromwell — Midland, TX
- Edward K. David — Roswell, NM
- Lawrence H. Davis — Oklahoma City, OK
- James P. Evans III — Franklin, LA
- Thomas E. Ewing — San Antonio, TX
- William R. Finley — Lafayette, LA
- William T Goff III — Littleton, CO
- David T. Grace — Midland, TX
- Patrick J. F. Gratton — Dallas, TX
- William E. Hardie — Midland, TX
- Stephen P. Hartzell — The Woodlands, TX
- James H. Henderson — Dallas, TX
- Kevin B. Hill — Shreveport, LA
- Gary C. Huber — Centennial, CO
- James B. Jackson — Oklahoma City, OK
- Larry L. Jones — Houston, TX
- Ralph O. Kehle — The Hills, TX
- John E. Kimberly — Midland, TX
- Thomas M. Kirby — San Antonio, TX
- Constance N. Knight — Golden, CO
- H. Jack Naumann, Jr. — Santa Fe, NM
- John H. Newberry — Austin, TX
- P. Austin Nye — Corpus Christi, TX
- Arthur J. Pansze — Arvada, CO
- Thomas G. Pronold — Wichita, KS
- Christopher H. Reed — Tyler, TX
- James D. Robertson — Fort Worth, TX
- Lance Ruffel — Oklahoma City, OK
- R. David Shiel — Kaufman, TX
- Delmer L. Sloan — Midland, TX
- Stephen M. Smith — Houston, TX
- Gary L. Thompson — Centennial, CO
- Michael R. Vasicek — Midland, TX
- William G. Watson — Midland, TX
- Robert E. Webster — Irving, TX
- James C. West — Stamford, TX
- Melanie K. Westergaard — Golden, CO

**Roughneck – $250**
- Randall L. Anderson — Midland, TX
- William C. Bahlburg — Plano, TX
- Christopher E. Betz — Houston, TX
- Lonnie J. Blake — Corpus Christi, TX
- Steven L. Davidson — Houston, TX
- William D. DeMis — Cypress, TX
- Roger A. Freidline — Midland, TX
- W. Kenneth Hall — Fort Worth, TX
- Russell R. Hamman — Houston, TX
- Albert R. Hensley — Rockwall, TX
- George S. Johnson — Amarillo, TX
- John D. Kullman — Fredericksburg, TX
- Jeannie F. Mallick — Spring, TX
- David F. Martineau — Dallas, TX
- Douglas H. McGinness II — Wichita, KS
- Jereld E. McQueen — Kingwood, TX
- John R. McRae — Fredericksburg, TX
- Wayne D. Miller — Midland, TX
- John M. Rakowski — Florissant, CO
- David L. Read — Highlands Ranch, CO
- Gregory A. Riepl — Edmond, OK
- Deborah K. Sacrey — Weimar, TX
- John R. Stephens — Dallas, TX
- Charles J. Swize — Pattison, TX
- James Travillo — Oxford, MS
- Scott A. Wainwright — Metairie, LA
- James D. Wildharber — Youngsville, LA
- Robert M. Wynne, Jr. — Spring, TX

**Investor – $100**
- Ernest Angelo, Jr. — Midland, TX
- Orville R. Berg — Shreveport, LA
- Garnet W. Brock — Midland, TX
- Robert A. Cannon — Rowlett, TX
- Frank G. Cornish — Corpus Christi, TX
- David R. Fox — Graford, TX
- William M. Kazmann — Richardson, TX
- Gregg A. McDonald — Oklahoma City, OK
- Thomas E. Poché — Lafayette, LA
- Ronald W. Pritchett — Lone Tree, CO
- Monroe J. Rathbone IV — Midland, TX
- H. Vaughan Watkins, Jr. — Madison, MS

**Scout – $50**
- Robert W. Barnhill — Houston, TX
- Merle J. Duplantis — Mandeville, LA
- Douglas R. Essler — Hilton Head Island, SC
- Eduardo Gonzales — Carrollton, TX
- Craig E. Moore — Houston, TX
- Donald P. Muth, Sr. — Plano, TX
- W. Mark Rush — Houston, TX
has provided a chance to contribute to the education of future earth scientists. One of SIPES’ greatest resources is our more mature members. Their knowledge, experience, and wisdom will be the future for our younger members and potential members. “To ignore history, dooms fate to repeat the mistakes of the past.” I would like to encourage these mature members to continue the “good works” by attending national and chapter meetings sharing their experiences. I would like to share some of the experiences they have had through SIPES by taking a moment in the president’s comments in the newsletters for an enriching anecdote. These thoughts can be shared via my email.

Thank you for this opportunity to serve.

Chris H. Reed (chris@creedex.com)

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**Some Highlights from the SIPES 2022 Convention in Deer Valley, Utah — June 13-16**

*Photos courtesy of Jory A. Pacht, #3054*

- Patrick Nye (left) received the Outstanding Service Award from Barry Rava.
- Marc Maddox (left) received his Honorary Membership Award from Craig Smith.
- Dawn Bissell (left) presented Deborah Sacrey with her Honorary Membership Award.
- Gold sponsor Robert Wynne (left), wife, Vanessa, and President Gregg Alletag.
- Allison Eyler (left) with Brian and Sherilyn Calhoun.
- Mike Mount and Gregg Alletag at the Monday Icebreaker.
- Mike Austin, Stella Robertson, David and Patricia Nicklin, and Jamie Robertson.
- Dr. Ron Harris led the Thursday field trip to Central Wasatch Range.
From a humble doodlebugger—always the gentleman, a man of honesty, integrity, faith, and goodness—Art’s work ethic and persistence equipped him to become a pioneer in exploration throughout a 65-year career.

But, he was an even better husband, father, grandfather.
DALLAS

The Dallas Chapter hosted five luncheons this spring. January’s talk was given by Donny Loughry, geoscience technical advisor with Tamboran Resources LTD, on the topic of the Middle Velkerri Shale, Beetaloo Sub-basin, NT, Australia. Of particular interest in this play is the Mesoproterozoic Age of the Velkerri Formation – 1.4 billion years old. The geology of the basin was presented, and it was demonstrated that despite the age, the structural history was relatively uncomplicated, and the source potential has been preserved. Donny described the operational plans of the company and the logistical difficulties of planning an exploration well in a remote area of Australia. Donny taught middle and high school science for ten years before obtaining his M.S. in geology and entering the oil industry with Pioneer Resources.

Les Cirilo with Sage Natural Resources spoke at our February luncheon, and his talk was on the Barnett Shale in the Fort Worth Basin: “Revisiting the Grandfather of Shale Plays with the Latest Technology.” Horizontal drilling activity peaked early in the Barnett with 20,000 wells drilled by 2012, when little was known about testing spacing, varying completions, and zone targeting. Since 2016, only three hundred wells have been drilled in the Barnett, yet the industry’s sophistication and efficiency in developing resource plays elsewhere has skyrocketed. Sage was formed in 2016 to take advantage of these dynamics. Les has a M.S. in geology, and worked for Anadarko in Houston, moving to Tulsa in 2007 with Samson Resources before joining Sage in 2020.

Our March talk was by Dwayne Purvis, #3470, a consulting petroleum engineer from Fort Worth. Dwayne organized an online conference in early March called CarbonExpo, with fifteen experts speaking on practical aspects of topics relating to carbon markets, engineering, solar, and geothermal. Dwayne presented highlights from the conference in an engaging way by putting up all the topics on the screen and asking the audience what they were interested in hearing about. He was able to give highly detailed context to questions about bitcoin mining using flare gas, carbon sequestration, and many others. The topics represent a range of issues that are only becoming more topical and relevant with time as our society engages with the tension of energy security and low-carbon energy, and how to merge traditional and newer sources of energy.

Brandon Junker, founding partner of Blueprint Energy LLC, was our April luncheon speaker. His topic was “Uniting Oil & Gas Production with Bitcoin Mining,” and not coincidentally this is the focus of his new company. Brandon gave an unusually complete under-the-hood look at what he is doing, how he is funded, and his project economics. Since energy use is the largest expense of any bitcoin mining operation, flare gas represents a way to lower this key variable. There is no shortage of wells that do not have proper takeaway options for gas that have to either flare their gas or be shut in. Bitcoin mining provides another option to sell gas by placing a gas generator at the wellhead that provides electricity to run the stacks of servers mining bitcoin onsite. Challenges include the need for redundancy and the low price generally offered to producers to ensure power costs stay below grid power. Brandon is a petroleum engineer with twenty years of experience in oil and gas exploration, working conventional and unconventional assets for multiple public and private E&P companies. Brandon and his partner, Daniel Habenicht, have raised private capital for several mining operations, partnering with operators with stranded gas and challenged markets.

Our final luncheon of the first half of 2022, was given by Cameron Chandler of Chandler Energy Resources, LLC. Cameron gave the second half of a talk first given in January of 2021, describing the LNG markets during a period of explosive demand growth and strategic importance. His talk was entitled “LNG – Short Supply and Rocketing Demand – A Brief History and Value Chain Discussion of Current Events.” Cameron formed his company in 2005 with the objective of creating a targeted consulting operation helping clients increase efficiency within the various disciplines of exploration, production, and energy resource marketing. His background is in land management, with extensive experience in midstream and marketing, and natural gas trading. He currently serves on the McCombs School of Business Alumni Advisory Board at the University of Texas at Austin, where he also serves as guest instructor/lecturer/mentor in the Undergraduate Energy Management Program.

Michael Adams
Chair
LAFAYETTE

The first meeting for the Lafayette Chapter in 2022 was held on February 9th. Geophysical consultant and former SIPES member Dr. James H. Crane, spoke about techniques used and lessons learned in prospect evaluation. The presentation included a review of techniques used in prospect evaluation. These techniques included a discussion of pre-trip, onsite, and post-trip evaluation. The evaluation of prospect risk and prospect size were discussed in detail. Common pitfalls in prospect size and risk were presented, as well as techniques to avoid them.

Our March speaker was Paul Hilliard, president of Badger Oil Corporation. Mr. Hilliard’s presentation was titled “Will they do it again?” The presentation detailed the continued rise and fall of crude oil and natural gas prices for the past one hundred years and how the cycle continues to repeat. He discussed how the political and regulatory process impacts our business and how important it is to be involved in that process. We were quite honored to have Paul speak, because at age 96 and still involved in the oil business, as well as many other things, we appreciate how precious his time is.

For our April meeting, Dr. Douglas Carlson, associate professor of research at Louisiana Geological Survey and Louisiana State University, gave a timely presentation on “Site Selection in Saline Miocene Formations in South Louisiana for injection and storage of CO2.” One of the key requirements of a commercial scale geologic carbon sequestration (GCS) site is identifying injection sites to safely inject and retain injected CO2 over extended time scales. This study focused on Miocene strata between depths of 3,000 feet or USDW depth (whichever was deeper), and the top of the geopressured interval which is at approximately 9,000 to 12,000 feet.

May was our annual clay shoot and BBQ/Crawfish boil. The crawfish was almost as hot as the weather, but we had cold refreshments to keep us cool. At this year’s event we awarded three Jack Shirley Memorial Scholarships to deserving college students in the geosciences or engineering at the University of Louisiana. Two were able to attend and receive their scholarship award personally. They were Margaret Dittman and Daniel Noto.

The Lafayette Chapter added six new members during the COVID-19 interruption for 2020-21, but we also lost two former SIPES members and dear friends during the first quarter of 2022. Frank Gilbert Phillips, father of current member Joe Phillips passed away on February 20, 2022. He was 88 years old. We also lost Richard Douglas “Dick” House who was 91 when he passed away on March 28.

On a brighter note, we welcome James F. Walker to our local chapter. Jamey moved to Lafayette to be closer to family after searching for and finding a bunch of hydrocarbons for R. Lacy out of Longview, Texas.

King Munson
Chair

SIPES 59th Annual Meeting & 2023 Convention
June 12-15
Santa Fe, New Mexico
NEW ORLEANS

During the period from January through May, the New Orleans Chapter was able to meet in person each month. In February, Akinbobola Akintomide #3598, spoke to our group regarding “Fault-induced Subsidence in the Terrebonne Salt Withdrawal Basin, Southeastern Louisiana: Effect on Coastal Wetland Loss.”

Akinbobola Akintomide obtained a B.S. in geology in 2009 from the Federal University of Technology, Akure, Nigeria, a M.S. in geosciences in 2014 from the University of Tulsa, Oklahoma, and a Ph.D. in geology in 2021 from Tulane University. For his M.S. degree, he worked on the structural styles in Ardmore Basin, Oklahoma, a basin known for its complex transpressional and contractional structures. For his Ph.D. degree, he worked extensively on salt tectonics in the Gulf of Mexico, researching salt evacuation, salt-fault interactions and its effects on coastal subsidence and wetland loss. In addition to his academic experience, Bobola worked with various oil companies such as PEECO, BGI Resources LLC in Tulsa, Oklahoma, Canyon Creek Energy in Tulsa, Oklahoma, and a servicing company, Columbine Logging, Inc. in Midland, Texas. Through these industry experiences, he developed additional expertise in well log correlation, seismic interpretation, oil exploration, reservoir modeling, structural geology, salt tectonics, and sediment transport and morphodynamics.

Understanding fault activity in salt basins is important for reconstructing the history of salt expulsion, the formation, and the kinematics of concomitant geomorphic features within the basin. In the Terrebonne Salt Withdrawal Basin in the northern Gulf of Mexico, fault activity is presumed to have ceased, and the allochthonous Loann Salt canopy completely evacuated by the end of the Pliocene due to southward migration of the depocenter. However, geomorphic features such as sharp marsh-breaks along the northern margin of the basin, defined by the Golden Meadow fault zone, suggest that the faults are still active. Fault activity was examined using proprietary 3D seismic data from the Lapeyrourse-Chauvin in Terrebonne Parish, Louisiana, to map Miocene, Pliocene, and Quaternary stratal units based on biostratigraphic data, seismic reflector strength, and continuity. Fault history and throw patterns were interpreted from throw-distance plots, throw-depth plots, expansion indices, and throw maps generated from fault throw estimates extracted from the maps. Results show a complex fault pattern along the Golden Meadow Fault zone. Three large faults define the fault zone, a northwest striking Lake Boudreaux fault and two east-west striking faults, the Montegut and Isle de Jean Charles faults. These faults show two stages of fault activity, a Miocene, and a Quaternary stage, separated by a Pliocene phase of relatively slower activity. Fault activity in both stages is coeval with sediment loading and salt evacuation. The displacement along the Isle de Jean Charles and Lake Boudreaux faults increases toward the Bully Camp and Lake Barre salt stocks, suggesting a coupling between fault movement and salt evacuation. The average Quaternary fault throw rate on these faults since the Middle Pleistocene range from 0.53 - 0.65 mm/yr, an order of magnitude larger than those of the Baton Rouge fault zone since the Late Pleistocene. Surface projection of the faults spatially correlates with the edge of the cypress swamp near Montegut, locations of wetland loss near Isle de Jean Charles, and the Madison Bay subsidence along the Lake Boudreaux fault, suggesting that faults played a role in the formation of these geomorphic features.

In March, we were fortunate to have Scott Angelle address our group. Mr. Angelle recently completed his service to the United States Department of Interior as the nation’s longest serving Director of the Bureau of Safety and Environmental Enforcement (BSEE). The title of Scott’s talk was “American Offshore Energy: C’est pas fini!” His presentation can be viewed at the video direct link to YouTube: https://youtu.be/03zo3GhNZGA

His service was marked by recognition that safety performance AND environmental sustainability AND robust production is not an “either/or” equation for America, but rather an “AND” equation. This goal was pursued through a focused Strategic Plan, introduction of a forward-thinking Vital Statistics Program, combined with an aggressive and a comprehensive Change Management Program. He brought his vision, planning and results-oriented approach to BSEE by introducing a new era of management, one that looked beyond not only regulation, but employed innovation, communication, and collaboration as tools to achieve: a safe offshore energy industry, AND an environmentally sustainable industry AND an industry that creates jobs and energizes our great country.

Within sixty days of completing his service, the United States Government Accountability Office (GAO) released its 2021 High Risk Series Report to Congressional Committees. This report was in stark comparison to the unflattering 2017 report he inherited. The 2021 Report removed the Restructuring of Offshore Oil and Gas Oversight as a high risk for the GAO. Many of the comments within the 2021 Report cite his leadership and the numerous initiatives instituted during his service. This removal of Restructuring of Offshore Oil and Gas Oversight from this High-Risk Series list increased confidence of the American people regarding Outer Continental Shelf (OCS) activities and will ultimately be very beneficial in the debate regarding America’s access to offshore resources. In addition to being this great news for our national security, this is great news for our energy security, economic security and environmental sustainability as America seeks to “Balance the 3 E’s™”.

He was among the first government leaders to observe that America experienced six recessions from 1973–2019,
with each one preceded by a spike in energy prices; confirming that as goes America’s access to affordable energy so goes her economic performance. This suggests that a solution to this historic problem is a strong domestic energy industry, both renewable and nonrenewable; without ever sacrificing safety or environmental sustainability. He proved that was possible for the offshore sector.

His vision and strong sense of service result from having spent more than thirty years reforming agencies and organizations in both the public and private sectors. During his public career, he has been steadfast in managing resources through a balanced philosophy. He is recognized as a firm but fair regulator, and is guided by his slogan, “I will be where competency, preparation, and integrity meet urgency and accountability.”

His long and distinguished record of public service includes serving as the first St. Martin Parish President, Chairman of the Louisiana Public Service Commission, Chairman of the Louisiana Water Resources Commission, member of the Louisiana State University Board of Supervisors, member of the Coastal Protection and Restoration Authority, Secretary of the Louisiana Department of Natural Resources, and Lieutenant Governor of Louisiana. On behalf of the State of Louisiana, he successfully negotiated an early end to the offshore drilling moratorium imposed by the federal government in 2010. His history of service can be best described as a “turn-around-man,” with successes at the local, state, and federal levels.

The New Orleans Chapter held its Annual Membership Drive Crawfish Boil at the Harbor Bar and Grill in Metairie in April.

Our annual dinner event was held in May at Andrea’s Restaurant in Metairie. This event included spouses and guests. You can view the entire presentations at our local SIPES website video page. The link is: http://sipesneworleans.homestead.com/Videos.html

Louis Lemarie’ will continue as chapter chair, joined by Eric Broadbridge as treasurer. Candidates are being sought to serve as vice chair, secretary, and national director.

**Eric Broadbridge, Treasurer**

**Cliff Williams, Vice Chair**
WICHITA

The Wichita Chapter hosted five separate meetings between January and May of 2022. Two of the meetings were “in-person” and three were virtual as follows:

On January 13, Professor Karin Goldberg from the Department of Geology at Kansas State University presented “High-Resolution Sequence Stratigraphy in Mudrock-Dominated Successions: The Chattanooga/ Woodford Shale.” Seven people attended this talk which was an update on her work in the Chattanooga/Woodford Shale in Kansas. This ongoing research discussed the importance of black shales as source rocks and unconventional reservoirs, the complex controls on the accumulation of organic-rich rocks which are still not completely understood. This talk explored how we can recognize subtle compositional, textural, and chemical variations in mudrock successions to identify key stratigraphic surfaces and define high-resolution depositional sequences, determining what controls heterogeneity in mud-rich systems. The purpose is to better understand the nature of the depositional environments and paleogeographic settings that are most conducive for accumulation of high concentrations of organic matter in mudstones, thus providing a predictive tool for the spatial and temporal distribution of these rock types. In this regard, organic flux seems to be more important than redox conditions for the accumulation of organics. Nutrients brought in by rivers (augmented by other mechanisms, such as upwelling and/or eolian input) trigger a bloom of primary producers, which may result in oxygen consumption and anoxia.

Dr. Karin Goldberg joined the Department of Geology at Kansas State University in the fall of 2016, coming from the Universidade Federal do Rio Grande do Sul in Brazil. She has a B.S. in geology and a Master’s in sedimentary geology from Brazil, and a Ph.D. from the University of Chicago. At Kansas State, she teaches historical geology, sedimentology and stratigraphy, introduction to paleontology and geologic record of climate change. Her main research interests are focused on basin analysis and petroleum geology.

In February, Jamie Robertson, #2826, presented a talk on “Climate Change: A Technical Perspective.” This virtual meeting had twenty-eight attendees. Among other topics, Jamie discussed how climate is constantly changing at many time scales from millions of years to decades. The drivers range from the long-term impacts of plate tectonics and orbital oscillations to the shorter-term impacts of solar radiation and volcanic activity. Many diverse datasets converge to show that earth’s climate is currently warming; average global surface air temperature on land, for example, is 3°F warmer presently than in the late 1800s. Direct measurements also show that greenhouse gas concentrations in the atmosphere have increased in recent time; carbon dioxide (CO2) concentration, for example, is more than 35% higher presently than in the late 1800s. There are no significant natural sources of this rise in CO2. The sources virtually all relate to human activity: electric power plants, transportation, cement plants, residential and commercial heating, agriculture, and landfills. Is this rise in CO2 the probable cause of the current climate warming? Multiple lines of evidence suggest yes: (1) the greenhouse effect is established science; (2) directly measured heat exchange at various levels in the atmosphere demonstrates increasing net warming over time consistent with an increasing greenhouse effect; (3) the troposphere is heating while the stratosphere is cooling consistent with an increasing greenhouse effect (if solar radiation was the cause, both would be heating); (4) nights are warming faster than days and winters warming faster than summers, also a fingerprint of a greenhouse cause rather than a solar radiation cause; and (5) climate simulation models as they improve are supporting the CO2 to climate warming link. Hypotheses that climate warming over the past century is all natural (caused by solar radiation changes, volcanic activity, jet stream and ocean current fluctuations and the like) are not supported by scientific data, though these natural drivers do have discernible impacts over short time spans.

James D. (Jamie) Robertson is a partner in Salt Creek Petroleum LLC, an independent oil and gas company active in exploration and production in onshore Texas. Prior to becoming an independent, he worked for Atlantic Richfield Company (ARCO) for twenty-five years, retiring as exploration vice president of ARCO’s international division when ARCO merged with BP PLC in 2000. He is a past president (1994-95) and honorary member of the Society of Exploration Geophysicists, a three-time winner of best paper awards in SEG journals and annual meetings, a founding member and past chair of the SIPES Fort Worth Chapter, and a licensed professional geoscientist in the state of Texas. Jamie received a B.S.E. in geological engineering from Princeton University and a Ph.D. in geophysics from the University of Wisconsin.

At our March meeting, Dick Schremmer, chairman of the National Stripper Well Association spoke. Nine people attended this in-person meeting at the Wichita Petroleum Club. Dick enlightened all attendees about the National Stripper Well Association, which was founded in 1934, as the only national association solely representing the interests of the nation’s smallest and most economically-vulnerable oil and natural gas wells before Congress, the Administration, and the Federal bureaucracies.

(Continued)
At almost 1,000 members strong, the dedicated board of directors, staff, and vice president of governmental affairs represent NSWA around the country and on Capitol Hill every day, fighting for the rights and best interests of stripper well producers. It is the belief of NSWA that producers, owners, and operators of marginally-producing oil and gas wells have a unique set of needs and concerns regarding federal legislation and regulation.

Dick’s oilfield career started while he was in high school. In 1970, at the age of fifteen, he went to work for Chase Tank Service cleaning out the bottoms of oil tanks and other prestigious jobs. After graduating high school in 1972, he decided to get an education rather than go to school, and he took a job with Kewanee Oil Company. Oil was still $3.00 per barrel, and he was only the second man the company had hired in eighteen years. With over fifty years in the oil industry, Dick has seen, experienced and worked through many ups and downs. In 1985, Gulf Oil was purchased by Chevron USA, and Dick struck out on his own forming Bear Petroleum. Thirty-five years later, the company operates 531 wells in Kansas. In 1988, Dick also acquired Gressel Oil Field Service, a two-rig well servicing company in Burrton, Kansas. The company has expanded to a full-service company with locations in Burrton, Great Bend, Hays, and Haysville. Services include well service rigs, supply stores, acid and cement services, down hole tools, wireline, tank trucks, propane, roustabout, and electrical services.

Bob Shoup spoke in April on “What are oil prices doing and what will they do next?” Over fifty people attended this virtual meeting. This talk reviewed the fundamentals of supply and demand, and how supply and demand cycles have impacted the historical price of oil. It examined how recent black swan events have disrupted supply and demand cycles and the impact they have had on the oil price.

Before predicting what oil prices are likely to look like in the future, we will need to forecast the future oil supply and future demand, both of which are being influenced by the push for "green" energy.

Robert “Bob” Shoup is the chief geologist for Subsurface Consultants & Associates LLC (SCA), and the director for Clastic Reservoir Systems. He is a board-certified petroleum geologist with over forty years’ experience in basin analysis, regional studies, new play generation, and prospect evaluation. Bob began his career at Shell Oil in 1980. His nineteen years with Shell were followed by four years working for private oil companies before becoming an independent consultant in 2003. Bob is a proven oil finder with a 46% exploration commercial success rate and over 135 MMBOE discovered resources.

In May, Rebecca Dodge presented “Texas as Art,” which is a travelling art exhibit designed to engage the public with satellite imagery showing Texas landscapes, ecoregions, geology, and natural resources, as works of art. Imagery from the Landsat satellites – observing our world for almost fifty years – is enabling protection and management of our natural resources. Two themes connect the scenes chosen for the 2021 exhibit. The first is Texas’ natural ecoregions/landforms; scenes also show the human footprint on our natural landscapes. The second theme connects us to our state parks, historic areas, natural areas, and wildlife management areas that are scientifically managed, conserved, and restored by the Texas Parks and Wildlife Department. The 2021 exhibit focuses on West Texas; future exhibits will expand to cover the entire state of Texas and its beautiful landscapes. Teaching materials linked to the scenes in the exhibit will help teachers to engage students with topics related to earth science (e.g., energy resources; plate tectonics) and environmental science (e.g., water resources, habitat conservation). Engage with art in this interactive presentation.

Dr. Dodge received her M.S. and Ph.D. from the Colorado School of Mines; her research concerned the mapping and dating of active faults in northwestern Nevada. She is a certified geologist within the state of Texas and is a Certified Petroleum Geologist with the AAPG. She has served as president of the Dallas Geological Society and escaped serving as president of the North Texas Geological Society by retiring and moving to Midland in August of 2018. She served in the AAPG House of Delegates for ten years, representing the Georgia Geological Society. She served as president of both the Energy Minerals Division and the Division of Environmental Geology for AAPG, and has recently been elected as the Vice-President of Sections for the AAPG.

Since joining academia twenty-six years ago, she has transitioned from research and educational outreach at a NASA Minority University Research Center at the University of Texas at El Paso, to teaching geosciences. She is currently an emeritus geology and environmental science adjunct professor at Midwestern State University. In addition, she is deeply committed to training and educating future science teachers in geosciences, earth system science, and environmental observation techniques, with an emphasis on the integration of field observations and geospatial technology. She is currently providing earth science teacher training through the American Geosciences Institute and Midland College, with grant funding from the AAPG Foundation. She has a grant from the U.S. Geological Survey to provide teachers and faculty with geospatial technology training. She is also consulting on teaching resource development with textbook companies and online teaching resource developers. She volunteers in K-12 public school and home school classrooms, through development with textbook companies and online teaching resource developers.

Tom Pronold
Chair
HOUSTON

For our January luncheon, we had former Houston Chapter Chair Jeff Allen speak. We had a members-only meeting to discuss the future of the SIPES Houston Chapter, and how we plan to accomplish our goals. We want to as an organization, be a helping hand to those who want to pursue being an independent. We also want to have more events to raise money so we can have the funds to offer some of the tools necessary to those first starting out as independents.

Tyler Priest, the author of "The Offshore Imperative" was our February speaker. We had a great turnout! Tyler spoke about the history of deep water exploration in the Gulf of Mexico. His book follows the development of Shell Oil through their pioneering of offshore exploration in the Gulf of Mexico.

The sometimes-controversial Greg Wrightstone was our March luncheon speaker. Greg is the author of "Inconvenient Facts: The Science that Al Gore Doesn't Want You to Know." Greg takes a scientific approach to addressing many of the misleading claims of the climate alarmists. Greg is also the executive director of the CO2 Coalition. The CO2 Coalition focuses on educating thought leaders, policy makers, and the public about the important contribution made by carbon dioxide to our lives and the economy.

On April 9, the Houston Chapter hosted our first, hopefully annual, chili cook-off. We had Chuck Yates judging, with the Landman Life organization donating prizes. It was a very successful event in attracting prospective members and raising money, both for our Maps in Schools program led by Jeff Lund, #3024, and for some of the funds needed to provide tools for early career independents. We had beautiful weather, a variety of different types of chilis, and copious amounts of beer to wash it down. We are looking forward to doing it again next year!

Scott Leaseburge
Secretary

FORT WORTH

The Fort Worth Chapter began the new year with a talk by John A. Breyer entitled “Carrier Beds as Reservoirs.” Carrier beds are migration pathways linking source rocks with reservoirs in conventional petroleum systems. Today the existence of carrier beds and source rocks is taken as axiomatic, and the mechanics of migration are well understood. However, when John Rich introduced the term carrier bed in 1931, many respected geologists considered the terms carrier beds and source rocks as merely theoretical constructs whose existence had yet to be proven.

Carrier beds may—but need not—have the same reservoir properties as the conventional reservoirs supplied by them. Indeed, the downdip limits of many conventional fields are defined by changes in porosity, and, more often, permeability, associated with a change in facies between the carrier beds and the reservoir. The low permeability of the carrier beds does not preclude them from supplying the reservoir at geological time scales. If sufficient porosity exists for economic volumes of hydrocarbons to be present, the low permeabilities that previously marked the economic limits of some fields need no longer preclude extension of the field downdip into strata that served as carrier beds for the conventional reservoir. Horizontal wells and multistage hydraulic fracturing allow low permeability carrier beds to become viable hydrocarbon reservoirs.

Carrier beds are already being exploited as unconventional reservoirs in Cretaceous strata along the length of the Western Interior seaway from New Mexico to Canada. Among plays now being interpreted as carrier bed plays are the offshore Mancos shale play in the San Juan basin, the Codell Sandstone in the Denver Basin, the Turner Sandstone in the Powder River Basin, and the halo play around Pembina field in the Western Canada basin. Similar plays are likely to be present in other sedimentary basins and in other parts of the geologic column. Placing these plays within a petroleum system framework by identifying them as carrier beds should help focus the search for new plays in the future.

(Continued)
John A. Breyer retired from Marathon Oil Company in 2018 after seven years as a senior technical consultant working in unconventional resources. Since then, he has remained active in the profession as a consultant and editor. John joined Marathon in 2011 after teaching for thirty-three years at Texas Christian University where he won numerous teaching, research, and service awards. On his retirement from TCU, he was named an emeritus professor of geology. John was re-hired by Marathon as the geologist on the shale technology development team. From that point forward he served as the senior geologist in the central technology group as the company acquired and/or developed assets in the Bakken, Eagle Ford, Oklahoma resource basin, and the northern Delaware basin. In 2017, John was among a small number of experts asked to speak at the Unconventional Reservoirs Summit II, Building & Applying the Universal Workflow sponsored by AAPG, SEG, SPE and SPWLA. He has also been an invited speaker at numerous other events sponsored by AAPG and SPE.

Our February talk was given by Mark McClelland and Chris Moragne, and was entitled “Deriving Value from Mature Assets.” The presentation demonstrated the use of ReservoirGrail software, and the benefits gained by using the software to capture remaining reserves in mature oil fields. The software can better identify the amount and location of remaining hydrocarbons. Using the ReservoirGrail software can be beneficial to your bottom line because mature reservoirs account for more than 2/3 of the world’s oil and gas production, capital for the further development of mature reservoirs has shifted to the development of shale resources, for every one percentage point in recovery, another two years can be added to the global hydrocarbon supply, and major oil companies are leaving mature assets behind to pursue more lucrative ventures. The ReservoirGrail process starts with the preparation of an original oil in place map using a net reservoir thickness map, the original oil saturation and porosity. Next a flowpath map is generated which depicts the flow characteristics of the reservoir. Resulting drainage maps determine how each well communicates with the reservoir. A current oil in place map is then generated which locates and quantifies the remaining recoverable oil under current conditions. From there, development plans can be formulated to optimize field production. Two case studies were presented: one resulting in the recovery of an additional one million barrels of oil in a single field and the other resulting in the recovery of an additional six million barrels of oil.

Mark McClelland has thirty-eight years of experience with Conoco and Apache Corp. in improved recovery, reservoir management, production, and operations. His responsibilities included acquisition analysis, asset management and implementation of procedures and new technology to increase value. Mark has directed subsurface modeling teams that provided geo-cellular and reservoir modeling in four continents. Mark joined Durango Resources in 2020, where he continues to pursue his passion of deriving value from mature assets.

Chris Moragne has five years of experience with Durango Resources providing economic and sub-surface modeling expertise. Chris uses ReservoirGrail to simulate primary and secondary production in reservoirs and evaluate development plans for the most cost-effective recovery of hydrocarbons. Chris models multiple reservoirs in Oklahoma, the Permian Basin, and south Texas, and provides clients with optimized depletion strategies.

The speaker for the March meeting was Monte Meers, #3463. Monte’s talk was entitled “Geochemical Surveys – The Added Dimension.” Surface geochemistry and vertical migration have been used as an exploration tool since the 1920s. The presentation included an overview of several different tools and aspects incorporating geochemistry as a primary tool in the exploration for oil and gas. Several examples of both direct and indirect methods as well as their pitfalls were presented. The mineralogy changes associated with hydrocarbon microseepage is complex, but very identifiable. Mapping these changes reveals geochemical anomalies associated with oil and gas reservoirs in the subsurface.

Misinterpretation of microseep geometries will lead to dry tests, but recognizing the geometry will give positive results. Examples of different geometries were presented to demonstrate geometric interpretation. Explorationists are always searching for the perfect tool. Seismic can be a great structural tool but cannot discern oil and gas in hard rock environments. Geochemistry can identify the presence of oil and gas, but is subject to error from faulting, shelf edge reefs, and uncorrected changes in soil type. Combining a geochemical survey with seismic data can yield increased success in identifying the presence of hydrocarbons.

Monte Meers received his geology degree from Texas Tech University in the spring of 1981. From 1981-83, he was employed at J.W. Humbard and Associates, a subsidiary of the David Faskin Estate in Midland, Texas. He was the leader of a team of geologists and geophysicists prospecting in the Permian Basin. From 1983-84, he started his own exploration company and drilled his first two oil wells. From there he went to work for X-L Energy, from 1984-85,

(Continued)
where he discovered his first oil field. From 1985-96 he was employed by Tex-Ann Oil and Gas where he generated prospects using geological evaluation and geophysical interpretation in the Abilene area. He made nineteen wildcard discoveries, with twenty-eight producers, and thirty dry holes. From 1996-97, Monte worked for Hrubetz Oil Company in Dallas where he performed prospect generation using microseep technology, primarily radiometric and magnetic susceptibility. From 1997-98, he worked for Western Reserves Corp. While he was employed by Western, Monte developed the Meers Microseep Method. His company has been an integral part of finding over fifteen million barrels of oil in north Texas since 1998, when he started Meers Microseep Surveys, Inc.

At our April luncheon meeting, we enjoyed a talk given by Alton Brown entitled “Controls on Strawn and Canyon Carbonate Buildups on The Eastern Shelf: A Regional Perspective.” The transition from Morrowan-Atokan foreland basin (Fort Worth basin) to west-prograding passive margin (Eastern Shelf) deposition is characterized by a complex distribution of Desmoinesian (Strawn) and Missourian (Canyon) carbonate buildups significantly different from the simple west-prograding mixed carbonate-clastic shelf-slope system characteristic of later Eastern Shelf deposition. The complex Strawn and Canyon depositional patterns reflects the influence of three regional controls: tectonics, sediment supply, and sea level. The presentation presented regional and local sediment distribution data that helped explain why the simple east to west Eastern shelf progradation pattern was delayed until the end of Canyon deposition.

Well documented regional sediment distribution data indicate that the regional paleogeographic setting was somewhat different than commonly assumed. (1) The Ouachita belt at this time was relatively narrow and not a voluminous sediment source. Most siliciclastics were delivered from southeastern Oklahoma over the Muenster Arch, (2) the western limit of Fort Worth foreland basin deposition was the Concho platform, not the Bend Arch and (3) Fort Worth basin differential subsidence stopped during middle Strawn deposition. Later subsidence was regional and increased towards the Red River Uplift.

The middle-late Strawn buildup trend was nucleated on the Concho Platform axis. Backstepping which isolates small lowstand Strawn buildups was predominantly an eustatic sea-level rise, but drowning on the Concho Platform was probably amplified by tectonics. The Strawn buildup trend confined most Strawn siliciclastics to the east. Siliciclastics were transported west of the buildup trend mainly in the north during times of extended low stand. Canyon deposition is characterized by two regional buildup trends, an outer trend nucleated on the older Strawn buildup trend and an inner shelf trend. A shelf basin developed east of the Canyon buildup trend during Palo Pinto deposition and persisted to the end of Canyon deposition. The inner shelf buildup trend formed on the southeastern margin of the shelf basin. The shelf basin was filled mainly by siliciclastics prograding from southeast to northwest during Winchell and later Canyon deposition. The Virgilian (Cisco) west-prograding shelf-slope system developed because the shelf was relatively flat (Canyon shelf basin had filled) and siliciclastic sediment supply increased as tectonic reactivation exhumed source areas in southeastern Oklahoma.

Alton Brown is a consulting geologist in Richardson, Texas. He has a B.S. from Baylor, and a Ph.D. from Brown University. He worked with the ARCO research lab in Plano, Texas for twenty years on carbonate sedimentology and diagenesis, reservoir quality prediction, basin analysis, petroleum migration, and inert gas geochemistry. He was near the top of the technical ladder when ARCO merged with BP in 2000. Since the merger, he has consulted on carbonates, reservoir modeling, basin analysis, and geochemistry of helium- and nitrogen-rich gases. Current ongoing carbonate research projects include Bell Canyon toe-of-slope stratigraphy and Seven Rivers – Yates evaporite-carbonate transition.

John Ferrell gave our May luncheon meeting talk. John’s talk was entitled “How Well Data is Acquired, Cleansed, Normalized and Presented.” Public data is one of the oldest and most useful tools in evaluating oil and gas assets. The practice goes back decades, but many are not aware of what must go into making public data useful. John explained how the data is acquired and stressed how many errors can be found in public data and how time consuming the cleansing of the data can be. John uses various algorithms to normalize the data, constantly searching for facets of the data that do not match one another, and finally presenting the data for distribution. John presented interesting facts, odd issues, and insights into how best to use public data. The talk was both humorous as well as enlightening.

John Ferrell has spent the past twenty plus years immersed in oil and gas related data. John has worked at major operators, service companies, start-ups, and everything in between. As co-founder and CEO of WellDatabase, John has spent the past ten years immersed in all things public data. John is also a published author and an accomplished speaker.

Jim West
Vice Chair
DENVER

Despite COVID impediments to the meeting schedule, our chapter got off to a good start for 2022, with a diverse variety of geologic themes presented at the monthly luncheons. Presentations included were “Helium in Southeast Colorado – An Overview” by Ed Coalson, consultant for Desert Mountain Energy; “Geothermal Power Production: History, Technologies, and Colorado Opportunities” by Ben Burke; “High Resolution Aeromagnetic Evidence of Structural Reactivation of Basement and the Effects on the Hydrocarbon Maturation and Distribution in the Bighorn Basin of Wyoming and Montana” by Bill Pearson, Ed Coalson, John Horne and Dick Inden; “Geophysical Insights into Palaeoproterozoic Tectonics along the Southern Margin of the Superior Province, Central Upper Peninsula, Michigan, USA” by Ben Drenth, research geophysicist, U.S. Geological Survey; and an introduction by Ryan Fisher to the American Institute of Formation Evaluation (AIFE) and their library of drill stem test data.

Several members of the Denver Chapter attended the National Convention in Park City, Utah, and reported on the excellent technical program, and ancillary events that the national office and convention committee assembled – a job well done. The timely topic presented at the All-Convention Luncheon “Carbon Dioxide, the Gas of Life” by William Happer was particularly noteworthy. The Denver Chapter’s own member, Neil Sharp, #3446, presented “The Political Economy of Environmental Regsulations,” a matter especially pertinent to the petroleum industry in Colorado.

Jerry Cuzella
Secretary

CORPUS CHRISTI

The Corpus Christi Chapter resumed in-person meetings on January 25, 2022. It was our first in-person gathering since March of 2020.

Tom Fett, #3361, was our speaker in January, discussing his recent November 2021 SIPES Quarterly technical article “The Dipmeter Family of Wireline Tools.” Tom gave a history of the dipmeter tool, which was introduced in 1943. Initially, SP was used, but quickly switched to the resistivity measurements. Orientation was determined with simple compass measurements. Present-day tools utilize state-of-the-art magnetometers and accelerometers to provide tool and borehole orientation with a high degree of accuracy and repeatability. Resistivity measurements are still the standard for dip correlations.

Since Corpus Christi is in south Texas, Tom highlighted some of the innovations to the dipmeter tool that were first used here. South Texas had many world-class scientists working the area that contributed to these innovations: The [Texas] Bureau of Economic Geology, University of Texas, Texas A&M University, Texas A&I (now TAMU-Kingsville), LSU, and others. Exxon and Shell were very active in south Texas and utilized dipmeters. The availability of recent sediment deposits and processes that were similar to the subsurface of the region provided the opportunity for field trips and aerial observations.

Dipmeters have developed into the premier method to precisely delineating faults and unconformities. Borehole imaging tools such as the FMI are proving vital to the understanding of these reservoirs. Dipmeter (imaging) acquisition is now possible for oil base mud systems and in slim holes.

We continued with an in-person meeting for February. Phillip Plant, a partner in Herndon-Plant Oakley, Ltd., one of the most established investment firms in Texas, was our speaker. Phil always gives an up-to-date and insightful review of.

(Continued)
the market and economic conditions. This year’s presentation was not a disappointment. Phil understands that the oil and gas industry is essential to America’s and the world’s prosperity. There is no easy fix or substitute for hydrocarbon-based energy in the near future, or even the distant near future. He lauded the independent oil and gas producers as heroes.

Todd Hunter, State Representative, District 32 spoke to our chapter in March. Todd gave an update on the outcomes of the recent legislative session and how those will affect our area. He also discussed the ongoing Harbor Bridge project. Todd is a good ally of south Texas oil and gas, and it is always good to have him as our speaker.

April was our last meeting before summer break. Art Berman discussed his topic “Oil Shock.” He talked about the interaction between supply and demand, the pandemic, the Russian invasion of Ukraine, and the realities of ‘green’ renewable energy. Given all these unstable variables, higher prices seem inevitable. We always enjoy Art’s visits.

Meetings for the Corpus Christi Chapter were on hiatus for May, June, and July. We will resume in August with three months of technical meetings. There will be a holiday gathering toward the end of the year.

For the remainder of 2022, Rajan Ahuja will serve as chair. The other officers will be: Brian Calhoun, program chair; Dan Pedrotti, treasurer; Brent Winborne, secretary; and Dawn Bissell, national director.

Dawn Bissell
Corpus Christi Chapter

MIDLAND

The first five months of 2022 were busy for the Midland Chapter. Preparations for the June 2022 SIPES Annual Convention in Deer Valley, Utah, co-hosted by SIPES National and the Midland Chapter, continued with committee meetings held monthly. Thanks are due to the Midland Chapter members who stepped up to help make this year’s convention a success. Convention Chair Wendell Creech was assisted by Mike Raines (technical sessions coordinator), Marc Maddox (advertising), David Cromwell and Craig Smith (field trip), David Eyler, Steve Melzer, Robin Vasiczek, John Kimberly (keynote speaker coordinators), Earl Sebring, Tom Wilson, Bill Mueller, and Jack Naumann.

Luncheons continued to be held on the third Wednesday of each month at Midland Country Club. In January, one of our long-time Midland SIPES members, Autry C. Stephens, #1540, founder and general partner of Endeavor Energy Resources, received the 2021 Top Hand Award from the Permian Basin Petroleum Association. The Top Hand award is the highest honor distributed by the PBPA each year. Autry joins a distinguished list of petroleum industry pioneers, including other past recipients of the award who were SIPES members, including Jim Henry, Arlen Edgar, and Robert M. Leibrock.

(Continued)
January’s chapter luncheon featured a presentation by Mike and Austin DeVooght, of DEVO Capital Management: “Hedging and Energy Marketing in an Environment of Tremendous Volatility and Uncertainty.”

February is an exception to the regular luncheon schedule, as the Midland Chapter holds its annual evening dinner meeting for members and their spouses, usually around Valentine’s Day.

The SIPES National Board was in Midland for a board of directors meeting, and joint planning session for the upcoming national convention with the Midland Chapter. Timing was perfect and the National Board joined us for the annual dinner. National President Gregg Alletag addressed the guests, and Robin Vasicek presented a $25,000.00 check from the estate of former Midland Chapter member Sally J. Meader-Roberts, #2075, to the SIPES Foundation to be dedicated to the scholarship program per Sally’s wishes. Master guitarist Albert Madrid provided the entertainment.

The speaker for our March luncheon was Mark Henkhaus, RRC: “Compliance and the Independent Operator: The Railroad Commission is Rewriting the Unwritten Rules of the Game.” Mark gave an excellent, informative overview of evolving RRC policies affecting such diverse areas as injection and disposal well permitting, spill cleanup, H2S compliance, proration, and more. These changes affect how an operator approaches operations, compliance and permitting.

The presentation for our April luncheon was made by Robert Trentham from the University of Texas Permian Basin (UTPB). Dr. Bob Trentham is senior lecturer and research associate in the Geoscience Department at UTPB, and is past director of the Center for Energy and Economic Diversification at UTPB. His topic was “Stacked Greenfield and Brownfield Residual Oil Zones - North Ward Estes Areas, Western Margin of the Central Basin Platform.”

Our May luncheon speaker was Matthew Sinkey, vice president of ShearFrac. His talk was entitled "Fracture Type Identification for Real-Time Pumping Parameters Optimization to Maximize Hydraulic Fracturing Surface Area for Production." Matthew presented case histories showing the real-time changes and added production benefits of shear fracturing, as well as the field use of real-time software capable of measuring the surface area creation on a second-by-second basis and allowing operators to make “on-the-fly” changes to their pumping schedule to maximize shear fracturing.

Craig Smith
Membership Chair

April guest speaker Robert Trentham (left) with Vice Chair Michael Raines.

Greenfield and Brownfield Residual Oil Zones - North Ward Estes Areas, Western Margin of the Central Basin Platform.

Don't Forget to Order Your SIPES History Book!

How much do you really know about the Society of Independent Professional Earth Scientists? This is your chance to find out!

This newly available hardback book is a compilation of all three volumes of SIPES history, and provides a narrative of the events that have shaped SIPES since its beginning in 1963 through July 2021.

The first printing sold out at the Annual Meeting. Now is your chance to place an order for the second printing coming out in August. This attractive book is printed on quality paper and is built to last!

Order now by contacting SIPES National Office at (214) 363-1780 or sipes@sipes.org. Cost is $135.00 and includes shipping and handling.
WELCOME NEW MEMBERS

In accordance with the SIPES Constitution, By-Laws and Code of Ethics, the following list includes new members who have been unanimously approved by the SIPES Membership Committee. These members have completed the 30-day waiting period and we welcome them as new members of the Society.

Dan Earl Duggan, National Membership Committee

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Robert B. Owen, #1801
March 18, 1929—June 24, 2022

Robert Barton “Bob” Owen of Corpus Christi, Texas and Durango, Colorado, passed away peacefully on June 24, 2022. He was 93. Bob was born March 18, 1929, to Arthur Guy and Martha E. Owen in Beaumont, Texas. As a young boy, Bob joined Boy Scouts and began a love of the outdoors that continued throughout his life. He achieved the rank of Eagle Scout and served as Trail Guide, Base Camp Director, and Winter Camp Director from 1944-48 at Philmont Scout Ranch near Cimarron, New Mexico. Later in his professional life, he shared his experience as Explorer Advisor and Scout Master, returning to Philmont in 1980 to lead an expedition of young scouts. So began Bob’s love of geology. Heading west, he enrolled in the Colorado School of Mines where he earned a Bachelor of Science degree in geological engineering. Bob, or “Tex” as his buddies called him, joined the Beta Theta Pi Fraternity, lettered on the track team, and held down numerous jobs to fund his education. As busy as he was, Bob always found time to enjoy the mountains, developed lifelong friendships, and even participated in the famous Leadville to Fairplay burro race.

Bob joined the ROTC and after graduating, enlisted in the Army, where he became an officer at Fort Belvoir, Virginia. He trained combat engineers and infantry soldiers at Ft. Leonard Wood, Missouri. Bob served his country in Korea as 1st Lieutenant in the 1093rd EAB as an Aviation Engineer Unit Commander. While attending a dance in Washington, DC, Bob met the love of his life, June. Knowing he was soon to be deployed to Korea, he proposed, and on January 17, 1953, Bob and June began their life together. They were married 69 years.

The mountains remained Bob’s true love where he enjoyed skiing, hiking, and mountain climbing. He loved the geology of the La Plata mountains and found the perfect home in Durango, Colorado. He was eager to share his love of skiing, so when introduced to Adaptive Sports at Purgatory Ski Resort, he became a PSIA Ski Instructor and volunteered to help those with physical disabilities to ski and share their incredible joy. Bob was active in the Four Corner’s Geological Society, known especially for his horseshoe game prowess.

Bob summited 47 of Colorado’s 14,000’ foot peaks, some multiple times. He climbed his first fourteenner while attending Mines. This often involved hitchhiking with some of his buddies to the trailhead then running up the mountain. He climbed his last fourteenner, Handies Peak, at the age of 80. While climbing, he would grin and say “I wonder what the city folk are doing?” He taught his children and grandchildren to love and respect the mountains.

Bob embarked on a lifelong career as an independent geologist and successful oil and gas prospector. He was co-founder and first president of Petroleum Data Service, he served as president of the Corpus Christi Geological Society, and as a delegate to AAPG. Bob joined SIPES in 1988, where he served the Corpus Christi Chapter as vice chair and chapter chair, and under his leadership and passion, the local chapter continued to grow. He continued serving SIPES as a national board representative, and a director of the SIPES Foundation. Bob was a visionary, and as the chair for the 1998 SIPES National Convention, he successfully campaigned for it to be moved from the springtime to the summer months, and to be held at a resort location. In this regard, he was successful in getting the 1998 convention to be held in June, in his favorite location in the whole world, Durango, Colorado. Later SIPES leadership recognized Bob’s vision and made these changes permanent. For his service, he was honored as one of the select recipients of the SIPES Outstanding Service Award in 2003. For the record, Bob also claimed the unofficial title of SIPES National Horseshoe Champion.

Bob will be remembered for his kindheartedness, smile, and tireless service. He was the geologist’s geologist. He never stopped learning and he never lost his passion for his profession, or for life.

Bob is survived by his loving wife June, daughters Holli Owen, Christy Owen (Wayne) McConnell, Robin Owen, and son Tom Owen, grandchildren Alyssa, James, Alanna, Taylor, Paige, Mackenzie, Madison, Lane, Sarah, and Ryker, as well as six great grandchildren, nephews David and Michael Owen, and niece Virginia Hovde. He is preceded in death by his parents, Arthur and Martha Owen, brother Art Owen, and sister Bernice Maggio.
Gas industries. By capturing natural gas that is flared or vented and feeding it into generators, miners are able to find a source of energy for their mining processes from a widely available and otherwise wasted source. This gives Bitcoin mining a greener image for using otherwise wasted energy while also helping to reduce greenhouse gas emissions from oil and gas operations and thereby improving this industry’s image as well. However, as with many things, mining Bitcoin with otherwise flared or vented natural gas is much easier said than done. There are a number of issues including infrastructure, reservoir, and legal, to name a few, that must be addressed for this practice to be feasible or economic at any given location. In addition to these issues, and perhaps most importantly, there is the issue of convincing operators that such projects can be lucrative and that Bitcoin is more than a fad or something akin to “magic beans”.

**Introduction**

Cryptocurrencies were first popularized by the official launch of Bitcoin and its network in 2009. Though attempts at merging cryptography with financial systems had been attempted prior to 2009, Bitcoin was the first decentralized system to truly popularize the technology. The decentralized nature of this network was the groundbreaking quality that helped it catch on to the degree it has over the past thirteen years. However, the process of verifying transactions on the Bitcoin network, which is referred to as “mining”, is very energy intensive. In today’s environmentally conscious world, increasing popularity in Bitcoin’s usage has also resulted in increased scrutiny towards the high amount of energy that its mining process consumes. Opponents of Bitcoin cite this high energy consumption as a reason that the technology should be permanently banned. Fortunately, some creative minds saw an opportunity to solve two environmental issues with one solution by generating power for the mining process from currently producing natural gas wells where the gas would otherwise be flared or vented. For the purposes of this paper, both flared and vented natural gas will simply be referred to as flare gas. This solution would seemingly be very attractive to oil & gas operators as it would help them make profit from an otherwise discarded resource, while also helping reduce their greenhouse gas emissions and improve their public image. However, the current situation shows that the implementation of this idea is far easier said than done.

**What is Bitcoin, Blockchain, and Mining**

Bitcoin is a digital currency that uses a technology called blockchain to facilitate peer-to-peer transactions in a decentralized manner (Nakamoto 2008). Blockchain technology describes an immutable list of data where new data is continually added onto the previous version of the list. In the case of Bitcoin and cryptocurrencies, this list manifests itself as a ledger that records transactions on a network. Packages of data are recorded in “blocks” with unique timestamps and cryptographic identifiers, called hashes and nonces, to distinguish them from other blocks so that they can be correctly catalogued in chronological order. Each “block” contains a specific amount of data that is added onto the previously existing list “blocks”. For example, blockchain A has already permanently recorded blocks 1-3 into its ledger. Once blockchain A’s 4th block has reached its data capacity, it is added to the already published ledger. The full ledger shared across the entire network would now contain data permanently recorded from blocks 1 – 4. This process creates a chain of data blocks, hence the name Blockchain (Figure 1).

One of the key features of blockchain technology is that it allows for data to be distributed and verified in a decentralized, peer-to-peer manner. This means that the entire ledger is shared and confirmed by a global network of computers as opposed to an individual or single organization, such as a national bank, corporation, or government. For a system like Bitcoin that involves finances, this is important for a variety of reasons. One reason is that this allows for additional quality control checks of the ledger by all computers across the global network that are verifying transactions. This drastically

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reduces the possibility of bad data being recorded either accidentally or maliciously. Additional quality control checks result in fewer potential points of failure for the network. For example, if a person or group desired to control the network in any way, 51% of the computers maintaining the network would have to be compromised. Economic viability, technical feasibility, and even legal feasibility are a few of the factors that make such an event extremely difficult if not outright impossible.

A single, network-wide consensus mechanism must be used by all computers maintaining a given blockchain’s ledger for the network to function properly. While there are a variety of potential consensus mechanisms any blockchain network might use, Bitcoin uses one called Proof of Work. Proof of Work requires computers to prove that a certain amount of computational effort has been expended to earn the right to validate transactions within a single block of the network’s blockchain data. Bitcoin implements this consensus mechanism by having computers identify a 64-digit or greater hexadecimal value for each block that gets published to the blockchain. This hexadecimal number can include numbers, uppercase letters, and lower-case letters. Though this process will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical details behind mining are beyond the scope of this article and will be discussed in slightly more detail later, the full technical
development.

Flare Gas Capture for Bitcoin Mining

Introducing flare gas as an energy source for Bitcoin mining requires many factors to be considered. The simplest description of this process can be described as feeding natural gas into a generator to power a mining computer system via combustion of the input gas. In the scenario where such a system is installed at a wellhead, a small connection is made to the gas line designated to flaring that redirects incoming gas to a power generator. The generator then powers a mining setup.
that is also located at the wellsite. The space this system requires will vary depending on the scale of the project and the specific machinery used. A well flaring as little as 10 MCF per day could take up a space roughly the size of a small 8’ x 8’ cubicle. Larger projects can take up space as large as a shipping container, if not bigger. Mining devices can also be deployed directly at a processing plant, though the same spatial requirements are required for each individual unit deployed. In either scenario, it is important to remember that the mining equipment is communicating with a global financial system requiring a reliable internet connection. The inability to provide a steady, reliable connection prevents mining from occurring and removes all economic viability from such projects. Internet connections may be provided in a variety of ways that range from satellite, ideal for remote locations with little to no internet infrastructure, to fiber solutions in areas with more infrastructure development.

Other critical factors to consider when mining Bitcoin with flare gas concern the quality of the gas being fed into the generator. The most important factors concerning gas quality are its BTU and H₂S content. These are metrics that the industry is familiar with when having to consider the details of sending gas into any midstream infrastructure. Sour gas may require additional equipment to scrub out H₂S and cut into potential profits. BTU content is primarily an issue for the generators as they generally require a certain BTU threshold to properly function. Operators might have the option to send produced gas into existing infrastructure instead of purchasing their own compressors or H₂S scrubbers. However, these options are never free and will also affect profits. All of these issues must be addressed when considering a flare gas mining operation. Ignoring these considerations can possibly result in a deadly environment that could make it unsafe to maintain equipment, prevent a generator from creating enough energy to power a mining computer, or corrode the generator so quickly that parts, if not the entire generator, need to be replaced at uneconomic rates. The exact H₂S and BTU requirements may vary depending on the specific machinery or vendors involved.

Mineral rights and royalty payments are another set of factors that must be addressed when considering a flare gas mining project. Such a process may become incredibly complicated depending on the number and relationship of all mineral owners involved. All mineral owners must agree and be properly compensated when generating profit from gas that would otherwise have been flared. Third party vendors will buy flare gas from operators but at a discounted rate due to the situation of the gas being otherwise “thrown away”. Such an agreement seems reasonable enough between operators and vendors but this could result in a situation where mineral owners argue that the flared gas was not sold at fair market (Continued)
value and their rights to profits made from their minerals were infringed upon. This could simply be resolved by including the owner in mining profits but a mineral owner may or may not be receptive to such an idea. Mineral rights involve very complicated and situational issues but it is important to note that they apply to flare gas mining operations as with any other profits made, directly or indirectly, from the production of a well.

The most important issue that must be addressed is the daily required amount of gas that a generator needs to appropriately power a mining machine. Depending on the situation, this number can be in the hundreds of MCF per day and is most critical because it is the most likely issue to make a project uneconomic regardless of enthusiasm for or skepticism about such a project from any parties involved. To reiterate, the rate of several hundred MCF per day can be a minimum daily required volume. This is a difficult volume for some to consider allocating towards a Bitcoin mining project, particularly with gas prices as high as they currently are. Nonetheless, the idea of Bitcoin mining with flare gas as an energy source appears to be gaining in popularity.

The scenario where a generator/mining unit is installed directly at a well site is most ideal for a remote location where high volumes of natural gas are produced but must be flared due to little or no midstream infrastructure being available. The Delaware Basin is a prime example because of prolific plays like the Wolfcamp that produce large volumes of natural gas and oil. The lack of infrastructure (Figure 2) requires operators to come up with other, more expensive solutions for transporting produced hydrocarbons to processing facilities. This is in contrast to other regions, like the Anadarko basin or Gulf Coast, that have much more developed midstream infrastructure that do not require creative solutions for transporting produced oil or gas. Trucking oil from the well sites has historically proven to be economic for operators in areas with less midstream infrastructure despite the higher gathering costs. However, this has not been the case for natural gas. Economics may be different in the current plus $6/mcf environment but to date it has usually been more cost effective for operators to simply flare any produced gas, despite the fact that a single well may flare hundreds of MCF per day. As a result, the Delaware Basin is an area that sees some of the highest volumes of flared gas in the country (Figure 3).

(Continued)

Figure 3. 2012 flare gas heat map (modified from U.S. Department of Energy 2021)
Though flare gas volumes have been decreasing in recent years (Railroad Commission of Texas, 2021), the issue is far from completely resolved, and makes areas such as these ideal candidates for Bitcoin mining projects.

Though other cases where a flare gas mining project makes economic sense may be more difficult to presently identify, they do exist. It was mentioned earlier that flare gas mining units can be deployed at a processing facility instead of directly at a wellhead. This is best suited for an area that has a well-developed infrastructure and more sporadic flare gas volume from individual wells. A single well may not consistently flare hundreds of MCF per day but an entire field that contains hundreds of wells flaring an average of 5 MCF per day per well could sustain the required volumes needed to power a mining machine. However, this solution may only be feasible for midstream companies or larger operators that might own midstream infrastructure in addition to the surrounding wells. Flare gas mining may also be a solution to equipment issues that result in extended midstream downtime or pipeline capacity issues. This scenario would be one where it makes more sense to install the mining unit directly at the well site and is dependent on midstream or facility downtimes that extend a year or longer.

Conclusions and Additional Thoughts

Bitcoin is catching the attention of the world for a variety of reasons and the oil & gas industry is no exception. For oil & gas, this has manifested in the opportunity to utilize flared or vented gas as a power source for Bitcoin mining operations. Oil and gas operators who choose to get involved in a flare gas mining project find themselves in the position of being able to not only reduce their carbon emissions from flaring gas but also to realize otherwise untapped profits by turning this “thrown away” gas into profit. There is a long list of parameters that must be evaluated in determining whether a mining project makes economic sense for any given operator. Currently, the use of flared gas appears to make the most economic sense in remote areas with little to no midstream infrastructure available. It will be interesting to see how demand for such projects develops in the long-term and if any changes are made in the manner in which future Bitcoin mining projects are implemented.

Hands on experience with evaluating a flare gas mining project proved that the biggest barriers to potentially deploying a mining project were economics and justifying the conversion of gas into a cryptocurrency. The particular project studied was located in a proven field with plenty of midstream infrastructure. The possibility of deploying such a project in this location made more sense to have mining rigs installed at a facility as opposed to any individual well site, none of which ever flared enough gas to properly power a single mining unit. However, because it was difficult to guarantee that the volume of gas required to power a mining unit would be solely sourced by flared gas, it was likely that a unit would be powered, to some extent, by gas that would not otherwise have been flared. This was determined to be an unfavorable situation because the operator primarily produced gas from the area and diverting any gas that would have otherwise been sold into a bitcoin mining operation would cut into the more guaranteed profits to be gained from selling gas. The price of Bitcoin at the time was sub $20,000/BTC and was the primary contributing factor to this economic evaluation. This change in strategy was also deemed to be too drastic for the company’s production portfolio from that of an oil & gas producing company to a cryptocurrency producing company and the project was declined.

Delving into the world of cryptocurrencies proves to be a seemingly endless rabbit hole that includes many more currencies beyond Bitcoin. While it is fascinating to see projects like Bitcoin flare gas mining become more common by the day, it is notable that such solutions are only being discussed in terms of Bitcoin mining. Consider that the most basic objective of any flare gas mining project is to simply turn gas that would otherwise be thrown away into energy that can be used for anything requiring energy. This energy can be used to mine many other cryptocurrencies, including some with different consensus mechanisms than Bitcoin. For example, Proof of Stake is one such mechanism that uses far less energy in comparison to the Proof of Work consensus mechanism and could allow for much more efficient use of power generated by flare gas. However, other cryptocurrencies are more speculative assets and while the potential for ROI may be higher, the potential for unprofitability is also higher. The upfront cost for some of these mining machines may also be more expensive. The cryptocurrency Ethereum (Ethereum Foundation), for example, requires the purchase of at least 32 Ethereum before a validator can be allowed to mine on this network. Solana requires a much more robust and expensive machine (Solana Foundation) to mine than any other cryptocurrency requires.

Regardless of what cryptocurrency is being mined, converting flare gas into energy that can be used for other purposes is certainly a worthwhile endeavor. Specifically using this energy to mine Bitcoin or any other cryptocurrency seems like a potentially highly beneficial solution for any operator looking to find a solution to flaring gas that allows them to capitalize on otherwise discarded profits while improving their carbon footprint. However, approval for such projects is likely to be met with skepticism and even a Bitcoin mining project, much less other cryptocurrency mining projects, has to be approached with a certain level of belief in the coin or token being mined. Mining projects are also going to realize the most ROI potential in years to come. Companies that got involved in such projects two or three years ago had to take a leap of faith on a speculative asset to realize the much greater profits they are realizing today. This leap of faith is easier to come to terms with in areas where gas must be flared. For

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other areas, these projects have to viewed as more of an actual investment into a given asset. Either way, it will be very interesting to see how these projects develop in the future.

Acknowledgments

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About the Author

Alexander Gonzales has worked in the oil & gas industry since 2011. He is currently employed as a geologist for Scout Energy Partners in Dallas, Texas. Alexander received his B.S. in Geoscience from Texas Tech University in 2014 and his M.S. in Geoscience from the University of Texas at Dallas (UTD) in 2022. He is also currently enrolled in a dual M.B.A. and M.S. Energy Management program at UTD.

Gift from Alumnus Lays the Groundwork for Experiential Learning

Geosciences students get firsthand hydrogeology experience at the Edward C. Roy Groundwater Training Center in East Texas

By Miriam Sitz, 2010 Graduate of Trinity University

(Reproduced with permission from Miriam Sitz, Trinity Alumni Magazine, June 9, 2022)

On a pleasantly cool morning in late April, six Trinity University students started their day with coffee brewed on a propane stove. They had camped the previous night, tents set up in a field an hour’s drive southeast of Dallas. From sunup to the early evening, the students conducted experiments on the ground—and water—beneath their feet, working alongside their professor and the Trinity alumnus whose passion, generosity, and joy made the weekend of hands-on learning possible.

Named for an influential Trinity geology professor, the Edward C. Roy, Jr. Groundwater Training Center is the brainchild of David Shiels, a 1983 Trinity graduate and hydrogeologist. The facility offers students the opportunity to conduct field work on a water-bearing aquifer, taking what they’ve learned in the classroom and putting it into practice.

Shiels and his wife of 35 years, Carol (a geological engineer), live and work on a 640-acre ranch near Kaufman, Texas, that has been in their family since 1851. The couple also runs their own environmental engineering and consulting company, and both are members of SIPES. Shiels always knew there was something special about the land, which today is home to more than 100 cows, horses, and sheep (in addition to their two Great Pyrenees guardians). A stand of pecan trees, healthy and thriving even through seasons of drought, led him to suspect there was a source of subterranean water. He discussed his theory with geosciences professor Brady Ziegler, Ph.D., while on an alumni field trip organized by the Department of Geosciences during Alumni Weekend 2019, as the University celebrated its 150th anniversary.

On February 29, 2020, Shiels invited Ziegler to bring a group of Trinity students to observe as he had a well drilled on his land. Cold, clear water soon started to flow, confirming his prediction that an aquifer lurked below the surface. The trip took place the weekend before students left for spring break—and just as normal life came screeching to a halt. Because of the pandemic, students did not return to campus after the break. That Leap Day visit to Shiels’ land would be their last until April 2022.

Unparalleled Experiential Learning

Excited to once again host visitors, and eager to share his zeal for hydrogeology with students, Shiels drilled three more wells into the shallow, sandy formation, which Ziegler says presents the perfect introduction to working with a real aquifer. After finding that all four wells were saturated with water (Continued)
and interconnected, “I told Brady, ‘We hit the jackpot, buddy,’” Shiels recalls. “If I were a hydrogeology teacher, I’d want my kids out there collecting groundwater samples, crunching data, and actually doing the chemistry themselves. And that’s what they did all weekend long, sunup to sundown. I could barely get them to stop and eat my barbecue!”

Over the course of the weekend, the six students, working in small groups, conducted a variety of tests to measure the aquifer’s hydraulic conductivity—that is, how well water flows through it—as well as its chemical properties, such as dissolved oxygen, iron concentration, pH, and alkalinity. They were utilizing skills that they had learned throughout the semester in Ziegler’s hydrogeology class. “You can do math all day long,” says the assistant professor, “but when you get out into the field and actually start to see displacement in the well, it’s a unique experience.”

Luke Stuart ’22, an environmental geosciences major from Lubbock, Texas, agreed. “I hadn’t ever seen water pumped out of the ground, and honestly it was really spectacular.”

Time flew by as the students worked on the wells. “We were always on the move,” says Stuart. “None of us even looked at the time, and before we knew it, the day was over.” Even the smell of brisket wafting over the field couldn’t distract them—well, not too much, anyway. A consummate host, Shiels had fired up his smoker just before dawn to prepare that night’s dinner for the group. “We could smell it out in the field, and sometimes the thermometer would be beeping along with the sound of our slug test,” recalls Zoe Grout ’22, an English major from Houston, who minored in geosciences and religion. “I’m not usually a barbecue person, but it was insanely good.”

The groundwater training center offers unmatched opportunities to engage in experiential learning, with clear and direct benefits for students’ postgraduate lives. “Most people coming out of bachelor’s programs have not done this kind of hands-on work before, so the fact that they have gives them a leg up in the job market,” says Ziegler, explaining that many entry-level jobs in the geosciences, such as working in environmental consulting or remediation, include field work.

Shiels himself came to be an expert in groundwater characterization by learning on the job. “It took me several years in the school of hard knocks, learning on the fly, to figure out the best way to do these aquifer tests,” he says. On his property, he’s hoping to streamline the process for future generations.

“In addition to the intellectual and practical benefits, the experience also represented a return to normalcy for a group of students who have spent much of the last two years learning remotely. “Field trips are part of what makes this department so special,” says Grout. “Eating, working, camping together—it was a really great bonding experience. We lost a lot to the pandemic, but we’re getting it back.”

Deepening Friendships and Discovering Passions

Shiels’ time at Trinity and the friendships he made on campus laid the foundations for his professional trajectory. Though he initially planned to study business, a conversation with his geology major suitemate piqued his interest in the department. After Shiels, an outdoorsy Eagle Scout, took a class on the geology of the national parks with professor Walter Coppinger, Ph.D., he was hooked. “I ate it up,” he says. “I fell in love with geology.”

That sort of accidental entry to the department is familiar to many geoscience students. “You take a class and are fascinated by it,” says Stuart, who came to Trinity as an engineering science major. For him, a course with professor Kathleen Surpless, Ph.D., on solid earth processes introduced him to...
the world of earth systems science. Likewise, Grout, with interdisciplinary interests and a love of STEM, found her way to a geosciences minor after taking “Earth’s Environmental Systems”—coincidentally, also with Ziegler. “The more classes I took in the department, the more interested I became,” she says.

For Shiels, the mentorship of late professor Edward C. Roy Jr.—the training center’s namesake—had a profound impact on his education and life. Roy, who received both his bachelor’s degree and Ph.D. in geology from the Ohio State University, joined Trinity’s faculty in 1966. He chaired the geology department from 1978 to 1984 before going on to serve as vice president of academic affairs for 12 years. The beloved educator returned to the department in 1999 and held the position of Gertrude and Walter Pyron Distinguished Professor of Geology until his retirement in 2005. Roy died in 2007 at the age of 71.

“Dr. Roy treated us like his kids,” says Shiels. “I wasn’t a straight-A student like Scott Tinker”—a friend and 1982 Trinity graduate who now serves as the state geologist of Texas and sits on Trinity’s Board of Trustees—“but Dr. Roy knew that I was passionate and loved geology, and that meant just as much to him.” Shiels recalls that at his induction into the earth sciences honor society, Sigma Gamma Epsilon, Roy urged the students to continue advancing the sciences and give back in whatever way they could. “When Carol and I saw that we had this opportunity at the ranch, I knew this was what we needed to do—what Dr. Roy would have wanted us to do,” says Shiels. Naming the facility for the professor who inspired him and fostered his love of geology was the natural choice. “It couldn’t be called anything else!”

**Going Forth and Giving Back**

The future looks bright for the groundwater training center. Shiels has plans to open the property to students from other colleges and universities, and possibly even emerging professionals from around the state. As he told his wife, “Staying in touch with young folks is going to keep us young. And what better young people than young geologists!”

But he’s perhaps most excited about hosting the next group of hydrogeologists-in-training from his alma mater. “We had it so good at Trinity,” he says, fondly remembering his own years on campus. “Being in the middle of it all, learning how to live life. Giving back in this way helps me keep feeling those feelings.”

Shiels’ passion made a profound impact on how the students who visited in April approached the weekend. “His enthusiasm was infectious,” says Grout. “The field work wasn’t just something I had to get through; it was something I was excited to participate in.” Their professor likewise noted the alum’s impressive commitment to the University. “The fact that he paid, out of his own pocket, to create this place for students is remarkable,” says Ziegler. “David and Carol deserve a lot of credit.”

“Everybody has something to give besides money,” Shiels says. “For us, it’s this.”

**About the Author**

Miriam Sitz ’10 writes about architecture, urbanism, sustainability, and more. She majored in Spanish and environmental studies at Trinity University, with a minor in geosciences. She then earned her master’s degree from the Columbia University Graduate School of Journalism. Follow her on Twitter at @MiriamSitz. Contact Trinity at marketing@trinity.edu.

Photos are courtesy of Trinity University Department of Geosciences.
A memorial service for Stewart Chuber, #221, will be held on September 24, 2022 at 11:30 a.m. at St. James Episcopal Church, 156 N. Monroe Street, La Grange, Texas 78945. In lieu of flowers, his daughter, Valerie, is requesting donations be made either to the church, or to the Gardenia E. Janssen Animal Shelter, 240 Svoboda Lane, La Grange, Texas 78945, in his honor.

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Ralph O. Kehle
Constance N. Knight
Edward A. McCullough Fund
Marcus D. Maddox
Robert H. Marshall
Douglas H. McGinness II
William M. Smith (Houston, TX) Scholarship Endowment Fund
Robert M. Wynne, Jr.*

$100 - $199
Gregg S. Alletag
Ernest Angelo, Jr.
William C. Bahlburg
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Steven L. Davidson
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In honor of James A. Gibbs, #314
James P. Evans III Scholarship Endowment Fund

*$50 - $99
Fred H. Behnken
John L. Berry
Richard S. Bishop
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Valary L. Schulz
C. Ray Scurlock
James R. Small
Jack M. Thorson
Mitchell F. Veh, Jr.
James D. Wildharber
David B. Williamson
* Deceased

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SOCIETY OF INDEPENDENT PROFESSIONAL EARTH SCIENTISTS

Advertising and Sponsorship Order Form

SIPES 59th Annual Meeting & 2023 Convention

June 12-15, 2023 • SANTA FE, NEW MEXICO

2023 CONVENTION ADVERTISING RATES

<table>
<thead>
<tr>
<th>Ad Format</th>
<th>Rate</th>
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</thead>
<tbody>
<tr>
<td>Business Card (3.5 x 2)</td>
<td>$60</td>
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<tr>
<td>Quarter Page (3.35 x 5)</td>
<td>$120</td>
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<tr>
<td>Half Page (7 x 5)</td>
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<tr>
<td>Full Page (7.5 x 10)</td>
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<td>Inside Front Cover (Color)</td>
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<td>$750</td>
</tr>
<tr>
<td>Outside Back Cover (Color)</td>
<td>$1,000</td>
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Your ad will appear in the 2023 Convention registration and program books

2023 CONVENTION SPONSORSHIP RATES

<table>
<thead>
<tr>
<th>Sponsorship Level</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Silver Sponsor</td>
<td>$500</td>
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<tr>
<td>Gold Sponsor</td>
<td>$1,000</td>
</tr>
<tr>
<td>(Gold Sponsors receive one complimentary convention registration*)</td>
<td></td>
</tr>
<tr>
<td>Platinum Sponsor</td>
<td>$1,500</td>
</tr>
<tr>
<td>(Platinum Sponsors receive one complimentary convention registration,* a complimentary 1/2 page ad, and the opportunity to include advertising materials in the convention registration packets)</td>
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<tr>
<td>Emerald Sponsor</td>
<td>$3,000</td>
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<td>(Emerald Sponsors receive two complimentary convention registrations,* a complimentary full page ad, and the opportunity to include advertising materials in the convention registration packets)</td>
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</tr>
<tr>
<td>Diamond Sponsor</td>
<td>$5,000</td>
</tr>
<tr>
<td>(Diamond Sponsors receive the same benefits as Emerald Sponsors, plus a complimentary full page ad in the SIPES Newsletter for a full year)</td>
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</table>

*Complimentary convention registration does not include any of the optional tours or events.

Circulation: SIPES Members & Convention Attendees
Deadline for Inclusion: January 16, 2023 • Publication Dates: March & June 2023 • Ad Format: Camera-ready or digital

ORDER FORM & PAYMENT OPTIONS - Please Circle Your Selection

<table>
<thead>
<tr>
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<th>Half Page</th>
<th>Full Page</th>
<th>Cover Page</th>
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<tr>
<td>Silver Sponsor</td>
<td>Gold Sponsor</td>
<td>Platinum Sponsor</td>
<td>Emerald Sponsor</td>
<td>Diamond Sponsor</td>
</tr>
</tbody>
</table>

Name:___________________________________________  Contact:__________________________________________
Address:____________________________________________  Telephone:______________________________________
City:___________________________  State:_______  Zip Code:_________________  Fax:__________________________
Ad Size:________________________  Amount Enclosed:_____________  E-Mail:___________________________________

Payment Information: Please Circle Form of Payment

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<tr>
<th>Payment Enclosed</th>
<th>Bill Me*</th>
<th>VISA</th>
<th>MasterCard</th>
<th>Discover</th>
<th>American Express</th>
</tr>
</thead>
</table>

(*Payment must be received by January 16, 2023 for inclusion in publication)

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Credit Card No.:______________________________________________________  Expiration Date:___________________
Billing Address and Zip Code (if different from above):______________________________
Name on Card:____________________________________________  Signature:__________________________________

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Phone: 214-363-1780     Fax: 214-363-8195     E-mail: sipes@sipes.org
2022-2023
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SIPES Vision Statement

To be the preeminent organization for furthering the professional and business interests of independent practitioners of the earth sciences. In achieving this vision, emphasis will be placed on (1) professional competence, (2) professional business ethics, and (3) presenting a favorable, credible and effective image of the Society.

Adopted by the SIPES Board of Directors
September 21, 1990