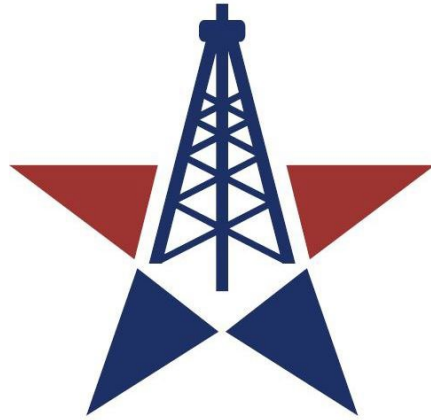


**34<sup>th</sup> Annual**



**TEXAS ENERGY COUNCIL SYMPOSIUM**

**“ENERGY CHALLENGES”**



## 2023 SYMPOSIUM

**Speaker:** **Dr. Robert Balch** – *Director*, New Mexico Petroleum Recovery Research Center

**Topic:** **The Future of Energy and Path to Net Zero CO<sub>2</sub> Emissions**

The path to net zero represents a complete de-carbonization of energy from the way we use it today. Ultimately we may also need to consider net-negative emissions, such as Direct Air Capture, to avoid the worst predictions for future climate. To reach either goal it is necessary to pass through the goals established by the Paris Accord, a 60% reduction by 2050. World-wide the world emits about 33 gigatonnes of CO<sub>2</sub> per year, and by 2050 that number needs to be reduced to 13 gigatonnes. The decline in emissions needs to be steeper than the growth in emissions over the preceding 30 years, and this presents a major technical challenge. As the world continues to develop, more energy is used every year. In fact, by 2050 the world is projected to be using about 30-40% more energy than it does today. Renewable energy is expected to be about 35% of the world total use in 2050, and the use of coal, oil, and natural gas will be effectively unchanged. With current use of hydrocarbons unchanged, carbon capture and storage (CCS) or carbon capture utilization and storage (CCUS, aka EOR) become important for achieving national goals.

Countries are changing their emissions; The USA (13.4% of world emissions), the EU (7.6%) are both projected to drop emissions by ~35% by 2050, however, China (26.1%) will continue to grow emissions until about 2030 and then decline to 2020 levels by 2050, India will continue to grow its emissions at the same rate through 2050, and some countries like the Russian Federation (5.6%) and Japan (2.6%) are expected to stay at 2020 levels through 2050. Without drastic changes the world stands little chance to meet even the Paris accord goals in the 27 years that remain to avert a predicted 1.5° C change in average world temperature. If the EU and the US achieve net zero in that time, world-wide emissions will have dropped by about 30%, or half the Paris Accord world-wide goal. This is a significant challenge, much of the world can't or won't spend the money necessary to make significant reductions.

This problem requires an engineering approach, focusing on solutions that we can work today, using understood and readily available technologies. Time is too short to wait for science solutions such as fusion and grid-scale batteries which are needed to allow full utilization of renewables, though those may well become engineering solutions in the future. Critical things to understand are the roles of strategic minerals, the needed growth in mining industries to enable technologies of today, and the very significant infrastructure challenges to completely change energy as humanity continues to develop. Geopolitics also can play a very significant role in all related issues. It is not possible to pick a single solution which will address CO<sub>2</sub>, in the 27 years we have to do it in. Rather a mix of solutions that include carbon capture and storage, increases in efficiency, continued growth in renewables, switching of liquid fuels to biofuels and hydrogen generated from methane, an increased adoption of nuclear power, and ultimately some adaptation to climate changes

**Bio:** Dr. Robert Balch is the Director of the Petroleum Recovery Research Center located on the campus of New Mexico Tech. During his 25 years at the PRRC he has been principal Investigator on a range of enhanced oil recovery, intelligent systems, and environmental projects, with a focus on developing and applying solutions to problems at many scales using geological, geophysical, and engineering data. Dr. Balch is the Principal Investigator of the Southwest Partnership on Carbon Sequestration, which is currently completing a DOE funded demonstration project where 1,000,000 metric tonnes of anthropogenic CO<sub>2</sub> has been injected for combined storage and enhanced oil recovery into a mature waterflood in North Texas. He is also the Principal Investigator for the Carbon Utilization and Storage Partnership, another US DOE initiative, which is actively working with companies to commercialize CO<sub>2</sub> Storage projects in the Western US. The CUSP has 23 commercialization projects underway including identifying CO<sub>2</sub> storage for

a coal to hydrogen power plant conversion, permitting carbon storage for a mid-stream producer in the Permian basin, an iron smelter in Utah, and carbon storage hubs throughout the western USA. In addition, he is project manager for a DOE CarbonSafe 3 project which is identifying 7 million tonnes per year of storage for coal plants converting to carbon capture in New Mexico.

During the course of his work, he has published more than 50 papers, is a frequent invited speaker, and has presented his research at more than 110 meetings or events. In 2017 he was selected as a Distinguished Lecturer for the Society of Petroleum Engineers on the topic of CO<sub>2</sub> storage during enhanced oil recovery. Dr. Balch has served for 6 years on the ISO TC265 world standard for geologic storage of carbon oxides, as a representative for ANSI. Dr. Balch held an appointment as an Oil Conservation Commissioner for the State of New Mexico between June of 2011 and December of 2018.

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**Speaker:** **Dr. Srikant Mishra** - *Technical Director for GeoEnergy*, Battelle Memorial Institute

**Topic:** **Leveraging E & P Expertise for New Energy Economy Technologies - CO<sub>2</sub> sequestration and H<sub>2</sub> Storage**

There is growing recognition that a new energy paradigm is needed to curb the buildup of anthropogenic CO<sub>2</sub> emissions in the atmosphere. Many countries and companies are embarking on ambitious energy transition programs to reduce their carbon footprint and switch from carbon-intensive fossil fuels to greener energy feedstocks and carriers. In this talk, I will first present some key features of the new energy economy including the energy-climate nexus and potential decarbonization pathways. Next, I will provide an overview of two relevant enabling technologies focused on the subsurface, i.e., (a) Carbon Capture and Sequestration (CCS), which involves capture of CO<sub>2</sub> from large stationary sources combined with geological storage, and (b) Hydrogen Underground Storage (HUS), which is viewed as an effective strategy for storing large volumes of surplus electrical energy from renewable sources. Finally, I will discuss how these concepts and technologies can be related to the E&P expertise of subsurface geoscientists/engineers, thus providing new career options.

**Bio:** Dr. Srikanta Mishra is Technical Director for Geo-energy Modeling & Analytics at Battelle Memorial Institute, USA. His recent work (as PI, co-PI or senior technical advisor) on a number of applied research and field demonstration projects has focused on computational modeling and machine learning applications for predictive modeling and field data interpretation of geological CO<sub>2</sub> storage, as well as extensions of reservoir analysis concepts for hydrogen underground storage. He has presented lectures and conducted short courses and workshops on Carbon Capture and Storage (CCS) and role of hydrogen in the new energy economy at many US and foreign universities as well as commercial organizations. Dr. Mishra is the recipient of the Society of Petroleum Engineers (SPE) 2022 Data Science and Engineering Analytics Award. He was named an SPE Distinguished Member in 2021 and served as SPE Global Distinguished Lecturer for 2018-19 on the topic of Big Data Analytics. He is a co-editor of the book “CO<sub>2</sub> Injection in the Network of Carbonate Fractures” published by Springer, and editor of the compiled volume “Machine Learning Applications for Subsurface Energy Resource Management” recently published by CRC Press, and the author of more than 200 technical publications. He holds a PhD degree from Stanford University, an MS degree from The University of Texas at Austin, and a BTech degree from Indian School of Mines - all in Petroleum Engineering.

**Speaker:** **Omar Garcia** - *Chief External Affairs Officer*, Port of Corpus Christi

**Topic:** **Meeting New Energy Challenges through Port of Corpus Christi**

Port of Corpus Christi Chief External Affairs Officer Omar Garcia will present an illuminating perspective from a traditional oil and gas port that has grown to be the number one U.S. energy export gateway by embracing innovative technologies and cleaner fuels. The Port of Corpus Christi is marshaling change in the energy community, adding jobs and enhancing resilience in America’s seaports.

**Bio:** An experienced leader in the energy sector, Omar Garcia is the Chief External Affairs Officer for the Port of Corpus Christi, which is the United States’ largest port in total revenue tonnage as well as its leading crude oil export gateway.

In his role, Garcia liaises between Port executive leadership and the public advocacy groups, local and national elected officials, business leaders, community members and regional stakeholders. He manages all external affairs for the Port and is responsible for oversight and guidance of Government Affairs, Public Affairs, Communications, Trade Development and Community Relations.

Prior to joining the Port of Corpus Christi in 2018, Garcia served as the Chief Executive Officer of the South Texas Energy & Economic Roundtable (STEER), where he facilitated communication, education and public advocacy surrounding the production of energy resources in South Texas.

Garcia is a former vice president of the San Antonio Economic Development Foundation and has more than 12 years of economic development experience, including positions with the Texas Governor’s Office, TIP Strategies, Corpus Christi Regional Economic Development and the City of San Antonio’s Economic Development Department. Garcia’s lengthy career also includes two years with Bank of America, where he served as Vice President of Business Development for the Treasury Management division.

A native of Kingsville, Texas, Garcia is highly skilled in developing public and economic policy, having been appointed in 2010 to the Texas Economic Development Corporation by then Governor Rick Perry. Garcia holds a degree in International Business and Spanish from St. Edwards University and is a certified economic development finance professional through the National Development Council.

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**Speaker:** **Sarah Magruder** - *President and CEO*, Savvy Oil & Gas Consulting

**Topic:** **2023 National Severance Tax Review Legislative Overview**

Provide a state-by-state overview of severance tax legislation proposed/passed to date in 2023. Share analysis of drivers for legislative proposals and anticipated impact on the industry. Breakdown the impact of severance tax by state for the prior fiscal year.

**Bio:** Sarah Magruder is the President and CEO of Houston-based Savvy Oil & Gas Consulting, a company that specializes in severance tax and federal, state and sovereign royalties. Challenging industry norms, she launched her women-led consulting business in 2019 and has since invested in recruiting talent to build a highly experienced team that serves a broad range of E&P producers.

Ms. Magruder was recently chosen as one of the “25 Influential Women in Energy 2023” by Oil & Gas Investor magazine and Hart Energy and was honored by the Greater Houston Women’s Chamber of

Commerce with the 2022 Trailblazer Award. She also is an active Executive Member and serves on the Board of Directors of the Women’s Energy Network Houston chapter.

Ms. Magruder holds a degree in Finance from Louisiana State University and an MBA from University of Houston-Victoria. She is a sought-after speaker at industry events, frequent guest on industry podcasts, and has authored articles in several industry publications.

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**Lunch**

**Speaker:** **Dr. Scott Tinker** – *Director, Bureau of Economic Geology;*  
*\_\_\_\_\_The State Geologist of Texas*

**Topic:** **Balancing Energy Security, Economic Security, and Climate Security**

Energy security is a primary objective of every global leader. In the EU, where oil and gas production are limited, there is a fervent push to improve energy security via solar, wind, EVs and possibly hydrogen, using climate as motivator for public support. In China, energy security is provided by coal, solar, wind, hydro, batteries and nuclear, since they also have limited oil and gas resources. China uses climate as a talking point on the world stage. In the US, approaches to energy security vary by region as a function of energy resources and politics, with fossil-fuel limited states pressing for solar, wind and batteries. In much of Latin America, Africa, SE Asia and the Middle East, energy poverty is significant, and energy security comes with access to coal, hydro, oil and natural gas. Given this global energy and economic diversity, there are several realities. First, there are no clean and dirty energy sources. They all have benefits and environmental impacts. Second, not everything can, or should, be electrified. Many of the industrial process and services required by global economies require burning molecules for heat. Third, intermittent sources of electricity such as solar and wind require expensive backup to make them reliable. Finally, secure energy—affordable, reliable and safe—underpins economic health, and provides governments with the ability to invest in the environment, including atmospheric emissions reductions. Recognizing these realities sets the framework for a balanced dialog about energy, climate, and poverty.

**Bio:** Scott Tinker brings industry, government, academia, and nongovernmental organizations together to address major societal challenges in energy, the environment, and the economy. Dr. Tinker is Director of the Bureau of Economic Geology, the State Geologist of Texas, and a professor holding the Allday Endowed Chair in the Jackson School of Geosciences at The University of Texas at Austin. With Director Harry Lynch, Tinker co-produced the award-winning documentary films *Switch* and *Switch On*, which have been screened in over 50 countries. Dr. Tinker founded the nonprofit Switch Energy Alliance, whose educational materials appear from schools to board rooms globally. Tinker is the host of PBS *Energy Switch*, an energy and climate talk show appearing on over 200 PBS stations nationwide, and *Earth Date*, featured weekly on over 450 public radio stations in all 50 United States. In his visits to some 60 countries, Scott has given over 1000 keynote and invited lectures. Dr. Tinker presented a TEDx talk on *The Dual Challenge: Energy and Environment*. Scott serves on public company boards and science councils, Trinity University’s Board of Trustees, and is an angel investor who has helped bring companies from startup to acquisition. His writing has appeared from Forbes to Fortune to Scientific American. Dr. Tinker has served as president of several international professional associations and is an AGI Campbell Medalist, AAPG Halbouty Medalist, GCAGS Boyd Medalist, AIPG Parker Medalist, and a Geological Society of America Fellow.

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**Speaker:** **Jai Singh** – *Partner and Head of the Americas Consulting Team, Rystad Energy*

**Topic:** **Energy Transition Risk for the Upstream Industry**

In this presentation we will review the implications of a rapidly transitioning upstream industry in Rystad Energy's +Sigma, Mean and -Sigma scenarios –our in-house oil demand scenarios which illustrate three decarbonization paces. This will include the impact of an increased focus on energy security, pressure on public companies to accelerate the Energy Transition and the underlying oil and gas demand that must still be satisfied.

**Bio:** Jai Singh is a Partner and Head of the Americas Consulting team at Rystad Energy, a global energy analysis and advisory firm. Jai specializes in asset due diligence, market analysis, and strategy for the midstream and upstream sectors. Jai has an MBA from Columbia Business School, an MA in International Economics from Johns Hopkins University, and a BA Economics from Brown University. He has held previous roles with Wood Mackenzie and Hess.

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**Speaker:** **Jonathan Grammer** - *Chief Executive Officer, U.S. Carbon Capture*

**Topic:** **Common Ground: The Link between Solar, Oil & Gas, and Electric**

Given recent governmental and environmental awareness of the need to effectively reduce the level of industrial-sourced carbon dioxide in the earth's atmosphere, carbon capture and storage has become a significant emerging energy market in the United States.

Companies ranging from Occidental Petroleum, Chevron, Exxon to Microsoft, Amazon and Meta have all announced multi-million-dollar initiatives to address their own respective emission levels. To this end, many industrial emitters are implementing proposed projects to capture carbon dioxide emissions and inject them for underground sequestration.

In the State of Texas, this has illuminated the need for an understanding of the legal principles associated with carbon storage leases, their terms, royalty and bonus payment structures, framework for addressing liability for subsurface migration of stored carbon dioxide, induced seismicity, pore space ownership, long-term storage liability and unitization of pore space tracts.

**Bio:** Mr. Grammer's career spans over twenty years in both renewable energy development, oil and gas development and as an attorney. His land acquisition and consulting company has advised on over \$1 billion worth of development projects and acquisitions in oil and gas, solar and wind. He has represented energy companies as an attorney in Texas, Oklahoma, New Mexico, and Colorado as well as before the U.S. Supreme Court, Oklahoma Supreme Court, U.S. District Courts for Northern District of Texas, Colorado, Nebraska, Western District of Oklahoma, Eastern District of Arkansas, Western District of Arkansas, and the U.S. Court of Appeals for the 5th, 6th, 8th, 9th, and 10th circuits.

He has served on the Board of Directors for the Texas Alliance of Energy Producers and the Federal Bar Association's Energy and Natural Resources Division. Mr. Grammer has also served on the Land & Royalty Committee for the Independent Petroleum Association of America and the American Bar Association Standing Committee on Global Energy. He is a Sustaining Fellow with the United States Association for Energy and Economics.

Mr. Grammer is a contributing author to Texas CEO Magazine and has been featured in Oilman Magazine, Austin Monthly, The Pipeline, The Houston Business Journal, and Solar Power World Magazine. He is also listed among 2021's Top 100 People in Energy.

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**Speaker:** **Luisa Jimenez** - *Vice President of Sales, Schlumberger*

**Topic:** **New Energy Transition Technologies**

As the world embarks on reducing greenhouse gas emissions, the oil and gas sector is playing an important role in the path to net zero.

In this talk, we will discuss the motivations, actions, and technologies available to reduce greenhouse gas emissions from the production of oil and gas. From monitoring the emissions, in order to correct any involuntary leaks, to utilizing Transition Technologies to eliminate or reduce potential emissions. These Technologies include new methods, digital solutions, remote operations, and redesigned equipment.

Carbon sequestration, usage, and storage CCUS is also part of the discussion as it offers a way to safely contain the unwanted gases, not only from oil and gas operations but also from manufacturing operations in other industries.

Join us to learn about specific Transition Technologies available today; their application is a key part of getting to net zero and beyond.

**Bio:** Luisa is SLB's Vice President of Sales in Dallas Fort Worth, a position to which she was appointed in October 2020. Prior to her current role, Luisa served as Sales Manager for Schlumberger's fracturing business in North America and Account Manager for strategic accounts from 2011 to 2020.

She joined Schlumberger in 1995 as Field Engineer in Latin America in the Well Construction team and focused on the Colombia and Mexico Drilling and Completions projects. In addition to her D&C roles, Luisa has served in roles handling talent management, along with key leadership positions including North and South America Recruiting and Training Manager for the seismic businesses, Personnel manager in Venezuela for all product lines, Sales and Commercial Expert level mentor in Schlumberger's Professional Career progression program and North America ambassador for SLB's End-to-End Emissions Measurement business.

Luisa is Colombian born, she immigrated to the United States in 1999 to establish family roots in Texas. Luisa holds a Bachelor of Science in Petroleum Engineering from, University of America in Bogota Colombia and a Master of Business Administration in Finance from St. Thomas University in Houston Texas. She enjoys traveling, especially when it involves the company of her two adult children.

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**Speaker:** **David Ramsden-Wood** - *Chief Executive Officer, Prevail Energy LLC*  
*Podcast Host of "Hot Take of the Day"*

**Topic:** **The Truth about Energy**

To open most newspapers, turn on the television or scroll through LinkedIn, one could be forgiven for believing that the world is marching head on into a climate apocalypse. The United Nations (UN), World Economic Forum (WEF), International Energy Agency (IEA) all issue stern warnings, echoed by governments in the west, decrying our carbon footprint. So much rhetoric, so little time. To understand the path forward, we must understand how we got here.

**Bio:** David is the former COO of OneEnergy, a Delaware focused private equity backed company. He had an engineering degree from University of Calgary and an MBA from Cornell. He is now an advocate of sound energy policy and an investor.

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**Speaker:** Bate Bate - *Managing Partner, EP Valuation LLC*

**Topic:** **Role of ESG 2.0 in Accelerating the Energy Transition: Opportunities and Challenges**

As the world continues to grapple with the threat of climate change, there is a growing recognition that businesses have a critical role to play in driving the transition to a low-carbon economy. Environmental, social, and governance (ESG) considerations are increasingly seen as key to sustainable investment and responsible corporate behavior. ESG 2.0 represents a more advanced and comprehensive approach to sustainability that focuses on the specific challenges of the energy transition. It recognizes that the transition to a low-carbon economy is not just a matter of reducing greenhouse gas emissions, but also of transforming entire industries and supply chains.

As such, ESG 2.0 encompasses a broader range of factors, including the development of new technologies, the adoption of new business models, and the creation of new markets. While ESG 2.0 presents significant opportunities for businesses that are willing to embrace it, there are also challenges to be overcome. For example, companies will need to invest in new technologies and processes, and may face regulatory and legal risks as they navigate the complex landscape of the energy transition.

**Bio:** Mr. Bate is the Managing Partner of EP Valuation. EP Valuation provides due diligence services to investors, sponsors, and financial clients in the Upstream, Midstream, and Power sectors. As part of appraisals, the company is developing standards for evaluating energy companies based on ESG factors.

His most recent position was Director and Head of Technical Services for ING Bank, a large multinational financial institution. With more than 22 years of combined experience in banking and engineering, he is recognized in the field of reserve valuations.

In his early career, Mr. Bate worked for Schlumberger, a global energy industry technology and project management company. Afterward, he earned an MBA degree at the Jindal School of Management at the University of Texas at Dallas.

Following graduate school, Mr. Bate joined Remington Oil and Gas Corp., where he planned and executed engineering projects both onshore and offshore. He was an integral part of the core team that grew the business from a few assets to a \$1.4 billion enterprise. Helix Energy Solutions Group [HLX] acquired Remington in July 2006. Remington assets eventually formed the basis of Talos Energy.

Mr. Bate joined MUFG Union Bank N.A. as a vice president of energy capital markets in September 2008. He was later promoted to director in recognition of his contributions to the bank's growth.

In 2018 he joined ING Bank's energy division, where, as Head of Technical Services he oversaw valuations of the bank's \$4 billion energy portfolio.

Mr. Bate holds an MBA from UT Dallas, a bachelor's degree from Montana Tech and is a registered Professional Engineer.

**THE TEXAS ENERGY COUNCIL**

The Texas Energy Council (TEC) is a nonprofit, non-partisan organization of professional and educational societies dedicated to serving the energy industry in Texas. The TEC was originally founded in 1988 as the Dallas Energy Council, changed to the North Texas Energy Council in 1996, and finally became the Texas Energy Council in 2007. The membership is comprised of over 5,000 members from various organizations. The Council is headquartered in Dallas, Texas. TEC provides a forum for all energy-related professional societies and educational institutions to communicate issues and transfer technology among its members and the general public. Two elected officers from each organization make up the Board of Directors of the TEC.

Our objective is to advance the common interests of the members of professional societies and educational institutions serving the energy industry in Texas to achieve economies, to protect and educate the public, and to promote communication. The Council maintains a central coordinating body to provide a forum for association and communication for representatives of the several Constituent Organizations of those energy related professions.

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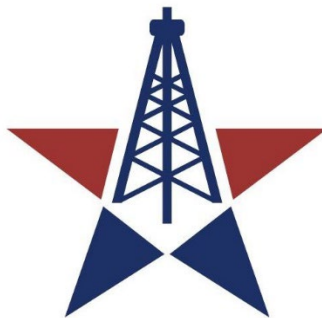
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**American Association of Drilling Engineers- DFW Chapter**  
**American Energy Institute**  
**Council of Petroleum Accountants Societies of Dallas**  
**Dallas Association of Petroleum Landmen**  
**Dallas Geological Society**  
**Dallas Geophysical Society**  
**Dalworth Association of Division Order Analysts**  
**Desk & Derrick Club of Dallas**  
**DFW Association of Lease and Title Analysts**  
**Energy Law Section of the Dallas Bar Association**  
**Energy Law Section of the Tarrant County Bar Association**  
**Energy Workforce & Technology Council**  
**Fort Worth Association of Professional Landmen**  
**Greater East Texas ADAM**  
**The Nancy & Jake L. Hamon Oil & Gas Resource Center at the Dallas Public Library**  
**Houston Association of Professional Landmen**  
**Institute for the Study of Earth & Man at SMU**  
**International Association of Directional Drilling- Permian Basin Chapter**  
**IPAA Texas- North Central Region**  
**Lone Star Desk & Derrick Club of Dallas**  
**National Association of Royalty Owners – Texas**  
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**Panhandle Producers & Royalty Association**  
**Permian Basin Gas Processors Association**  
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**Petroleum Engineers Club of Dallas**  
**Petroleum Museum**  
**Society of Independent Professional Earth Scientists**  
**Society of Petroleum Engineers – Dallas Section**  
**Society of Petroleum Engineers – Fort Worth Section**  
**Society of Petroleum Evaluation Engineers – Dallas Chapter**  
**Society of Petroleum Well Log Analysts- Dallas Chapter**  
**South Texas Geological Society**  
**Texas Alliance of Energy Producers**  
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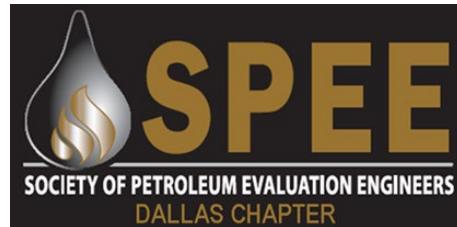
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