

## Devo Capital



## BRYAN LOOPER

### *VP of Financial Services*

Bryan Looper is a Series 3 Registered VP of Financial & Physical Services with DEVO Capital management and a Physical Crude Oil & Natural Gas Marketer with Devlar Energy Marketing, LLC. Bryan is a graduate of Colorado Mesa University. He has over 10 years' experience trading both financial and physical commodities. Bryan has developed customized hedge strategies using structured products to help energy market participants protect against adverse price movements. Bryan has been an energy hedging presenter for several oil and gas organizations across the U.S. Bryan has grown up and currently works in the four corners area.

### **Using Forward Markets to Reduce Commodity Price Risk – How to Hedge Properly**

A philosophy we have at DEVO Capital is that the markets are constantly changing but people never do. As US production has skyrocketed over the past few years' energy prices still seem to be affected more by government policy or turmoil in the Middle-East rather than the supply demand picture. In spite of government regulations, transportation constraints and the recent breakdown in prices, the US has continued to surpass expectations. It is important to understand how these revelations will affect energy prices. There are multiple aspects to the hedging process and our goals are to assist companies in any and all facets. DEVO Capital works as an in-house hedging arm to help determine which hedging outlet works best for a particular company's specific hedging goals. Before the company enters into any financial hedge transaction we suggest they first answer the question "Why am I hedging?". In order to answer this question thoroughly a prospective hedge client must be aware of all the hedge facilities available to them. DEVO helps clients in one or more of the following services. -- Exchange traded accounts, OTC accounts, Consulting, Agency services with OTC relationships, Hedging educational seminars/classes.

## Merrion Oil and Gas

## GEORGE SHARPE

### *Investment Manager*

### *Farmington, NM*

BS Civil Engineering - Colorado School of Mines MS Petroleum Engineering, Colorado School of Mines 36 years of Industry Experience

### **Until that Day Comes**

The environmental extremists are battling at every turn to prohibit and ultimately eliminate the domestic production of oil and gas. This presentation addresses their litany of roadblocks, from wellsite safety to fracking to air emissions to climate change, which is the most daunting of the political realities that our industry must face. But ironically, the extremists are going after the production of fossil fuels, not the consumption thereof, which is really where the bulk of the emissions happen. History shows that as long as America uses oil, if our domestic production declines, we will just buy it from someplace else. And a little math shows that we are going to need using fossil fuels, because as fast as renewables are growing, it is going to be a LONG, LONG time before we are capable of running the world on wind and solar. So ask yourself, until the day comes that everything is capable of being powered by renewables, from whom do you want to buy your oil....your neighbor Bob trying to support 5 kids, or Sheik Ali Baba, trying to support who knows what?

<b>KH &amp; S Energy</b>	<b>ROBERT BROOKS</b> <i>Consulting Reservoir Engineer</i> BS GE CSM 1979, 20 years experience with major (Amoco Production Company), 5 years experience Tom Brown Inc, 1 year EnCana, 10 years Williams/WPX Energy, 1 year at a start-up, 2 years consulting
<p align="center"><b>Mancos Dry Gas using the Rosa Unit and Black Hills Laterals</b></p> <p>Take the talk that I did with Bill Clopine (ex C/P geologist) in November 2017 for Joint SPE / Four Corners Geological society on the San Juan Mancos play. My portion would focus on evaluating Mancos dry gas using the Rosa Unit and Black Hills 5,000 ft. laterals drilled in 2010/2011 and extrapolating those results to 10,000 ft. lateral well performance with 70 frac stages. This talk would demonstrate the workflow of using public rate-time data to derive both reservoir and completion metrics and then use those data to build an analytical model that forecasts the performance of the longer 10,000 ft. laterals.</p>	

<b>SAE Inc.</b>	<b>CHARLIE POORE</b> <i>Vice President of US Sales</i> <i>Albuquerque, NM</i> Charlie Poore is a certified NACE Corrosion Technologist #53904, Cathodic Protection Tester #53904 and has been involved in the energy sector for the past 30 years. He specializes in ground bed design for cathodic protection, AC Mitigation and Grounding projects for the Upstream , Midstream and Downstream sections of the oil and gas industry.
<p align="center"><b>Green Ground Beds use of Conductive Concrete as a Backfill in Cathodic Protection Anode Beds</b></p> <p>Use of Conductive Concrete as a backfill in deep anode beds for Cathodic protection is a relatively new technology to improve the life of deep anode beds and provide an environmentally friendly alternative to traditional coke breeze backfill systems. No-venting of fluids and gases to the surface, preventing cross contamination of aquifers and an NSF 60 Rating are all environmental benefits that this solid column provides. Longer bed life-up to 40 years, PH neutral and better earth to ground contact result in fewer boreholes being drilled to protect our infrastructure resulting in cost savings for the owners/operators and less damage to the earth's surface. An added benefit is a very small footprint- allowing both landowners and users to optimize space without bulky or intrusive infrastructure visible. Non-venting capabilities of this solid backfill column do not allow harmful gases, acids and liquids to reach the surface where they must be dealt with from a regulatory standpoint. NSF 60 rating has allowed the use of these systems in many ground water districts across the nation without the costly additional expense of casing the system completely saving owner/operators thousands of dollars in construction costs. These engineered systems have been used and performed successfully in environments ranging from dry desert locations to river bottoms, wetlands, large aquifer systems and have even been installed in an artesian aquifer zone to provide both Cathodic Protection and cap the artesian flow.</p>	

**Ridge  
Resources  
LLC**



**TIM RYNOTT**

*Owner Operator  
Durango, Colorado*

Mr. Tim Rynott, founder and owner of Ridge Resources LLC (Durango, Co), has 36 years of oil and gas experience - primarily focused on prospect generation/evaluation, operations and A&D. Over the past 35 years, Tim has worked over a dozen Lower 48 Basins, and has been directly involved with numerous discoveries in Louisiana and Texas, plus the Gulf of Mexico shelf and Deep Water. Prior to Ridge, Mr. Rynott was a Senior Geologist, and later Geological Manager, at Red Willow Production where he oversaw twelve Gulf of Mexico basins. In addition, he was Red Willow's lead geologist managing their highly successful Ultra-Deepwater activity in the GOM. Partnering primarily with BP and Noble, almost 500 MMBOE gross reserves have been proven to date. Mr. Rynott has spoken at numerous National Conventions (Including internationally), and has been published on a variety of Oil and Gas topics. He has served on almost a dozen national and local boards of various professional societies and is a member of: AAPG, DPA (Cert #5803), LOGA, HGS, FCGS, LGS (honorary), and SGE. Tim Rynott currently resides in Durango Co, and serves as President-Elect for the Four Corners Geological Society and President of the Durango Petroleum Club.

**Global Natural Gas Markets: Their Rapid Expansion and the Implications to the Southern Rockies**

Five years ago, the US overtook Russia as the number one gas producer in the world, and now U.S Operators are setting their sights on becoming the top natural gas *exporter*. After only 7 years, the U.S. is shipping almost 7 BCFD internationally, quickly becoming the third largest exporter on the planet. Due to our vast resources and the steadily rising global demand for natural gas, the U.S. is currently developing 14-16 BCFD of additional export capacity (LNG and pipelines). However the intricacies of global competition and politics have large implications on which nations will be the most competitive. The fate of many U.S. Operators will hinge on takeaway capacity and netback charges. For instance, while pipeline bottlenecks vex some parts the country (e.g. – Marcellus), the Rockies are methodically gaining bullish takeaway alternatives via a proposed LNG terminal in SW Oregon and direct exports into Mexico. In particular, the Four Corners area is well positioned to take advantage of these new demand centers via the rejuvenation of the prolific Mancos Formation and increased drilling for coal seam gas. Preliminary estimates indicate over 100 TCF could be potentially recoverable in the Mancos, with recent activity punctuated by Hilcorp Energy's \$2.7B purchase of ConocoPhillips 1.3 MM acres in the basin. Estimated ultimate recoveries in the Mancos could be 11-15 BCFe per well, assuming 10,000' laterals and 70 frac stages. With ever improving technologies, Operators hope to bring drilling and completion costs down to \$6-8MM/well, creating a potential excellent return on investment in this Formation. The combination of Mexico's rapidly decreasing domestic production and privatization of its electricity market in 2013 resulted in U.S. exports to Mexico doubling since 2013 (~4.5 BCFD), and this number could double again in the next 2-3 years. Because Pemex has poorly managed their own resources, Mexico now imports 60 percent of its natural gas from U.S. producers, compared to just 22 percent in 2010. In addition, Four Corners takeaway competition with the Permian/Delaware basins for the rapidly expanding Mexican market will potentially be eased when a 1.9 BCFD pipeline will take Permian basin associated gas to the Gulf Coast area. This (\$1.7B) 430-mile *Gulf Coast Express* pipeline could enter service by 2019. Notwithstanding a sizable international skirmish, it's likely there will be a cap on oil prices for the foreseeable future. Therefore the intermediate and long-term positive implications for job creation and increasing profit margins in the energy sector potentially lie in the areas with the most direct access to Mexican and Asian gas demand centers. While other gas basins grab national headlines, notable smart money is quietly moving west. Early in the next decade, natural gas will see supply/demand re-balancing; and by mid-decade, crude oils prodigious 2004-14 Bull Run could look like a distant memory.

## Muleshoe Engineering



## DAVID SIMPSON P.E.

*Principle Engineer  
Farmington, New Mexico*

Mr. David Simpson has 38 years' experience in Oil & Gas and is currently the Proprietor and Principal Engineer of MuleShoe Engineering. Based in the San Juan Basin of Northern New Mexico, MuleShoe Engineering addresses issues in Coalbed Methane, Low Pressure Operations, Gas Compression, Gas Measurement, Field Construction, Gas Well Deliquification, and Produced Water Management. Prior to forming MuleShoe Engineering, Mr. Simpson was a Facilities Engineer for Amoco and BP for 23 years. A Professional Engineer with his Master's degree, David has had numerous articles published in professional journals, has contributed a chapter on CBM to the 2<sup>nd</sup> edition of Gas Well Deliquification, by Dr. James Lea, et al. He is a regular contributor to various conferences on Deliquification, CBM, and Low Pressure Operations. He holds a BSIM from the University of Arkansas and an MSME from University of Colorado.

### Comparative Risks of Hydrostatic and Pneumatic Pipeline Testing

The common wisdom holds that pneumatic testing is horribly dangerous and hydrostatic testing is quite benign. This idea comes from two directions: (1) in testing pressure vessels a failure during a hydrostatic test puts some water on the floor while a failure of a pneumatic test puts shrapnel through walls; and (2) NASA published a report by an intern that purported to extrapolate the internal energy of the gas used for testing to an equivalent quantity of TNT in the thousands of tons. This presentation explains the fallacy of the NASA approach and shows why the risks associated with pneumatic testing of pipelines are generally significantly overstated while the risks associated with hydrostatic testing are generally understated.

## Gas Analysis Service, LP



## SEAN CASAUS

*Operations Manager  
Farmington, New Mexico*

4 years field, office experience in San Juan Basin pulling and analyzing natural gas samples

### Onshore Order 5 and the San Juan Basin

I will be talking on how to be Onshore Order 5 compliant in the San Juan basin for rules that go into effect January 17th 2018. I will focus on Gas sampling and analyzing, and how to properly do both. I will also cover topics that I feel are some of the key areas that the BLM will be focusing on the first of the year. This presentation will be extremely similar in content to a presentation I gave for the Four Corners API in October. I will be adding new content and new updates that I have received from the BLM directly.

**EMPSi Environmental  
and Planning  
Solutions, Inc.**



**THERESA ANCELL**

*Senior Environmental Professional  
Durango, Colorado*

Ms. Ancell has served as an oil and gas environmental permitting specialist in the Four Corners area since 2005. Her specialties include assisting the oil and gas community in navigating environmental regulations, including ensuring compliance with the National Environmental Policy Act (NEPA) when required. She graduated from The University of Colorado with a Bachelor of Arts in Environmental Biology and eventually returned home to the Four Corners area to pursue her career and raise her family.

**Streamlining NEPA for Oil and Gas Leasing and Permitting – Implementing  
Presidential Order 13807 and the Department of Interior Directives**

As part of Executive Order 1308 the Deputy Secretary issued Secretarial Order 3355 on August 31, 2017, which provides direction to improve and streamline the Department of Interior's NEPA and infrastructure permitting processes. Additionally this Order sets specific time and page limits for Environmental Impact Statements (EISs) and asks agencies to propose similar limits for Environmental Assessments (EA). This is of particular importance to the Oil and Gas Industry in New Mexico as much of the land in New Mexico is Federally owned and subject to the NEPA process. To fully integrate this expedited process into the New Mexico regulatory landscape it will take diligence from the Agencies and Operators alike. Implementation of this Order presents an opportunity to help facilitate better communication between the parties involved and to improve overall planning processes. As the Presidential Executive Order 13807 begins to be implemented, EMPSi is well prepared for the challenge. EMPSi has developed hundreds of Federal guidance documents and maintains close communication with local lead agency officials. Understanding the process and the people involved will allow EMPSi to guide the oil and gas community through truly streamlining the NEPA permitting process.

**NM Energy  
Minerals & Natural  
Resources Dept.**



**KEN MCQUEEN**

*Cabinet Secretary  
Santa Fe, New Mexico*

Governor Susana Martinez appointed Ken McQueen as cabinet secretary of Energy, Minerals and Natural Resources Department on December 21st, 2016; he was confirmed by the NM State Senate the following March.

Before State employment, Mr. McQueen was the vice president of WPX Energy, where he managed the company's Four Corner assets. He is a former Farmington resident. Secretary McQueen brings more than 38 years of domestic and international energy experience to the helm at EMNRD. He holds a B.S. Degree in Petroleum Engineering from the University of Tulsa, where he serves on the University's Industry Advisory Board; serving twice as its Chair. He was also an adjunct professor at his alma mater and is a recent inductee to the College's Hall of Fame.

**Future Oil and Gas Production and the Potential Impacts to The State's  
Economy.**

New Mexico's post-crash oil recovery is unprecedented; the State has surpassed Alaska, Oklahoma, and California to become the third largest producer of oil in the US. Secretary McQueen will discuss these trends and the outlook for future oil and gas production along with the potential impacts to the State's economy.

**HRL Compliance  
Solutions Inc**



**MAURICE FOYE**

*Chief Operating Officer*

Arizona University graduate specializing in Ecosystem Science and Management. He began working with HRL Compliance Solutions, Inc. in 2005 and is currently the Chief Operating Officer and acting primary lead of HRL Compliance Solutions, Inc.

**Implementation of Advanced UAS/Drone Technology in the Oil and Gas  
Industry**

Unmanned Aerial Systems (UAS) are creating a technological edge in the Oil and Gas industry by finding increased value for operators through niche hardware and software applications. Using drones to apply high quality remote sensing technology allows industry professionals to achieve immediate results in the form of 3D point cloud, thermal, multispectral, hyperspectral, and high resolution imagery. Those results allow industry professionals to reduce costs through faster planning and permitting, increased project awareness, increased communication through visual models, and higher level compliance through better data management.



<b>Colorado School of Mines</b>	<b>JUAN CARLOS CARRATU</b> <i>Doctorate Candidate Colorado</i>
<p><b>Experimental Study of Process Zone Stress in Low Permeability Rock</b></p> <p>The development of shale-gas plays, of low permeability nature, in the US is rightfully credited to the improved project economics due to the persistent trial and successful implementation of new horizontal drilling and hydraulic fracturing technologies. Initially, the fast development pace of the resource plays was amenable to a trial and error approach to improve the short-term performances. After experiencing the decline in oil price in 2014, the shale-gas industry optimized natural-gas production deemed for the energy security of the country and starting a liquefied natural gas movement for exports. Better understanding of the hydraulic fracture process is required to optimize hydraulic fracture design in shale-gas wells. Such understanding requires a closer view to how a hydraulic fracture propagates in low permeability rocks. Hydraulic fracture process is highly complicated due to the simple fact that the entire process cannot be observed so indirect measures are used to infer how the fracture develops and behaves. Establishing what amount of pressure is required to crack a rock in the subsurface was clearly stated by Godbey and Hodges (1958) <i>"By obtaining the actual pressure on the formation during treatment, and if the inherent tectonic stresses are known, it should be possible to determine the type of fracture induced"</i>. What is not mentioned in the statement is what happens ahead of the generated fracture. Linear Elastic Fracture Mechanics (LEFM) is the theory used that explains the fundamentals of how a fracture begins, develops and ends. Scientists in different backgrounds have described fissures ahead of the tip of the crack. These micro-fissures were all observed in different materials (Shylapoberski &amp; Chudnovski, 1992) after fractures. The behavior of the fissures has been defined as dependent from critical stress intensity factor or fracture toughness which is related to material or rock fabric. Several reasons express the motivation for the continuation of the study of process zone stress. It has been mentioned by different authors the fact that net pressures estimated by rock type to be overestimated (Potocki, 2012 &amp; Muthukumarappan, 2009) and it is believe due to tip effect or process zone stress. Understanding what to expect due to tip effect prior to executing a hydraulic fracture job could optimize the design. A combination of pressure</p>	

<b>Piping and Corrosion Specialties</b>	<b>ERIC S. LANGELUND</b> <i>Millersville, MD</i>
<p><b>Sustainability Starts with Cathodic Protection</b></p> <p>Sustainability is the capacity to endure. The root purpose of any corrosion control / cathodic protection system is to mitigate corrosion. By preserving a pipe or other metallic structure and not letting it corrode away to rust, it is being allowed to endure. Therefore, mitigating corrosion leads to sustainability. Cathodic protection is most commonly achieved by galvanic or impressed current means. A galvanic type cathodic protection system is comprised of sacrificial anodes (aluminum, magnesium, zinc); where one metal corrodes in order to provide protective currents for the other metal. An impressed current type system utilizes external power to force impressed current anodes (cast iron, graphite, mixed metal oxide) to corrode in order to provide the protective currents. The external power is provided by a rectifier. This paper discusses the fundamentals of corrosion and corrosion control/cathodic protection. Including safety, testing, documentation and lessons learned. The topics discussed are practical and the lessons learned are first-hand accounts. The purpose of this paper is to share what has been learned and some of the company policies that have been taken from many years of pipeline operation.</p>	

**USDOT PHMSA  
Pipeline Safety,  
Western Region**



**THOMAS "TOM" FINCH**

*Community Liaison  
Lakewood, Colorado*

Tom has been a Community Assistance and Technical Services (CATS) Manager for the Western Region, which is located in Lakewood, CO, since August 20, 2009. He was the State Liaison Representative (SLR). His role in the OPS focuses on enhancing communications with Stakeholders including the Western Region States Pipeline Safety Programs. Tom attended the Colorado School of Mines from 1964-1968 majoring in Petroleum Engineering. He has over 36 years of experience in the oil and gas industry. Prior to October 1999, he was employed by Cathodic Protection Services, working mainly in the cathodic protection of well casings and pipelines. Mr. Finch has completed the National Association of Corrosion Engineers (NACE) Cathodic Protection (CP) Level 1 thru Level 3 Courses. He joined OPS on October 12, 1999.

**Damage Prevention Initiatives – Why PHMSA Cares**

**Presentation Overview**

- PHMSA Overview
- Reported Excavation Damage
- Excavator Enforcement Rule
- Recent PHMSA Damage Prevention Initiatives
  - PHMSA Damage Prevention Resources
  - Federal Standard for Excavators in States Deemed Inadequate
- Call 811 before excavating
  - Wait for pipeline operators to establish and mark the location of underground pipelines before excavating
  - Excavate with proper regard for the marks, take all practicable steps to prevent excavation damage
- Make additional use of one-call as necessary
- Any contact with pipelines must be reported to operator at earliest practical moment
  - If there is a release, excavator must call 911
- Policy: Enforcement
- PHMSA's enforcement focus will be on serious violations
- PHMSA will learn about violations through a variety of ways; the rule does not create a reporting requirement
  - PHMSA's standards for excavators are the "floor" or "baseline"; when conducting enforcement, PHMSA will be cognizant of State requirements
- PHMSA and States have existing authority to enforce against non-compliant pipeline operators



<b>Rio Grande Foundation</b>	<p style="text-align: right;"><b>PAUL GESSING</b></p> <p><i>President</i></p> <p>Paul has a Masters in Business Administration from the Smith School at the University of Maryland. He has a Political Science degree from Bowling Green State University in Ohio. He has run the Rio Grande Foundation since March of 2006. Before that he headed up the lobbying efforts of the National Taxpayers Union on Capitol Hill in Washington, DC.</p>
<p><b>Oil &amp; Gas and the future of The Four Corners and New Mexico Economies</b></p> <p>Since the 1940's, New Mexico and the Four Corners have relied on oil and gas (as well as coal). What do changing energy needs and economic conditions mean for the industry, the region, and our state? How can policymakers and business leaders prepare for and adapt to these changes? In addition to analyzing and ideas for preparing for the future, Gessing will prognosticate as to what he actually sees happening.</p>	

<b>Automation X Corporation</b>	<p style="text-align: right;"><b>DAN STEELE</b></p> <p><i>Director of Sales</i></p> <p>Daniel G. Steele is a Director of Sales at Automation-X Corporation; Steele has more than 30 years experience selling communication products for SCADA networks in the oil and gas, water and wastewater, electric utilities, railroad, robotic, irrigation, mining, traffic and process control instrumentation markets. Some of Steele's previous experience includes: Global Market Leader for Xetawave, LLC, Director of Sales for FreeWave Technologies; Senior Vice President of sales for Bluewave Antenna Systems; as a regional area manager for Microwave Data Systems (now GEMDS); working as a SCADA system integrator for WETCO; as a regional sales manager for Rockwell Automation; as a manager branch manager for Water Works Equipment Company and as a sales manager for Thompson Irrigation.</p>
<p><b>CONSIDERATIONS FOR M2M HYBRID WIRELESS NETWORKS</b></p> <p>Organizations with geographically dispersed assets, such as those in the energy and utility industries, are continuously developing and implementing new ways to monitor and control all aspects of their business, especially for operations in remote locations. With company personnel and automated machinery constantly in motion, businesses have had to create smarter communication networks out of necessity. A key indicator of enterprise organizations expanding their networking infrastructures ties directly to recent industry reports showing that the number of embedded wireless sensors installed across the world will reach billions and maybe even trillions over the next decade. This means these organizations must also leverage communication technologies to connect everything together – from the corporate office to the field site to the individual sensor – and everything in between. With a greater focus on operational efficiency to both reduce overhead and increase productivity, organizations are continuously tasked with objectives to improve the bottom line.</p> <p>While Machine-to-Machine (M2M) is a relatively new industry term, these applications and technologies have actually been around for decades. In fact, there are some companies that have provided M2M technology solutions for over 20 years – long before the term M2M was ever coined. As wireless technology has grown in popularity, the M2M industry has also needed to communicate in one location. But over time, organizations began to realize the value of the data that the communications technology provided and their needs began to shift. Speeds and throughputs began to increase, networking requirements evolved and the M2M networks became much more versatile. Furthermore, with the rise of "smart" machines, equipment and devices, coupled with the proliferation of the internet, new innovations have come about that are changing the paradigm of M2M. For example, the integration of tools such as sensors, process control devices, controllers, smart meters, IP video cameras, and more have increased the need for well- established, reliable communications networks that can provide dependable connectivity over long distances and in harsh conditions.</p>	

**LT  
Environmental,  
Inc.**



**DEVIN HENEMANN**

*Project Geologist  
Durango, Colorado*

Devin Henemann has BS in Geology from Fort Lewis College. He has worked in the environmental field since 2008; 2008-2009 at Lodestar Services, 2009-present LT Environmental. Mr. Henemann has been involved as a data collector and project manager in methane seep studies in the San Juan and Raton basins since 2009.

**Summarizing Ground Based and Airborne Methane Monitoring Surveys to  
Assess Major Emissions sources in the San Juan Basin, CO**

Since 2007, LT Environmental, Inc. has performed ground-based methane monitoring of natural methane seeps from the Fruitland Formation (Kf Outcrop) in portions of the San Juan Basin of Southwest Colorado. The goal of this "bottom-up" monitoring program is to observe and document the relative change in methane seepage from the Kf Outcrop over time and space; however, the data can be used to extrapolate the magnitude and extent of natural methane seepage in the region. Observations made by the European Space Agency's, Envisat satellite from 2003-2009, indicated large methane anomalies over the Four Corners region, with emissions estimates totaling approximately 0.59 Tg CH<sub>4</sub>/yr. Recent research efforts by NASA, JPL, and NOAA have sought to utilize aerial emissions monitoring techniques, which incorporate infrared and thermal imaging technology to provide a high resolution "top-down" emissions inventory for the region. Findings from these "top-down" inventories suggest that industrial methane sources, such as oil and natural gas production and mining account for greater than 50% of methane emissions in the Four Corners region. In this talk, LTE will outline the results and trends from LTE's ground-based methane monitoring efforts and where they fit in the context of the Four Corners methane inventory. LTE will also summarize the capabilities of aerial (aircraft mounted) methane monitoring technology and its relevance to industry players in the Four Corners region.

## United Electric Controls

## JOHN SESTITO

*Research Engineer  
Watertown, MA*

John Sestito is a Research Engineer with United Electric Controls responsible for new product development and researching business growth opportunities. John earned his Bachelors of Science degree from Wentworth Institute of Technology in Electromechanical engineering with a minor concentration in Biomedical devices. His career has been focused around developing solutions based on a Voice of Customer feedback loop approach. He has participated in R&D projects from inception to launch, including Vanguard the industry's first Wireless HART toxic and combustible gas detector. For the past 5 years he has been focused on providing safety automated solutions to the O&G industry, serving as a subject matter expert on Vanguard wireless gas detection, and is a contributing member to several ISA-84 process safety technical reporting committees.

### **Expand the use of Open Wireless Gas Detection Systems for Life Safety and Asset Integrity**

As companies struggle to improve the health and safety of the workforce in heavy industrial process industries, it is clear that current solutions demand the flexibility and the fast deployment that an open WirelessHART gas detection system can provide.

1. Untethering toxic and combustible gas detection systems provide:

- Additional coverage - identifies dangerous workforce environments for fast mitigation and improve life safety
- Measurements for predictive maintenance program for equipment such as pumps, valves, and tanks
- Use of gas detection for identifying leaks in difficult to measure infrastructure such as insulated piping to ensure asset integrity

2. Methods, Procedures, Process

- WirelessHART standard IEC 62591
- ISA-TR84.00.07-2010 Technical Report, Guidance for Application of Wireless Sensor Technology to Non-SIS Independent Protection Layers
- ISA-TR84.00.08-2017-Technical Report, Guidance on the Evaluation of Fire, Combustible Gas and Toxic Gas System Effectiveness

3. Results, Observations, Conclusions

- Deployment in days in lieu of weeks
- Reduction in wiring costs
- Leaks vs time to detect leaks
- Long term performance

4. Novel/Additive Information

- Best Practices for deploying wireless gas detection systems

**NM Center for  
Energy  
Production  
NM Tech  
Research &  
Economic  
Development**

**DANIEL FINE PHD**

*State of NM Coordinator  
Associate Director  
New Mexico*

**The San Juan Basin, Natural Gas, Under Trump and Zinke: World Price,  
Strategic Advantages Supply and Demand**

The San Juan Basin Second Century. New Players and Technology. Natural Gas and Ultimate Economic Recovery. Takeaway Capacity in the Marcellus-Utica and Impact. New Markets. Demand and Supply for 10 years. LNG Enigma: Geopolitics in the Middle East. Permian Competitor. Assessment and analysis intended for Four Corners operators, service providers, and the economic and social community.

**Waukesha  
Pearce  
Industries**



**TERRY NELSON**

*Manager Technical Services  
Houston, TX*

**Process Flow and Operation of Separation Equipment**

- Production Solutions
- Overview of Separation Equipment
- Controls and Instrumentation
- Heater Treatments

## NM Oil Conservation Division



### HEATHER RILEY

*Division Director  
Santa Fe, NM*

Heather Riley was recently hired as the NMOCD Director and started in this capacity on January 16, 2018. Ms. Riley was formerly with WPX Energy as the Regulatory Manager for the San Juan Basin. She has 14 years of oil and gas experience and over 30 years of experience in regulatory and administrative processes. Ms. Riley's experience, particularly her understanding of New Mexico rules and regulations, has made her a great fit for the Director role.

### **General Status Update and Rulemaking Update for NMOCD**

With recent legislative actions as well as long-term rule change initiatives, Ms. Riley will give updates on the pending changes as well as updates as to activities within the Districts and compliance enforcement actions.

**Resource  
West Inc**

**ROBERT BALLANTYNE**

*Director of Research and Development*

Honorably Discharged Veteran of United State Marine Corps. Trained as a Metrologist and electrical engineer, then went into molecular and atomic spectroscopy specializing in air and water contamination insitu measurement and treatment. Held numerous corporate positions: field engineering manager, and then Division President for Thermo Electron. Presently perform private research into environmental problems.

**Research on Efficiencies in Mechanically Enhanced  
Evaporation; with Attention to Plume Drift and EPA Regional Haze Rules**

Second presentation on my 9 year body of research work concerning effective evaporation as a water reduction solution:

Preface: Presents the testing facility, its measurements, controls, and devices and the methodology of the science data summarization that was collected for presentation

First section covers effective evaporation with a focus on optimization for reduced energy consumption

- Covering the changes to Mechanical Evaporators to optimize energy use and evaporation efficiency using a question with answers format
- Covering the changes to Mechanical Evaporators to optimize energy use and evaporation efficiency using a question with answers format
- What is Evaporation Verses Enhanced Evaporation?
- What is the optimum Energy consumption per gallon achievable?
- What are the Environmental Constraints on Enhanced Evaporation?
- The implications of Enhanced Evaporation that is too efficient
- The implications of uncontrolled Enhanced Evaporation

Second section of the presentation delivers results of wide area drift analysis of molecular and atomic contamination:

- Plume Control
  - EPA Regional Haze rule impacts
  - EPA ground contamination impacts
  - Liability associated with implementing an evaporation method
- Water Chemistry
  - Its effect on enhanced evaporation
  - Its effect on plume control
  - Its effect on energy consumption
- Droplet Size
  - Its effect on enhanced evaporation
  - Its effect on plume control
  - Its effect on energy consumption
- The Weather
  - Its effect on enhanced evaporation
  - Its effect on plume control
  - Its effect on energy consumption
- Simple Heat
  - Finding simple heat sources for conversion to Latent Heat
  - Operating Enhanced Evaporation to Optimize Simple Heat
  - A look at Solar Enhanced Evaporation test results
  - A look at a 7.5 HP evaporator replacing a 45 HP evaporator system while achieving high rates of evaporation and greater plume control.
- Conclusions drawn from the Science Experiment to date.



--