PIOGA Pennsylvania Independent Oil & Gas Association

The PIOGA press

The monthly newsletter of the Pennsylvania Independent Oil & Gas Association

September 2017 • Issue 89

DEP publishes regulatory agenda for 2017-18

Higher well fees, restart of Chapter 78 conventional regulations and VOCs

In the coming year, the Department of Environmental Protection intends to propose higher fees for unconventional wells, revive the Chapter 78 rulemaking for conventional operations, and establish emissions requirements for volatile organic compounds (VOCs) at oil and gas production sites and related facilities.

DEP and other regulatory agencies are required to publish a semiannual agenda of regulations under development or consideration. The department's most recent regulatory agenda was included in the August 19 issue of the *Pennsylvania Bulletin.*

It's time to make your plans to attend PIOGA's Annual Meeting (see page 4), where among other reports you'll hear Tax Committee chair Don Nestor discuss a potentially significant federal tax credit for marginal wells (page 11).

Unconventional well fees

DEP's oil and gas program is funded entirely from permit fees, fines and penalties. A disadvantage of that arrangement is that funding levels can fluctuate greatly. Lately, department officials have lamented that the level of funding isn't sustaining the program's workload. DEP's 2016 Oil and Gas Annual Report showed that compliance inspections have greatly increased even as permitting and drilling have plummeted over the past few years.

By law, the department is to review the adequacy of its oil and fee structure every three years. According to the *Pennsylvania Bulletin* notice, "The current fee review indicates the need for a fee increase to provide for the administration of the oil and gas program." Department officials indicated the particulars of the fee package have not yet been determined, but the *Bulletin* notice said DEP will propose higher fees for unconventional wells during the fourth quarter of this year.

In mid-2014, the well permit fee was set at $5,000 for horizontal unconventional wells and $3,200 for vertical unconventional wells, an average increase from the previous sliding scale of $1,800 and $1,300, respectively. At that time, DEP estimated the fee increase would yield an additional $4.68 million annually, based on projections of 2,600 unconventional permit applications per year. In 2016, 1,310 permits for unconventional wells were issued.

Chapter 78 regulations

A protracted fight over the appropriateness of revisions to the Chapter 78 (conventional) and 78a (unconventional) regulations governing surface operations ended in June 2016 when Governor Wolf signed Act 52. The law abrogated the revisions to Chapter 78, Subchapter C and created the Pennsylvania Grade Crude Development Advisory Council. As part of the political deal that led to enactment of that law, the Chapter 78a version of the regulation was allowed to take effect (although portions are under challenge before the Pennsylvania Supreme Court).

DEP now says it will introduce a revised package of Chapter 78 regulations for conventional wells in the third quarter of 2018.

In a recent published report, a department spokesman was quoted as saying oil and gas regulators began "working with the new Conventional Crude Oil Development Advisory Committee [sic] several months ago in order to develop a new regulatory package." However, the

(Continues on page 3)

Regulatory agenda : *Continued from page 1*

council, which is charged with reviewing regulations impacting conventional oil and gas wells, has not seen a draft of any proposed changes to the rules.

DEP first began working on the update to the regulations in 2011.

New requirements for VOCs

The August 29 regulatory agenda also included a notice that DEP plans to establish reasonably available control technology (RACT) requirements for VOCs "and other pollutants" from existing oil and gas production facilities, compressor stations, processing plants, and transmission stations.

No further details of this emissions initiative have been announced, but DEP indicated the rulemaking is anticipated in the second quarter of 2018 and the final-form regulation will be submitted for approval to the U.S. Environmental Protection Agency.

PIOGA's Environmental Committee will be taking the lead on addressing the DEP initiatives, and we will keep members informed as they progress. ■

Severance tax update

House has yet to propose an alternative to the Senate's revenue bill

As this issue of *The PIOGA Press* was going into production, the state House of Representatives had not acted on Senate-passed legislation imposing a severance tax on unconventional natural gas production or formally unveiled an alternative to the Senate's budget revenue package.

The Senate on July 27 approved a revenue package for the FY 2017-18 state budget that includes a severance tax that initially would be imposed at 2 cents per Mcf, but could range as high as 3.5 cents depending on the average annual price of natural gas *(August PIOGA Press, page 1).* The production tax would contribute an estimated $100 million of the $2.2-billion revenue package passed by the Senate. The local impact fee on unconventional wells would remain in place under the Senate plan.

Consumers of energy also would be stung by other tax increases. The Senate-passed legislation would reinstate the gross receipts tax (GRT) on the sales of natural gas at a rate of 5.7 percent, and the GRT on electricity would rise from 5.9 percent to 6.5 percent.

Many members of the House of Representatives have expressed skepticism or opposition to the Senate's mix of borrowing and taxes—including the severance tax—to complete the funding of the spending portion of the state budget approved on June 30.

The House leadership had announced the chamber would return to session on September 11 and, presumably, concentrate on passing an alternative budget revenue measure. However, at this writing it remained uncertain whether that would be a quick process or continue to drag on.

If the budget has not been settled as you read this, PIOGA continues to urge members to personally reach out to their state representatives to let them know how a severance tax will negatively impact the industry in general and their business in particular. You can look up your representative and contact information by going to pioga.mmp2.org/my-government and clicking on Find my Officials. ■

RSVP Now!

2017 Annual Membership Meeting and Networking Reception

Thursday, October 5
2 p.m. to 4 p.m.

Reception immediately following

Heavy hors d'oeuvres and 1 complimentary drink ticket
Cash bar available

DoubleTree by Hilton Hotel Pittsburgh Cranberry
910 Sheraton Dr. , Mars, PA 16046

At the Annual Membership Meeting you will hear about the work of the association on legislative, regulatory and public education matters that impact your business.

- Chairman's Report and Board Member Introductions
- President & Executive Director Updates & Staff Introductions
- Committee Updates: Environmental, Pipeline and Gas Market Development, Safety & Health, Tax, and Legislative
- Member Open Forum

There is no fee to attend for PIOGA members, but an RSVP is required. Watch your email or visit the PIOGA Events section at www.pioga.org.

Need a Hotel Room?
PIOGA has negotiated a discounted rate of $129 plus tax with the DoubleTree. Contact the hotel directly at 800-222-8733 and mention group code PIO reserve your room and get the discounted rate. Deadline for the discounted rate is September 14.

Voting for PIOGA Board of Directors now open

Ten members are vying for seven seats on the PIOGA Board of Directors. A ballot has been mailed to the main representative of each PIOGA member company and must be returned to the PIOGA office by mail or hand-delivered no later than 5 p.m. on Friday, September 29. *Only one election ballot per member company can be submitted.*

Under PIOGA's bylaws, board members are elected by simple majority. The seven candidates receiving the most votes will be chosen to serve a three-year term beginning with the PIOGA Annual Meeting on October 5.

Biographies for the 10 candidates follow. Those marked with an asterisk (*) are current board members seeking reelection.

If you have questions about voting or if you did not receive your ballot in the mail, please contact Danielle Boston at 724-933-7306 ext. 28 or danielle@pioga.org.

Command Systems, Inc. • Represented by Robert Henry

About Command Systems, Inc. Command Systems, Inc. provides timely, quality and cost-effective repairs for industrial electrical and electronic equipment to the Oil & Gas, Mining, Utilities and Manufacturing industries. Command Systems, Inc. is located in Oakmont, PA.

About Robert "Bob" Henry. Bob is currently the President of Command Systems, Inc. Prior to joining Command Systems, Inc., he was Chief Operating Officer of PoleSet, Inc., a company located in Washington County, PA, that provides turnkey services for engineering and construction of electric power line and substation projects.

Prior to joining PoleSet, Inc., Bob spent 32 years at West Penn Power/Allegheny Power (now FirstEnergy), where he held numerous executive/management roles.

Current activities include member of the PIOGA Health & Safety Committee and member of the PIOGA Pipeline and Gas Market Development Committee. Bob is a member of SMC Business Council, where he is a member of the Government Relations Committee and leads the Energy Policy Working Group.

Bob was a faculty member for the Pennsylvania State University Advanced School of Engineering for 10 years, teaching courses in infrastructure asset management.

Bob earned a Bachelor of Science in Electrical Engineering from the University of Pittsburgh and an MBA from the University of Pittsburgh - Joseph M. Katz Graduate School of Business.

EnerVest Operating, LLC • Represented by Todd Tetrick*

About EnerVest Operating, LLC. EnerVest Ltd. is engaged in oil and gas exploration and production operations throughout the United States, with a very strong presence in Appalachia, operating approximately 2,000 wells in the Commonwealth of Pennsylvania alone. It is one of the 25 largest oil and gas companies in the United States with nearly 40,000 wells across 15 states and over 6 million acres under lease. The company has more than 1,100 employees and is focused on operational excellence with a focused approach to excellent A&D opportunities.

About Todd Tetrick. Todd Tetrick has 20 years in the oil and gas industry, with experience across the Appalachian Basin, as

well as in various other basins across the country. He graduated from West Virginia University with a B.S in Petroleum and Natural Gas Engineering and started his career working as a field engineer for Dowell in southern Appalachia. During his career, he served in numerous engineering and management positions with Columbia Natural Resources, Dominion E&P and Equitable Resources. At Equitable, he was the Director of their drilling and completions program when the company was drilling over 500 wells per year, and was instrumental in the engineering and management of their horizontal Huron Shale play which subsequently changed the company's business strategy. He has been employed by EnerVest Operating, LLC since 2008 and currently serves at the VP – Operations for Appalachia, based out of Charleston, WV, with headquarters in Houston, TX. While working for EnerVest, he also served as VP – Drilling & Completions for an extended time and helped to lead the company's efforts in the Marcellus and Utica Shale plays, as well as its horizontal drilling programs in it conventional reservoirs.

Todd was selected to the PIOGA Board of Directors in 2016 and has been an active member over the past year, participating in the majority of the events the association has conducted and sponsored, as well as providing support on numerous regulatory issues affecting the industry in Pennsylvania. Some of these issues include PA One Call, brine spreading practices and the use of Consent Order Agreements by PA DEP. In addition, Mr. Tetrick currently represents PIOGA at the DEP quarterly meetings in Harrisburg. He is a member of IOGA WV, VOGA, MOGA, OOGA, IOGA NY, SPE and IPAA. Formerly, he has served on the Board of Directors for MOGA, as President of the Eastern KY SPE Chapter and also as President of his SPE Student Chapter at WVU. He has co-authored two SPE technical papers and presented at numerous industry meetings in recent years. Todd served on various committees in Ohio, working with the ODNR and OOGA by providing technical guidance and assistance by industry with the regulatory changes made to accommodate the emergence of the Utica Shale and to mitigate the impact to conventional oil and gas producers.

Langan Engineering & Environmental Services • Represented by Colleen Elliott

About Langan Engineering & Environmental Services. Langan provides an integrated mix of engineering and environmental consulting services in support of the oil and gas industry, land development projects, and corporate real estate portfolios. Our clients include developers, property owners, public agencies, corporations, institutions and energy companies around the world.

About Colleen Elliott. Ms. Elliott has extensive experience managing upstream and downstream oil and gas projects specializing in health, safety, security and the environment. All-encompassing projects have included major mergers and acquisitions due diligence, liability negotiations, facility regulatory and

OSHA compliance, risk assessment, detailed design, contracts and procurement, subcontractor management, facility decommissioning, well plugging and pipeline abandonment, and regulatory permitting and advocacy efforts. The geographic range of her project work has extended from North America to South America, Africa, the Middle East and Europe.

Ms. Elliott has a track record of establishing initiatives to drive continuous improvement and cost savings and motivating teams to be innovative, maximize personal commitment and reduce potential hazards toward a zero-incident culture. As a self-motivated, influential and detail oriented individual, she efficiently interacts with colleagues and stakeholders to develop and advocate sustainable solutions.

Example elected volunteer leadership positions held by Ms. Elliott include Chairperson for the Shell Oil Company Global Contractor Safety Council (2013-2015), Program Chair for the American Society of Civil Engineers (2011-2014) and Director on the Southwest Pennsylvania Engineering Outreach Board (2008-2013).

Ms. Elliott has a M.S. and B.S. in Civil and Environmental Engineering from the University of Pittsburgh and over 13 years of experience in the industry. In addition to PIOGA, she is currently an active member of the Society of Petroleum Engineers and American Society of Safety Engineers.

Moody and Associates, Inc. • Represented by Jeffrey Walentosky, P.G.*

About Moody and Associates, Inc. Moody and Associates, Inc. is a Pennsylvania environmental and groundwater consulting company that was established in Crawford County in 1891. Moody representatives have been heavily involved in PIOGA to provide technical and regulatory support regarding important issues like the Chapter 78/78A regulatory changes, numerous policy and technical guidance document reviews, and participation in several industry workgroups on behalf of PIOGA.

About Jeffrey Walentosky, P.G. Mr. Walentosky is the President and senior associate at Moody and Associates, Inc. Jeff oversees and directs everyday operations of three offices (Meadville, PA, Houston, PA, and Waverly, NY) that entail a staff of approximately 80 geologists, environmental scientists, biologists, GIS/drafting technicians and water well contracting professionals. Over the past 27 years, he has been fortunate enough to work with numerous conventional and unconventional oil/gas industry representatives and regulatory agencies to responsibly address potential environmental impact and liability issues on surface, near surface and subsurface resources.

Mr. Walentosky has been serving on PIOGA board of directors since 2016. Under PIOGA's Environmental Committee, he has acted as the chairperson or co-chairperson of the Well Construction Subcommittee since 2011, Mechanical Integrity Assessment (MIA) workgroup, Chapter 78 workgroup, and Spill Cleanup workgroup. Jeff was also appointed to serve on the Area of Review workgroup and Water Supply Restoration workgroup by the Pennsylvania Department of Environmental Protection (PA DEP), which were charged with developing new technical guidance as part of the Chapter 78A rulemaking in Pennsylvania. In addition, Jeff is serving under PIOGA's Program Committee to assist in giving direction to conferences and seminar content.

Mr. Walentosky earned a Bachelor of Science Degree in Geology and Geography from the Clarion University of Pennsylvania. He is also a licensed professional geologist in the Commonwealth of Pennsylvania. Jeff grew up in the oil rich region of northwestern Pennsylvania (in the Oil City area) and currently resides in the greater Pittsburgh area with his wife, Cheryl.

Patriot Exploration Corporation • Represented by Jake Stilley*

About Patriot Exploration Corporation. Patriot Exploration develops and produces natural gas from numerous well locations in Pennsylvania. Patriot currently operates over 200 shallow oil and gas wells in Pennsylvania, spanning from northern Clearfield County into southwestern Greene County. Patriot is also jointly developing the unconventional resources under its leasehold and owns working interests in over fifty unconventional wells. As a result, Patriot has an interest in both opposing any new burdensome regulations on existing wells and working to streamline the currently arduous and lengthy permitting process for new wells.

About Jake Stilley. Jake Stilley is Vice President of Patriot Exploration Corporation and oversees all operational, financial and business development aspects of the company. Jake personally supervised the drilling and completion of the majority of the company's shallow wells.

Jake holds a B.S. in Civil Engineering from Bucknell University and a Master's in Business Administration from Penn State University. He is an active member of PIOGA's Legislative Committee and is co-chair of the Environmental Committee's Well Construction Subcommittee.

Penneco Oil Company, Inc. • Represented by Ben Wallace*

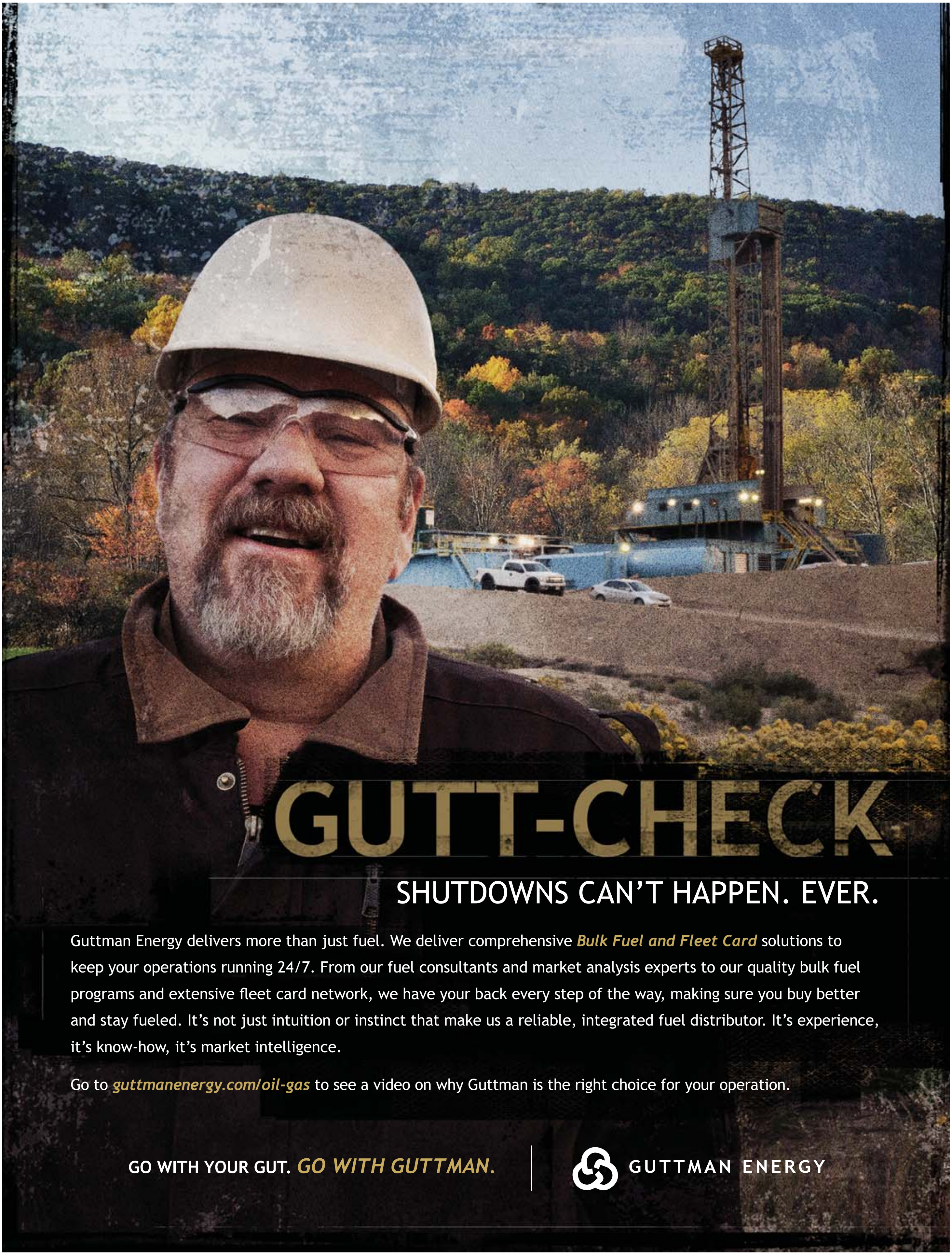
About Penneco Oil Company Inc. Penneco is a well-established, privately held, oil and gas exploration and production company headquartered in Delmont, PA. Penneco operates over 900 wells in Pennsylvania and Wyoming.

In addition to oil and gas operations, Penneco is now branching out into the services sector, having recently formed Penneco Environmental Solutions, LLC with the express intent to accept and dispose of production and flowback fluids for the Marcellus industry.

About Ben Wallace. As an experienced executive and Pennsylvania native, Ben has a wealth of management experience in all facets of closely held corporations within the environmental resources sector.

Since 2009, Ben has had primary responsibility for managing the corporate operations of Penneco Oil Company Inc. and affiliates. In addition to operational experience, Ben has extensive experience negotiating oil and gas transactions and a solid understanding of the regulatory and legislative climate in Pennsylvania.

Ben's professional experience encompasses many aspects of the energy, mining, and extractive industries. Prior to Penneco, Ben served as a Vice President at Amerikohl Mining, Inc., one of Pennsylvania's largest surface coal mining operators. Ben's primary responsibilities included managing their natural gas exploration and production operations (Patriot Exploration Corp.) as well as their contract drilling company (Patriot Exploration Drilling). While at Patriot, Ben personally managed the drilling of over 175 wells. Prior to managing oil and gas operations for Amerikohl, Ben developed and managed their stone quarrying operations. Prior to Amerikohl, Ben worked as a territory manag-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er for Cleveland Brother's Equipment Company, selling aggregates processing machinery throughout Western Pennsylvania and Northern West Virginia.

Active in public service, he is a former member of the Board of Directors of the Independent Oil and Gas Association of Pennsylvania and currently is the Chairman of PIOGA's Legislative Affairs Committee. Additionally, Ben has served as a Trustee of Cornerstone Ministries, Inc., a large and thriving contemporary Christian church located in Murrysville. Ben developed his leadership skills as a field artillery officer in the United States Marine Corps, attaining the rank of Captain.

Ben holds a Bachelor of Science degree in Mechanical Engineering from the Pennsylvania State University, 1992, and a Master's degree in Business Administration from the University of Pittsburgh, 2005, with studies in Prague, Czech Republic and Sao Paulo, Brazil.

Ben, age 48, resides just east of Pittsburgh in North Huntingdon, Pennsylvania, with his wife, Elizabeth. They have four children: Jacob (20), Levi (18), Jazzelle (8) and Jackson (6).

Range Resources - Appalachia, LLC • Represented by Carl Carlson*

About Range Resources - Appalachia, LLC. Range has nearly 1 million net acres across Pennsylvania, most of which has stacked pay potential for the Marcellus, Utica and Upper Devonian shale formations.

The Marcellus Shale is now the largest natural gas field in the United States. With the benefit of a large, liquids-rich window in southwestern Pennsylvania, the Marcellus offers the best economics of any large-scale, repeatable play in the country. A significant portion of Range's acreage also offers the benefit of natural gas potential from the Upper Devonian and Utica shale formations that lie above and below the Marcellus. In 2017, Range will be directing the majority of its capital budget toward the Marcellus.

Range pioneered the Marcellus Shale in 2004 with the successful drilling of the Renz #1 well in Washington County, PA.

About Carl Carlson. Carl J. Carlson joined Range Resources – Appalachia, LLC in January, 2008 as Director of Government Affairs, where his primary duties include regulatory and legislative policy development as well as work on a variety of technical environmental projects involving all facets of drilling, completion and production.

Mr. Carlson has 40 years of experience in Pennsylvania's oil and gas industry, including a variety of technical and management positions for larger Appalachian production companies as well as independent prospecting and technical consulting on coalbed methane projects.

Mr. Carlson actively serves on several committees of the Marcellus Shale Coalition and has served on the board of directors of the Independent Oil and Gas Association of Pennsylvania (now PIOGA) for over 20 years, including two terms as President of the association. He received his Bachelor of Science degree in Geological Science from the Pennsylvania State University in 1975.

Summit Petroleum, Inc. • Represented by Steve Williams

About Summit Petroleum, Inc. Summit Petroleum, Inc., a Twinsburg, Ohio-based company was incorporated in 1984 for the purpose of exploring and developing oil and natural gas prospects. This is done through both drilling and acquisition. Relying on extensive experience in the Appalachian Basin, Summit Petroleum, along with its staff and associates, generate the drilling prospects. Since 1984, Summit Petroleum has acted as General Partner for Limited Partnerships or as Operator for Joint Ventures; the primary activity of which has been the drilling and completion of gas and oil wells in northeastern Ohio and nearby areas. Summit Petroleum will continue to sponsor drilling programs, and will also tailor drilling programs to the specific needs of individual investors or investor groups. Summit Petroleum also acts as a consultant to other producing companies, private industry and municipalities.

About Steve Williams. Steve J. Williams is the Vice President of Summit Petroleum, Inc. Mr. Williams has extensive midstream, transmission, production and operational experience in the oil and natural gas industry. Mr. Williams is responsible for managing all of Summit's operations in Ohio, West Virginia and Pennsylvania. Prior to joining Summit, Mr. Williams was the

General Manager of Velocity Midstream Partners Marcellus and Utica Operations Unit. In this role, Mr. Williams was responsible for business development and operations in Ohio, West Virginia and Pennsylvania.

Mr. Williams also spent 18 years with Dominion East Ohio in multiple capacities including distribution, gathering and transmission operations, gas control, gas storage and business development.

Mr. Williams attended Kent State University for geology and is a member of both the Ohio Oil and Gas Association and the Southeast Ohio Oil and Gas Association.

T&F Exploration, LP • Represented by Frank Ross*

About T&F Exploration, LP. T&F Exploration was founded in 1998, with offices in Pittsburgh, PA, and Buckhannon, WV, with the focus on drilling natural gas and oil wells and marketing natural gas to commercial and industrial end-use customers.

About Frank Ross. Frank J. Ross is President and partner in T&F Exploration, LP. Ross graduated in 1985 with a BS degree in Petroleum and Natural Gas Engineering from Pennsylvania State University. Upon graduation, he went to work for Energy Production Company as a staff engineer. Following his three years at Energy Production, Ross either managed or was principle in several natural gas marketing companies specializing in developing marketing programs for industrial and commercial end users. During his 12-year tenure with the marketing entities, he managed all facets of Appalachian supply acquisition, pool operations and sales to customers behind the major LDCs in the Northeast marketplace.

T&F Exploration, an exploration and production company, was formed in 1998 and Ross is responsible for all financial and marketing operations of this company. Ross started F&P Holdings in 2012 as a licensed marketer and currently serves power and demand response in Ohio, Pennsylvania and West Virginia. Ross has also formed T&F Oil Holdings in 2014 and has non-operated interest in 43 oil wells in Pennsylvania. Ross has been a board member of IOGA/PIOGA for 12 years. Ross is also a member of IOGA-WV, IPAA, has chaired or co-chaired the Transportation and Marketing Committee for 6 years, has served as the 2nd Vice President for the past 6 years and is a member of SPE. Frank and his wife, Terry, reside in Pittsburgh and have three sons.

UGI Energy Services • Represented by Keefe Long

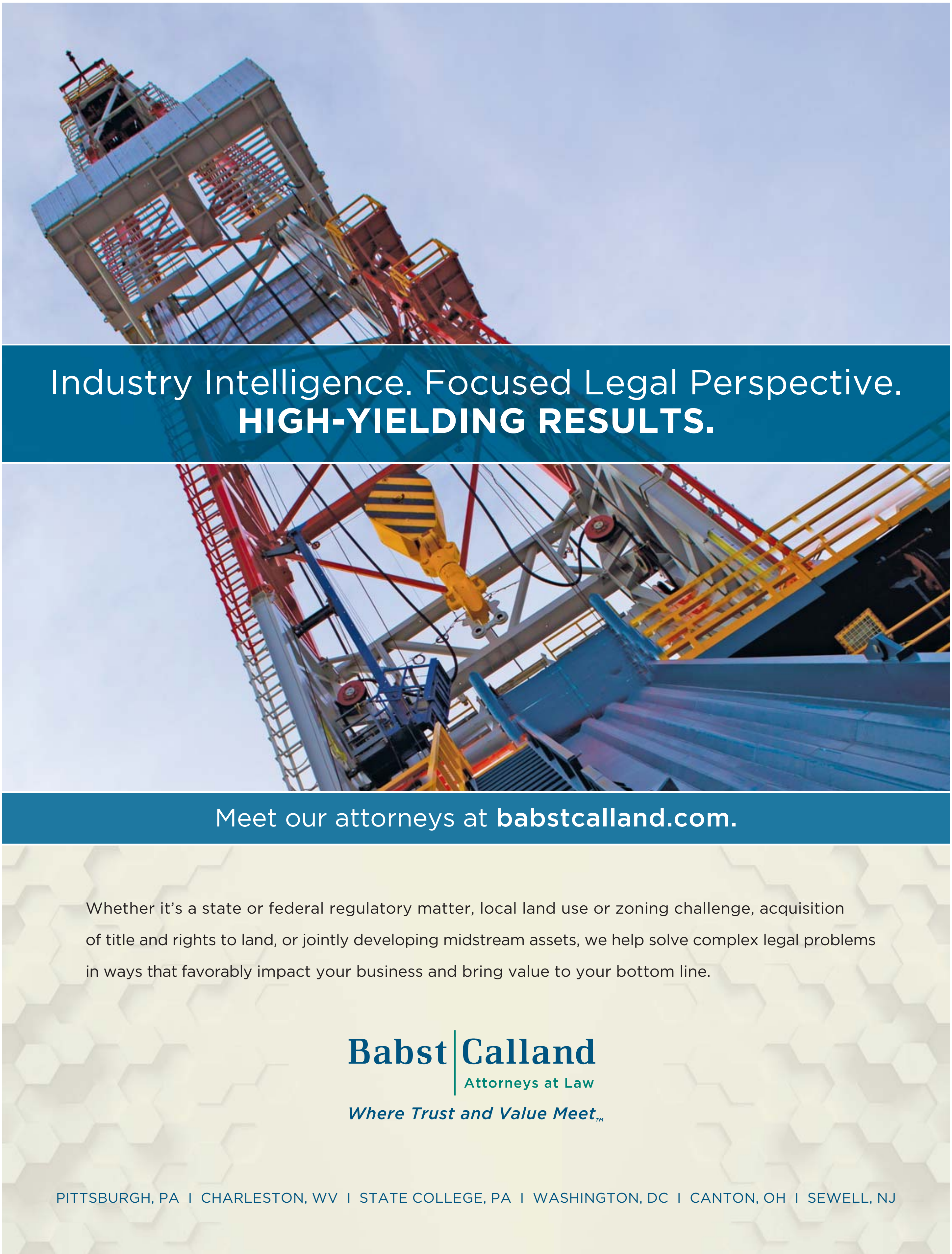
About UGI Energy Services. Established in 1995 and headquartered in Wyomissing, Pennsylvania, UGI Energy Services (UGIES) is one of the fastest growing segments of UGI Corporation (NYSE:UGI). UGI is a Pennsylvania-based energy holding company with a market capitalization of approximately $8.2 billion and an operational history spanning more than 130 years.

UGIES has three major lines of business: midstream services, retail energy marketing, and electricity generation. As part of its midstream business, UGIES operates natural gas gathering and transmission pipelines, including the 38-mile Auburn Gathering System, 15 Bcf of underground natural gas storage and associated transmission pipelines, LNG and propane/air facilities and our recently completed, FERC-regulated Sunbury Pipeline. Additionally, UGIES is developing midstream projects throughout the Appalachian Basin designed to move gas to a diversified set of end-users.

Over the past five years, UGIES has invested $500 million in the above-mentioned projects. Over the next five years, UGIES plans to invest another $500 million in various LNG and pipeline expansion projects, including the 120-mile, 1.1 Bcf/d PennEast Pipeline, of which UGIES is a 20% equity owner and the project manager, which will extend from Luzerne County, Pennsylvania, to Mercer County, New Jersey.

UGIES' retail natural gas marketing business delivers over 113 Bcf annually to 40,000 gas customer locations across 37 local distribution companies in ten states. In addition, UGIES' Supply Team manages and optimizes over 600,000 Dth of interstate capacity that is used to support its marketing business. Supporting this business are more than 25 employees responsible for optimizing, trading and scheduling the interstate capacity contracts as well as providing risk management services and retail pricing to UGIES' sales team.

About Keefe Long. Mr. Long has over 13 years of experience in the Natural Gas Industry, spending his career with UGI Utilities and UGI Energy Services. Since joining UGI Energy Services in 2009, Mr. Long has worked in a variety of finance and business development roles, each with increasing responsibility. In these roles, Mr. Long has been involved in the development of a variety of internal strategic growth projects and acquisition opportunities and has played the lead role in forecasting and budgeting. Prior to working at UGI Energy Services, Mr. Long worked in the banking and investment industry, most notably with The Vanguard Group. Mr. Long holds a BS in Finance from Albright College and an MBA from Lehigh University. ■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Marginal well credit for 2016 natural gas production

By Donald B. Nestor, CPA, Partner
Arnett Carbis Toothman, LLP

Marginal well working interest owners have not had much in their favor in the past several years with lower production, lower gas sales prices, and increased operating, transportation and regulatory costs. As difficult as it may be to believe, a very positive current item for marginal well working interest owners may be found in the federal income tax area with a potential federal income tax credit for 2016 natural gas production. The following is a summary of our current interpretation of what this credit may mean to marginal well producers. We will continue to refine this interpretation as we work with the IRS concerning this credit calculation and its application.

Internal Revenue Code Section 45I was passed by Congress as part of the American Jobs Creation Act of 2004. This marginal well credit was based on production from qualified marginal wells. Qualified marginal oil wells are those with an average production of not more than 15 barrels per day, wells producing heavy oil or wells producing not less than 95 percent water with average production of not more than 25 barrels per day of oil. Qualified marginal gas wells are those producing not more than 90 Mcf per day. The first step in determining wells that qualify for this credit is making certain they qualify as marginal wells, combining oil and natural gas equivalent units to determine marginal well status.

This tax provision allows a $3 per barrel tax credit for the first 3 barrels of daily oil production from an existing marginal well and a $.50 per Mcf tax credit for the first 18 Mcf of daily natural gas production from a marginal well. So the next step is determining the actual average daily production from the qualified wells and limiting that production to a combined 3 barrels of oil and 18 Mcf of natural gas in equivalent units of production. If oil produced from qualifying wells is not allowed in a year due to oil's reference price being too high, we believe it would be appropriate to include only natural gas in your 18 Mcf of qualifying production calculation. The qualified average daily production under this limitation would then be applied to the number of days that the working interest owner actually owned that well interest.

The next step in determining the dollar amount of federal tax credit available for this credit is to apply the qualifying production in a year to the approved dollar amount per unit of production. For oil production, the original $3 credit per barrel was to be proportionately eliminated as the average price of oil increased from $15 to $18 per barrel. All these amounts are increased by inflation. For 2016 oil production the inflation-adjusted maximum credit of $3.70 per barrel was eliminated as the average allowable sales price of oil in 2015 increased from $18.50 to $22.20 per barrel and the 2015 reference price for oil was above $22.20 per barrel.

For 2016 natural gas production, there does appear to be a marginal well credit for the first 18 Mcf of daily production from qualifying wells. The original maximum marginal well credit of $.50 per Mcf has now increased due to inflation to a maximum of $.6166 per mcf. The original $.50 cent credit was reduced as

the average price of natural gas in the year prior to the production year increased from $1.67 to $2.00. With inflation the 2016 natural gas maximum credit of $0.6166 is reduced as the reference price of natural gas in 2015 increases from $2.06 to $2.47 per Mcf. In other words, if the reference price for natural gas production is less than $2.47 per Mcf in 2015 there will be a marginal well credit for 2016 natural gas production.

The Internal Revenue Service is the agency that is to calculate and publish the 2015 natural gas reference price. This average natural gas price will determine the amount of credit per Mcf of qualifying production no matter what producers actually sell their natural gas for in 2016. I have discussed this 2015 natural gas reference price with the person at the IRS who is charge of its calculation. During a discussion with him on September 6, he stated that the reference price calculation has been approved at the first level of review in the IRS but is pending final approval, which is necessary before it is official. He did confirm that based on his calculation there will be a Section 45I marginal well credit available for 2016 production, but until it receives final IRS review he cannot release that amount.

As an example of what this credit could be, if the approved reference price of natural gas in 2015 was $2.19 per Mcf, the 2016 marginal well credit for qualifying natural gas production would be $0.42 per Mcf. If a marginal well produced at least the maximum allowable 18 Mcf per day of qualified natural gas, the federal income tax credit for that well in 2016 would be a maximum of $2,759.

This natural gas federal income tax credit for 2016 qualifying production is definitely good news. One additional limitation on use of this credit is that it may only offset regular income tax in excess of Alternative Minimum Tax (AMT). An offsetting benefit to this AMT limit is that any marginal well credit not used in a year due to total tax or AMT limits may be carried back 5 years and over 20 years. This extended number of years hopefully assures a significant amount of Section 45I credit for 2016 natural gas production will be utilized by those with qualifying marginal well production.

We will continue to monitor this credit and inform PIOGA members as its calculation and application become well defined. We will also cover this tax credit extensively during our annual PIOGA/Arnett Carbis Toothman Tax and Accounting Seminar on November 30. In the meantime, if you have any questions concerning the above marginal well credit or its application to your working interest production, please contact me or any of my firm's other Oil and Gas Niche associates by phone at 800-924-0729 or by email as follows: Don Nestor, don.nestor@actcpas.com; Marlin Witt, marlin.witt@actcpas.com; Bill Phillips, bill.phillips@actcpas.com; Ryan Nestor, ryan.nestor@actcpas.com, or Wanda Bailey, wanda.bailey@actcpas.com. ■

Don Nestor is chairman of PIOGA's Tax Committee.

PIOGATech
PIOGA's Technical Seminar Series

Air Quality Compliance Training

Hosted by:
PIOGA's Environmental Committee

Date:	**Thursday, October 12, 2017**
Location:	**CONSOL Energy Headquarters** **Canonsburg, PA**
Time:	**8:00 AM - Registration & Breakfast** **9:00 AM to 3:00 PM Air Quality Compliance Training**
Fee:	**$100 for PIOGA Members** **$150 for Non-PIOGA Members**
	Fee includes Continuing Education Units (CEUs) and breakfast/lunch.

Deadline to register is October 6, 2017

Location Information

CONSOL Energy, Inc.
1000 CONSOL Energy Drive
Canonsburg, PA 15317

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PIOGA's Environmental Committee is pleased to host this training in conjunction with our partners **All4, Inc., Clean Air Engineering, Inc.** and **Spilman, Thomas & Battle**

Air Quality Compliance Training

This course is designed to provide a basic understanding of the factors that influence air emissions, an overview of the regulations as they relate to oil and gas operations, compliance, and testing methods.

The five-hour class will cover the following topics:

- **Introduction to Air Quality Regulations**
- **Demonstrating Compliance with 40 CFR Part 60, Subpart OOOO and OOOOa**
- **Introduction to Optical Gas Imaging**
- **RICE Compliance Requirements for Owners and Operators**
- **Intricacies of VOC Measurement**
- **40 CFR Part 98, Subpart W Reporting Thresholds and Emissions Estimating**
- **LDAR Tools of the Trade and Fenceline Monitoring Demonstration**
- **Regulatory Updates**
- **Next Generation Air Monitoring Technology**
- **Panel Discussion**

The fee for this one-day training, which includes continental breakfast, lunch and Continuing Education Units (CEUs) is $100 per person for PIOGA members and $150 per person for Non-members.

Registration

Go to www.pioga.org **> News/Events > PIOGA Events to register online. Payment must be received prior to the training session. Deadline to register is Friday, October 6.**

DEP report shows improvements in many emissions from shale industry

According to the Pennsylvania Department of Environmental Protection's 2015 inventory of air emissions for the unconventional natural gas industry, emissions of methane and volatile organic compounds (VOCs) from unconventional well sites and midstream facilities increased from 2014 emission levels, while several other pollutants including nitrogen oxides (NOx), sulfur dioxide (SOx) and particulate matter (PM2.5) all saw decreases. Significantly, average emissions per reporting source continue to drop.

The inventory represents 2015 emissions from unconventional natural gas production and processing operations as well as compressor stations that receive gas from conventional and unconventional well sites and coal gas.

Unconventional Natural Gas Emissions by Year

Tons per Year

Year	Well Sites Reporting	Midstream Facilities Reporting	Nitrogen Oxides	Particulate Matter	Sulphur Oxides	Volatile Organic Compounds	Methane
2011	9,037	150	16,542	489	122	2,820	NA
2012	8,962	453	16,304	557	99	3,606	122,589
2013	10,275	447	17,616	609	157	4,776	107,815
2014	10,010	508	21,423	812	257	5,961	107,735
2015	10,287	534	20,090	630	176	6,410	112,128

"The inventory presents a mixed picture of emissions from the unconventional natural gas industry," said DEP Secretary Patrick McDonnell. "Certain pollutants are decreasing as best practices are implemented more widely through the industry, while others—including methane, a potent greenhouse gas—continue to increase, underscoring the need to do more to detect and fix leaks in order to reduce emissions."

Production from unconventional gas wells increased significantly, from 4.1 trillion cubic feet of gas in 2014 to 4.6 Tcf in 2015.

The data reported for six major categories of contaminants are provided in the accompanying table.

Even though the total tons of methane reported increased due mainly to the increase in activity and the number of sources reporting, the average emissions per facility has been on the decline. The average methane reported from each midstream compressor station decreased from 106.9 tons in 2012 to 97.5 tons in 2015. The average emission per well site was 8.3 tons in 2012 and 5.8 tons in 2015. Year-to-year changes in other emissions are related to a variety of factors, including where wells are drilled and types of equipment being used.

DEP has proposed changes to the general permits (GP-5 and GP-5A) for new well sites and compressor stations intended to reduce methane emissions. A comment period on the proposed changes closed on June 5, with more than 10,000 comments received. The proposed changes include increased leak detection and repair frequency, a specific methane emission threshold for the installation of additional control and added requirements for additional sources. PIOGA has been critical of many of the changes and the effect they will have on operations.

DEP began collecting emissions data from owners and operators of unconventional natural gas sources in 2011. In 2012, DEP expanded the data reporting requirement to include midstream compressor stations that support the conventional natural gas industry. DEP again expanded the reporting requirements in 2013 to include data from midstream compressor stations that support coalbed methane formations. In 2015, DEP required pigging stations to be reported. The figures presented are based in information provide by affected facilities and are calculated based on the estimated emissions of the equipment on site.

In addition to compressor stations, other sources and activities of natural gas operations that DEP identified as part of the inventory include dehydration units; drill rigs; fugitive emission sources, such as connectors, flanges, pump lines, pump seals and valves; heaters; pneumatic controllers and pumps; stationary engines; tanks, pressurized vessels and impoundments; venting and blowdown systems; well heads; and well completions.

PIOGA analysis

The Air Quality/Emissions Subcommittee of PIOGA's Environmental Committee reviewed the emissions data and made the following initial observations:

• While the reported 2015 VOC and methane emissions increased overall in comparison to 2014, emissions per reporting source decreased, as well as emissions per unit of natural gas production. The 2015 report also included expanded midstream reporting, which likely contributed to the overall increase. A key point is that VOC and methane emissions per reporting source and per unit of production are decreasing.

• The overall methane and VOC increases make sense, as the reported natural gas production increased about 12 percent, with VOC emissions up 7 percent and methane emissions up 4 percent from 2014—somewhat proportional.

• The SO2 emissions are associated predominantly with operation of non-road diesel engines (used in drilling and fracking). Beginning in 2015, ultra-low sulfur content diesel fuel (15 ppm) was required for such engines, which can explain the large decrease in SO2 emissions. Reduced sulfur in fuel also results in reduced PM2.5 emissions, which is reflected in the emissions data.

• Carbon monoxide (CO) emissions were not mentioned, but increased in 2015 by about 6 percent. Conversely, NOx emissions dropped by about 6 percent. NOx and CO emissions are associated with both gas and diesel engines and thereby reflect the entire population of reported engine emissions. The decrease in reported NOx emissions could reflect the use of newer non-road engines that are subject to more stringent NOx standards. ■

Federal court directs FERC to evaluate downstream climate change impacts

Federal agencies tasked with reviewing energy projects will likely take a harder look at climate change following a recent decision by the U.S. Court of Appeals for the District of Columbia Circuit. In a 2-1 ruling issued August 22, a D.C. Circuit panel vacated a decision by the Federal Energy Regulatory Commission (FERC) to approve a major interstate pipeline project, holding that FERC failed to adequately consider the greenhouse gas emissions that will result from burning the natural gas being carried by the pipelines. *See Sierra Club v. FERC*, D.C. Cir., No. 16-1329. The court faulted FERC's project review under the National Environmental Policy Act of 1969 (NEPA) in a decision that has the potential to delay pipeline development across the country.

What NEPA requires

As the first major environmental law in the United States, NEPA established a broad national framework for protecting the environment. NEPA requires federal agencies to evaluate the environmental and related social and economic impacts of proposed actions prior to making decisions. It requires agencies to follow certain procedures, gather public input and take a "hard look" at various factors, but it does not require a particular outcome. NEPA can apply to a wide range of federal actions, including but not limited to permit approvals. Private companies frequently become involved in the NEPA process when they need a permit issued by a federal agency, such as FERC or the U.S. Army Corps of Engineers.

Depending on the circumstances of a project, the reviewing agency may be required to prepare a decision document known as an environmental impact statement (EIS). NEPA requires preparation of an EIS for each "major Federal action[] significantly affecting the quality of the human environment." *See* 42 U.S.C. § 4332(2)(C). Decades of case law have developed around the meaning of this statutory obligation. It presents an ongoing challenge for agencies as they seek to define the scope of information that must be considered when evaluating a proposed project.

Challengers criticize FERC's NEPA review

Pursuant to Section 7 of the Natural Gas Act, a pipeline developer must obtain a certificate of public convenience and necessity (also known as a Section 7 certificate) from FERC prior to constructing and operating an interstate natural gas pipeline. *See* 15 U.S.C. § 717f. On February 2, 2016, FERC issued the Section 7 certificates for the Southeast Market Pipelines Project. Scheduled for completion in 2021, the project consists of three separate but connected natural gas transmission pipelines in Alabama, Florida and Georgia. One of these pipelines, Sabal Trail, is a 515-mile interstate pipeline transporting natural gas to Southeast markets, including natural gas-fired power generators in Florida.

Environmental groups and landowners opposed to the project asked FERC for a rehearing with respect to the Section 7 certificates as well as a stay of construction. FERC denied the stay and project construction began in August 2016. Shortly thereafter, on September 7, 2016, FERC denied the request for rehearing.

The landowners and environmental groups, led by the Sierra Club, petitioned the D.C. Circuit for review of FERC's decision to approve the Southeast Market Pipelines Project. The Sierra Club argued that the NEPA analysis performed by FERC was deficient. In relevant part, the Sierra Club alleged that FERC should have considered the effects of greenhouse gas emissions from natural gas-fired power plants downstream in Florida. Although FERC discussed climate change in the EIS associated with the project, the agency declined to engage in "speculative analyses" concerning the "relationship between the proposed project and upstream development or downstream end-use." Overall, FERC concluded in the EIS that the project "would not result in a significant impact on the environment."

Authors:

Meredith Odato Graham, Esq.

Brianne K. Kurdock, Esq.

Babst Calland Attorneys at Law

The court's decision

The court agreed with the Sierra Club, finding that "FERC's environmental impact statement did not contain enough information on the greenhouse-gas emissions that will result from burning the gas that the pipelines will carry." The court determined that the greenhouse gas emissions from the power plants "are an indirect effect of authorizing this project, which FERC could reasonably foresee, and which the agency has legal authority to mitigate." Without quantifying the project's greenhouse gas emissions and making comparisons to regional emission reduction goals, for example, the court said it would be impossible for FERC and the public to engage in the kind of informed review that is required by NEPA.

Although the court ruled in favor of FERC on all other issues presented, it ultimately vacated the Section 7 certificates and remanded the case to FERC for preparation of a new EIS. FERC must estimate the quantity of power plant emissions that will be made possible by the pipelines, or explain in more detail why such quantification cannot be done. The court also directed FERC to explain the agency's current position on the use of a "Social Cost of Carbon" tool developed by an interagency working group to measure the harm of emissions in dollar amounts.

Judge Janice Rogers Brown authored the lone dissent, stating that FERC was not obligated under NEPA to include a discussion of downstream greenhouse gas emissions where the agency has no legal authority to prevent those environmental effects. Power plants downstream of the pipeline project are regulated by state agencies. In Judge Brown's view, "FERC has no control over whether the power plants that will emit these greenhouse gases will come into existence or remain in operation." If an agency lacks the authority to act on the information collected during the NEPA process, then the same agency is not required to analyze that effect in its NEPA review.

Implications for future permitting

Unless FERC seeks *en banc* review or an appeal of the decision, the agency is now tasked with preparing a revised EIS for the Southeast Market Pipelines Project. Interestingly, the court did not require Sabal Trail (Phase 1) to cease operation. Phase 1 of Sabal Trail began full commercial service in July 2017.

It remains to be seen how this decision may affect other pipeline projects, but it is likely that federal agencies may take an even broader approach to NEPA reviews and devote additional attention to greenhouse gas emissions. Applicants may be asked to submit more expansive and detailed information to support an agency's analysis. Even in situations where it is not feasible to quantify indirect greenhouse gas emissions, the D.C. Circuit's decision suggests that the agency must provide a satisfactory explanation for its feasibility determination. Finally, it is not clear if the downstream environmental effects of gas transported by a pipeline for other end uses would also be considered reasonably foreseeable.

This decision could potentially have an impact on applications for state permits as well. The State of New York has already cited the *Sierra Club v. FERC* decision in support of its conditional denial of water quality permits for the Valley Lateral Project, a seven-mile pipeline segment that would supply gas to a power plant. In denying the permits, the New York State Department of Environmental Conservation (NYSDEC) stated that FERC failed to account for the downstream greenhouse gas emissions in its NEPA review for the Valley Lateral Project. NYSDEC cited the *Sierra Club v. FERC* decision and appeared to make the denial contingent on whether FERC reopened its NEPA process for the Valley Lateral Project.

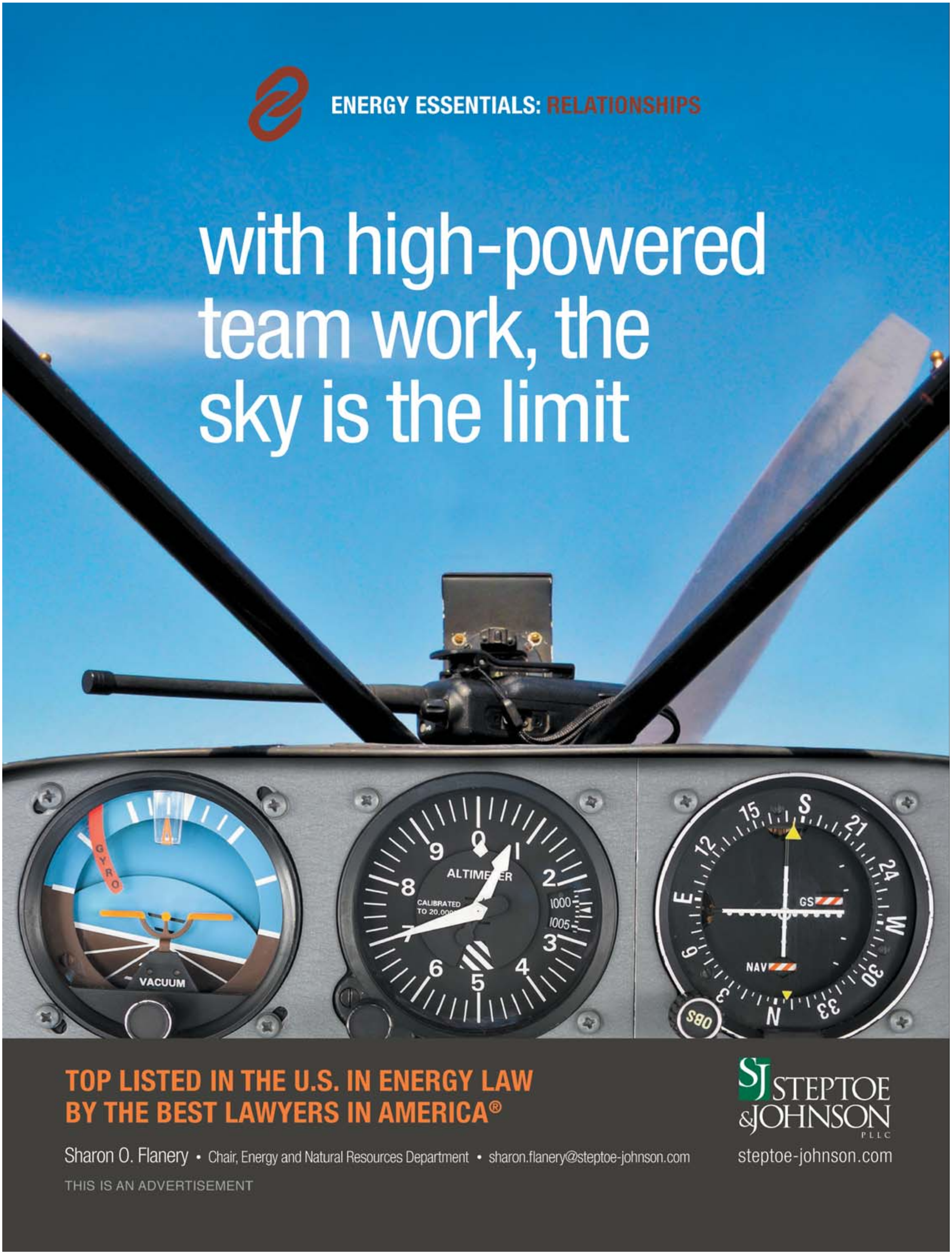
The *Sierra Club v. FERC* decision could also influence the broader discussion (beyond the NEPA context) about how climate change concerns play into agency decision making. The D.C. Circuit decision will likely continue to bolster environmental groups seeking to challenge industrial and commercial development in general. Unfortunately, the court did not address a growing concern in the regulated community about how far in time and space an agency may or must go when evaluating greenhouse gas emissions. Climate change is generally considered a global issue with long-term consequences. At what point will the inquiry end? ■

For additional information about developments described in this article, contact Brianne K. Kurdock at 202-853-3462 or bkurdock@babstcalland.com or Meredith Odato Graham at 412-773-8712 or mgraham@babstcalland.com.

Upcoming PIOGA Events

www.pioga.org > PIOGA Events

- **Annual Membership Meeting and Networking Reception, October 3, Mars**
- **PIOGATech: Air Quality Compliance Training October 12, Canonsburg**
- **Annual Oil & Gas Tax and Accounting Seminar November 30, location TBA**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Lightning safety

Safety Committee Corner

By Wayne Vanderhoof, CSP
RJR Safety, Inc.

In preparing an Emergency Action Plan (EAP), weather emergencies must be addressed for both outdoor and indoor activities. Weather emergencies include storms involving lightning, flooding, tornadoes, winter storms, and extreme heat and cold weather. This article will address the emergency procedures for workers in both outdoor and indoor areas to prepare for and conduct operations during storms involving lightning and thunder.

A thunderstorm is also known as an electrical storm, a lightning storm, thundershower or simply a storm having lightning and thunder. Thunderstorms are usually accompanied by strong winds, heavy rain and sometimes snow, sleet, hail or no precipitation at all.

Certain meteorological terms are used to provide alerts and warnings of potential storms. Generally, a Severe Thunderstorm *Watch* indicates when and where severe thunderstorms are likely to occur. A Severe Thunderstorm *Warning* is issued when severe weather has been reported by spotters or indicated by radar. Warnings indicate imminent danger to life and property to those in the path of the storm.

In the event of any storms with lightning or thunder, workers need to know how to plan, what to do and how to react to implement the provisions of an Emergency Action Plan.

The first thing is to monitor weather conditions when there is a potential for thunderstorms or heavy rain events. Weather forecasts should be specifically monitored by a supervisor or manager for Severe Thunderstorm Watches and Warnings. The monitoring is easy to do with technology and having weather alerts pushed to cell phones and other portable devices by the National Weather Service, commercial weather service apps and radio/TV stations. The monitoring also should be done by the onsite supervisor if there are large clouds, dark clouds, or if distant lightning is seen or faint thunder is heard. Due to the mobile workforce in construction, oil and gas, and similar industries, it is imperative that the information source you are monitoring is for your area.

If a Severe Thunderstorm Watch or Severe Thunderstorm Warning is issued, workers must know what to do and not wait for initial direction from a supervisor or manager. Actions such as just being prepared to cease operations and take cover when it (or if) it becomes necessary to do so. Workers must also be alert to thunder and lightning in the area and prepare to or secure outdoor objects that could blow away. Plans must be implemented for outdoor activities that should be suspended or postponed if there is a Severe Thunderstorm Warning.

Preparations must be made for ceasing outdoor operations. Because lightning can strike up to 10 miles from a storm, workers should seek safe shelter as soon as they hear thunder or see lightning. Outdoor operations should be stopped (ceased or suspended) when it is determined the approaching thunderstorm is 10 miles or less away from the job site. To determine the distance of an approaching storm from the job site, use a lightning meter or similar storm detection device or the Flash to Bang Method. Essentially, for every 5 seconds between a flash of lightning and the sound of thunder, the storm is 1 mile away.

Flash to Bang Method

If thunder is heard…	The lightning is…
5 seconds after a flash	1 mile away
10 seconds	2 miles
15 seconds	3 miles
20 seconds	4 miles
25 seconds	5 miles
30 seconds	6 miles
40 seconds	8 miles
50 seconds	10 miles

It is not a bad idea to post the Flash to Bang Method table on a bulletin board where it can be referenced quickly. It should be noted that "heat lightning" is lightning from a thunderstorm too far away for thunder to be heard. However, the storm may be heading toward the job site, so pay attention to the conditions and weather forecast and weather alerts. Lightning may precede rain; rain should not be the sign that operations should cease.

As soon as outdoor operations are stopped, ceased or suspended, personnel should take cover in a safe location, which includes fully enclosed buildings with electrical wiring and plumbing. If safe building structures are not accessible, workers are to seek shelter in hard-topped metal motor vehicles with rolled-up windows. Personnel should stay in this safe location for the duration of the storm and for 30 minutes after the last observed lightning flash or sound of thunder.

If outside without access to any safe locations described above, do what is necessary to decrease the risk of being struck by lightning by doing the following:

• Avoid isolated tall trees, hilltops, utility poles, cell phone towers, cranes, large equipment, ladders, scaffolding or rooftops.

• Avoid open areas such as fields. Never lie flat on the ground.

• Retreat to dense areas of smaller trees that are surrounded by larger trees, or retreat to low-lying areas (e.g., valleys, ditches), but watch for flooding.

• Avoid water, and immediately get out of and away from bodies of water (e.g., pools, lakes).

• Avoid wiring, plumbing and fencing. Lightning can travel long distances through metal.

• Stay away from all metal objects, equipment and surfaces that can conduct electricity.

• Do not shelter in sheds, pavilions, tents or covered porches, as they do not provide adequate protection from lightning.

When working indoors during a thunderstorm, the following

PIOGA safety training providers

An ongoing project of PIOGA's Safety Committee is maintaining a list of association members that provide safety training services. We've recently updated the list, and if you aren't familiar with it you may want to take a look.

The list can be downloaded from the Advocacy/Resources page of PIOGA's Members Only site. Scroll down to the file library under the Association Resource Material heading on that page. If your company provides safety training services and you are not on the list, or if your listing is outdated, please email Matt Benson at matt@pioga.org with the information.

We also invite any member company with an interest in safety to become a member of the Safety Committee. The group meets on the second Wednesday of every other month (next on October 11) at the Regional Leaning Alliance in Cranberry Township, just before the monthly meeting of the Environmental Committee. The Members Only area of our website tells more about what the committee does and how to become involved.

recommendations should be followed:

• Stay away from doors and windows.

• Do not use corded phones or headsets for phones. Cell phones and cordless phones may be used safely in a thunderstorm.

• Turn off and unplug appliances, computers, power tools or TVs.

• Avoid using plumbing. Plumbing fixtures can conduct electricity.

• Lightning may strike exterior electric lines, inducing shocks to inside equipment. Use a battery-operated radio for updates on the storm.

After the thunderstorm subsides and leaves the area, operations and other outdoor activities should not resume until 30 minutes after the last observed lightning or thunder.

A search for any missing individuals should not be done until 30 minutes after the last observed lightning or thunder. First aid/CPR should be provided per other sections in the Emergency Action Plan. As a point of reference, injured persons do not carry an electrical charge after being struck by lightning. Emergency medical services should be summoned, if necessary.

As with any serious emergency situation, management should be notified as quickly as possible whenever there has been an injury or substantial damage. It should be logged or documented that operations stopped and the length of the stop as well as the reason for the stoppage. This can be done on a daily work log or JSA or similar document. Emergency contact information and notification requirements are usually in a section at the beginning of the Emergency Action Plan.

Training should be conducted as workers are hired, as the EAP is developed initially, if the plan changes, if responsibilities in the plan change, if the plan does not seem to work effectively or if it seems that workers do not understand the plan. Drills can be conducted simply by asking the workers, specifically, "What would you do if there was a potential for a severe thunderstorm?" Their answers can serve as an assessment as whether they know what to do, what training the workers need or that the Emergency Action Plan needs to be updated and the workers retrained.

Planning for thunderstorms and following the preplanned Emergency Action Plan or Emergency Response Plan will make the working conditions safer because workers will know what to do and not have to wait for supervision to tell them initial directions or, worse, wonder what they are supposed to do while doing nothing to protect themselves. ■

The following references were used:

• OSHA fact sheet, "Lightning Safety When Working Outdoors," Publication 3863

• "The Science of Thunder," National Lightning Safety Institute, www.lightningsafety.com/nlsi_info/thunder2.html.

For more information on developing Emergency Action Plans or Emergency Response Plans, contact the author at wayne@rjrsafety.com.

10th Annual Appalachian Oil & Gas Conference tackles key Marcellus/Utica questions

Platts is holding its Annual Appalachian Oil & Gas Conference on October 23-24 at the DoubleTree by Hilton Hotel & Suites in Pittsburgh. Speakers will take on issues of critical interest to the industry, including:

Supply. How much natural gas and NGLs will the region produce? What are the efficiencies in use, the challenges, and the variation and ROI by play?

Markets. What is the domestic vs. international demand for natural gas and NGLs? What are the trends in LDC purchasing, and generation fuel switching

Infrastructure. What is the progress on pipeline, gathering, processing, fractionation and storage development? How are the challenges being met?

Speakers include leaders from:

• Upstream: Andrea Passman, CONSOL Energy; Alan Farquharson, Range Resources; and Steve Woodward, Antero Resources

• Midstream: Marc Halbritter, Blue Racer Midstream; Bobby Huffman, Enbridge Pipeline & Midstream; Jim Grech, Nexus Gas Transmission; Paolo Mastronardi, Union Gas Limited; and Taylor James, Williams Northeast Gathering and Processing

• LDC and generation buyers: John Rudiak, Connecticut Natural Gas & Southern Connecticut Gas; James G. Daly, Eversource Energy; and David F. Caffery, PSEG Energy Resources and Trade

And other key people who keep the industry working at peak:

• Robert L. Hagerich, Macquarie Capital USA (Inc.)

• Dave Spigelmyer, Marcellus Shale Coalition

• Steven Herling, PJM Interconnection

• Mike Reimers, Poten & Partners, Inc.

• Sameer Panjwani, Tudor Pickering Holt & Co.

• Eric Brooks, Andrew Neal and Jennifer Van Dinter, S&P Global Platts

• Brian J. Anderson, West Virginia University and WVU

Energy Institute

PIOGA members are entitled to a **$350 discount** off the standard registration fee. To take advantage of this opportunity, call 800-752-8878 or email registration@platts.com. Use priority code PD733PIOGA. ■

Gas production up 3% so far in 2017

Pennsylvania natural gas production grew to 1,315.7 Bcf during the second quarter of 2017, according to a report by the state's Independent Fiscal Office (IFO). That's an increase of 3.8 percent compared to the same period in 2016 and 3 percent for the current calendar year. The number of producing wells grew by 7.5 percent during the second quarter of this year.

Nearly all of the production gains came from wells spud during 2015 and 2016. Wells spud in those years comprised more than one quarter of total production during both Q2 2017 and the year to date. For wells spud in 2014 and earlier, production declined in the second quarter (-17.0 percent) and calendar year-to-date (-16.5 percent). Data in the report comes from the Department of Environmental Protection.

Among the other interesting findings in the IFO report:

• Looking at well spud each quarter beginning in 2011, the lowest point was reached in the second quarter of 2016 (72 wells). However, new horizontal wells spud have increased in each of the last four quarters, reaching 219 in Q2 of this year.

• Average production per well in 2016 was 1,290 MMcf, a cumulative increase of 98.2 percent since 2011. The majority of that growth occurred in 2014 and 2015. "This outcome was motivated by improved drilling technologies and efficiencies that allowed average production per well to increase dramatically in recent years," the report said.

• Four counties (Susquehanna, Washington, Bradford and Greene) comprised two-thirds of statewide production for 2017 to date. All counties except Greene and Lycoming registered production gains.

• Pennsylvania continues to be the nation's #2 producing state, yielding 2,245.8 Bcf for the first five months of 2017, compared to Texas's 3,184.1 Bcf. However, the Lone Star state's production was off by 7.8 percent so far in 2017, while Pennsylvania's grew by 2 percent. Among the top-10 producing states, West Virginia and Ohio had the largest proportional increases in production at 10.6 percent and 10.4 percent, respectively.

The report can be found at www.ifo.state.pa.us/Resources/Documents/NGPR-2017Q2.pdf. ■

Northeast natural gas liquid storage hub, a geologic investigation

By Joyce Turkaly
Director, Natural Gas Market Development

A state that has abundant natural resources yet simply extracts and exports those resources does very little to uplift tits economy and create jobs in the long term. Recognizing this, state officials in the Appalachian region are promoting future economic development opportunities within the plastics and chemical industry. According to the American Fueling and Petrochemical Manufacturers' website, ethylene is one of the most important chemicals in American manufacturing. Prior to the Marcellus and Utica shale development, this region was known as a consuming region; and as such, natural gas storage fields exist so that delivery and reliability of supply is assured. However, currently what we have overall as infrastructure and storage for gaseous fuels, we lack for natural gas liquids—specifically ethane.

The potential for using a portion of our overall natural gas and natural gas liquids within state borders is something that the Pipeline and Natural Gas Market Development Committee of PIOGA discusses regularly. We have hosted committee meetings where representatives of Pennsylvania Department of Community and Economic Development asked our pipeline members to consider interconnects for future needs. Considerations of downstream manufacturing is nothing new; however, if holding capacity on long-haul pipes can connect large producers to markets outside the state, what will alter this trend? The business case is rather clear, although one of the most important discussions and perhaps the catalyst for future manufacturing development is the liquid storage hub itself.

How to identify existing geological storage fields for a potential natural gas liquid storage facility and trading hub along a robust pipeline infrastructure network or route was the topic of a workshop hosted by the WVU Energy Institute, Eastern Petroleum Technology Transfer Council and Tri-State Shale Coalition on August 29. Individual storage formations and intervals of interest include the Greenbrier Limestone for subsurface mining; the Salina salt for the creation of cavities through brine extraction; and depleted gas fields and gas storage fields in sandstone reservoirs in the Lower Mississippian; Upper and Lower Devonian; Upper and Lower Silurian; Lower Ordovician as well as Upper Cambrian. The goal of the research team comprised of state geologic survey employees from Ohio, West Virginia and Pennsylvania was to complete a geologic study of *all potential options* for subsurface storage of NGLs along and adjacent to the Ohio River from southwest Pennsylvania to eastern Kentucky, with a similar study along the Kanawha River in West Virginia, the area of interest, or AOI.

From what I was told, under a tight timeline (12 months) the combined teamwork from the Appalachian Geological Survey group's preliminary assessment led to the conclusion that there are multiple storage opportunities for each category of storage container in the AOI. From an initial listing of over 2,500 sites, the team was able to rate a set of criteria developed for each type of storage container, field location and geologic interval whereby narrowing the prospects to a "short list" of the top 30 locations. The study database that went live on September 1 identifies such geologic potential and is available at www.wvgs.wvnet.edu. ■

Matching veterans with employers

Pittsburgh Hires Veterans is a small, 1½ -year-old nonprofit organization that helps connect former members of the military in the Pittsburgh region with employers, at no cost to either. Representatives of the group recently told PIOGA's Pipeline and Gas Market Development Committee that they want to serve as a conduit to the oil and gas industry for veterans whose skills could benefit the industry.

"We are simply trying to help veterans and employers," said the organization's director, Jack Wagner *(pictured above, left)*, a former Marine who earned a Purple Heart for service in Vietnam. Wagner also has served as president of Pittsburgh City Council, state senator and state auditor general.

Pittsburgh Hires Veterans' Jim Rossi *(above, right)* explained that their clients are highly skilled people who don't know what to do with their skills once they leave the service. PHV assesses their skills and determines where they might best fit in in the workplace. The organization's aim is to secure at least one interview for each participant.

For more about this worthy organization, visit www.pittsburghhiresveterans.com. ■

Divot Diggers 2017

The 20th Annual Divot Diggers Golf Outing, organized by and benefitting the work of PIOGA's Environmental Committee, was a fine day on the links. Clockwise from above: Ready to head out; your Environmental Committee chairs, Paul Hart and Ken Fleeman; a stylish foursome; checking out the prize cache. ***Mark your calendars for the 2018 event, August 23 at Tam O'Shanter Golf Course in Hermitage.***

RPSEA to initiate study to determine emissions profile of marginal wells

New data needed to replace modeled data used by EPA in developing methane rule

The Research Partnership to Secure Energy for America (RPSEA) is initiating a joint industry project with oil and gas industry partners to conduct and manage a real-world survey that will determine the precise levels of methane emitting from marginal wells.

RPSEA officials say the survey is needed to demonstrate if the contribution of methane emissions from marginal oil and gas wells is much lower than what the Environmental Protection Agency (EPA) has determined and used when it updated its New Source Performance Standards (NSPS) under former President Barack Obama.

As part of that rule, the EPA did not provide an expected exemption of marginal wells from leak detection and repair (LDAR) requirements, RPSEA says, consequently adding a significant economic burden to oil and gas producers, particularly those which are independent or smaller.

The need to complete this research, RPSEA says, was brought to light after the U.S. Court of Appeals for the D.C. Circuit last month ordered the EPA to lift a stay on the rule, reversing a Trump administration order to delay its implementation.

"The data that EPA used to develop this rule were assumptions, with limited accurate and defensible data from marginal wells to base this ruling," said RPSEA President Tom Williams. "It is absolutely imperative that we provide EPA with data that shows the accurate methane emissions contributions made by marginal wells."

The Independent Petroleum Association of America and U.S. Oil and Gas Association support the proposed study, and RPSEA will be working with their members, plus state and regional associations and member companies of both organizations, to conduct it. Work will commence when adequate funding is secured.

RPSEA has previously funded several projects on air emissions and is teaming up Houston Advanced Research Center, GSI Environmental Inc. and advisory teams from academia, industry and state and federal governments to perform this research and other RPSEA members to assure there will be broad local presence and expertise in the various regions of the study.

Marginal oil wells are those with an average production of no more than 15 barrels per day, those producing heavy oil or those wells producing not less than 95 percent water, with average production of not more than 25 barrels per day of oil. Marginal gas wells are those producing not more than 90 Mcf a day. There are more than 1.1 million oil and natural gas wells in the U.S., accounting for up to 20 percent of the U.S. oil production and about 13 percent of the U.S. natural gas production.

Founded in 2002, RPSEA is a nonprofit national consortium that provides focused research and development to deploy safe and environmentally sensitive technology that can deliver hydrocarbons from domestic resources to the citizens of the United States. Its membership consists of nine of the nation's premier research universities, five national laboratories, other major research institutions, large and small energy producers, and energy consumers. ■

Report highlights reliability and resilience of U.S. natural gas systems

By Seth Whitehead
Energy In Depth

A new Natural Gas Council (NGC) report highlights the exceptional reliability of U.S. natural gas systems. Examining various aspects of domestic natural gas systems, the report concludes that the robust safeguards and security protocols in place ensure that natural gas continues to be an abundant, highly reliable source of fuel in the U.S.

Thanks to advances in shale development—made possible by hydraulic fracturing and horizontal drilling—the report notes that production of natural gas has grown almost 30 percent since 2010, with government forecasts projecting a record of nearly 75 billion cubic feet per day by the end of this year.

With such significant production growth—and subsequent affordable prices—natural gas is increasingly relied upon for electricity generation. According to the U.S. Energy Information Administration (EIA), natural gas generators accounted for 42 percent of operating electricity generating capacity in the United States last year. Overall, natural gas provided over one third of electricity generation in 2016, making it the leading generation source in the U.S. The environmental benefits of natural gas have also played a role in its increased use, as the report states that over its lifecycle, natural gas emits only about half the carbon of other fossil fuels when burned, which has helped drive U.S. CO_2 emissions to their lowest levels since 1991.

In addition to abundance and environmental benefits, the reliability of natural gas is a major factor in its adoption as the fuel of choice for electricity generators and large-volume energy consumers. In terms of mitigating risks to supply, the NGC report concludes that potential physical disruptions are few and far between. As the report states:

> **"The physical operation of natural gas production, transmission and distribution make the system inherently reliable and resilient. Disruptions to natural gas service are rare.** When they do happen, a disruption of the system does not necessarily result in an interruption of scheduled deliveries of natural gas supplies because the natural gas system has many ways of offsetting the impact of disruptions." *(Emphasis added)*

Factors such as slower (and therefore more controlled) transportation speed of natural gas through pipeline and diverse geographical supply areas boosts the resiliency of natural gas systems by minimizing the impact of disruption from a single point along the chain. In fact, the report points out that there are currently more than a half million producing gas wells spread across 30 states. Moreover, the ability of natural gas to be effectively stored after production or being converted to liquefied natural gas (LNG) allow for greater control of the fuel's use and provides a vital cushion for users in case of potential disruption.

➔ Download the report:
www.ipaa.org/wp-content/uploads/2017/07/NGC-Reliable-Resilient-Nat-Gas-WHITE-PAPER-Final.pdf

These factors allow for natural gas systems to also be more resistant to extreme weather than electrical systems, as the report mentions: "For example, in 2016, fewer than 100,000 natural gas customers nationally experienced disruptions, while 8.1 million Americans experienced power outages."

Along with physical reliability, the report notes that natural gas providers are committed to protecting the entire natural gas supply chain from cybersecurity risks. Considered critical infrastructure, the industry partners with cybersecurity experts in the federal government on initiatives to promote risk awareness, share vital information and establish frameworks to minimize cyberattack risks. As the report states: "Just as with pipeline safety, natural gas utilities apply layers of resilience for cybersecurity by employing firewalls and other tools to improve the prevention, detection and mitigation of cyber penetration."

Barry Russell, President and CEO of Independent Petroleum Association of America, which leads the Natural Gas Council in 2017, summarized the report findings best, stating:

> "America's natural gas producers have led a revolution in unlocking the enormous energy potential from shale development. Independent producers account for 85 percent of American natural gas. The benefits of using this abundant, clean-burning resource have been significant: supply security, lower air emissions, reduction in electricity prices. Such benefits can and should continue with greater reliance on natural gas by electric generators. Given the reliability of the nation's producers, pipelines and distribution network, natural gas should remain an integral component of the electric generation portfolio. The findings in this study provide specific recommendations on how the electric industry can take full advantage of America's natural gas resources."

There are countless benefits to natural gas use for electricity generation and fuel. While the massive growth in U.S. production and benefits to air quality get the most attention, this report touches on a lesser discussed but equally important quality: reliability. Thanks to the inherent resilience of U.S. natural gas systems, coupled with industry efforts to manage potential risk, natural gas will be able to maintain its ever increasing share of the U.S. fuel mix for years to come. ■

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DEP approves water quality permits for Atlantic Sunrise Pipeline

The Department of Environmental Protection has approved the Chapter 105 and Chapter 102 permit applications for Transco's Atlantic Sunrise Pipeline Project. The pipeline will transport natural gas from northeast Pennsylvania to mid-Atlantic and southern states.

The project required Chapter 105 water obstruction and encroachment permits for each of the 10 counties the project crosses (Susquehanna, Luzerne, Schuylkill, Wyoming, Columbia, Northumberland, Lancaster, Lycoming, Clinton and Lebanon), as well as three Chapter 102 erosion and sediment control permit authorizations.

Transco is required to implement new protocols for alerting homeowners of activities near their homes and water supplies. In addition, Transco must offer to pre-test private water supplies along the pipeline route so that any impacts from construction can be quickly identified and remediated, DEP indicated.

An air quality plan approval for air emissions related to construction activities in Lancaster County is still under review by DEP, which has said there is no timeline for a decision.

Transcontinental Gas Pipe Line Company, LLC, the operator of the pipeline, will require approval from the Federal Energy Regulatory Commission to begin construction. ■

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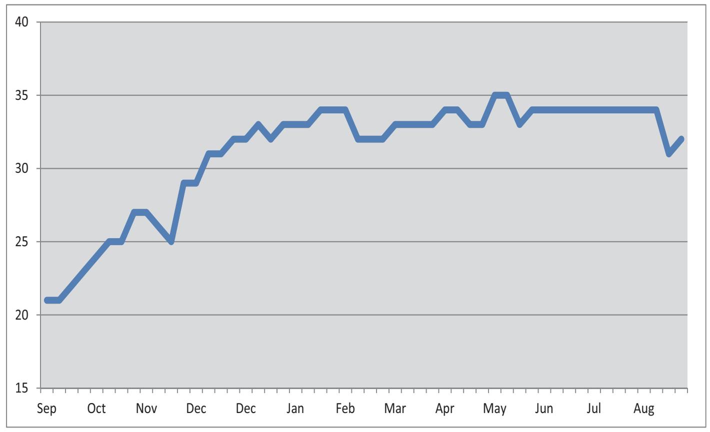
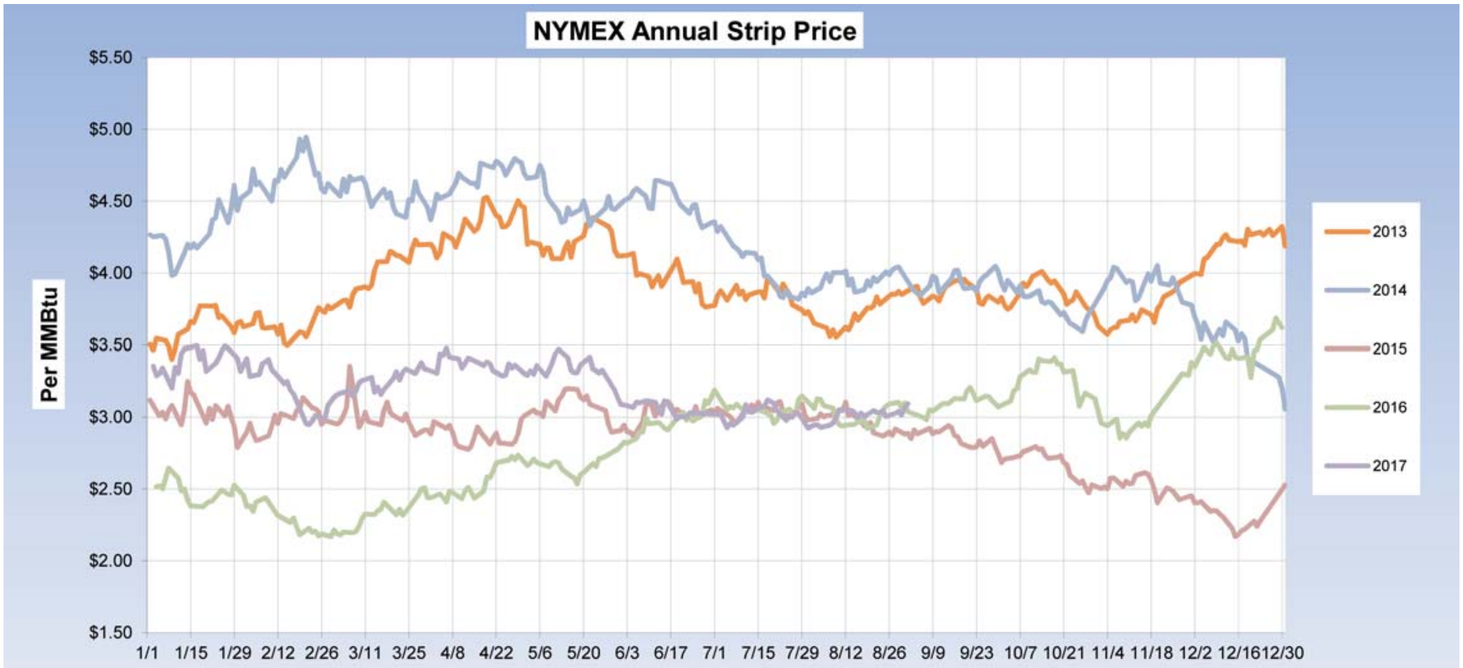
Oil & Gas Trends

Pennsylvania Rig Count



Sources
American Refining Group: www.amref.com/Crude-Prices-New.aspx
Ergon Oil Purchasing: www.ergon.com/prices.php
Gas futures: quotes.ino.com/exchanges/?r=NYMEX_NG
Baker Hughes rig count: phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-reportsother
NYMEX strip chart: Emkey Energy LLC, emkeyenergy.com

Penn Grade Crude Oil Prices



Natural Gas Futures Closing Prices

Month	Price
October 2017	$3.008
November	3.075
December	3.216
January 2018	3.322
February	3.319
March	3.269
April	2.931
May	2.893
June	2.919
July	2.946
August	2.949
September	2.927

Prices as of September 7

Spud Report: August

The data show below comes from the Department of Environmental Protection. A variety of interactive reports are available at www.dep.pa.gov/DataandTools/Reports/Oil and Gas Reports.

The table is sorted by operator and lists the total wells reported as drilled last month. **Spud** is the date drilling began at a well site. The **API number** is the drilling permit number issued to the well operator. An asterisk (*) after the API number indicates an unconventional well.

OPERATOR	WELLS	SPUD	API #	COUNTY	MUNICIPALITY
Bull Run Energy LLC	1	8/2/2017	053-30833	Forest	Howe Twp
Cameron Energy Co	2	8/4/2017	123-48044	Warren	Sheffield Twp
		8/17/2017	123-48089	Warren	Sheffield Twp
Chief Oil & Gas LLC	4	8/15/2017	015-23334*	Bradford	Asylum Twp
		8/15/2017	015-23335*	Bradford	Asylum Twp
		8/15/2017	015-23336*	Bradford	Asylum Twp
		8/28/2017	015-23316*	Bradford	Leroy Twp
CNX Gas Co LLC	1	8/11/2017	063-37522*	Indiana	N Mahoning Twp
Elder Oil & Gas Co	1	8/9/2017	031-25694	Clarion	Perry Twp
EQT Production Co	11	8/22/2017	003-22448*	Allegheny	Forward Twp
		8/1/2017	125-28156*	Washington	Amwell Twp
		8/1/2017	125-28214*	Washington	Amwell Twp
		8/14/2017	125-28289*	Washington	Carroll Twp
		8/3/2017	125-28048*	Washington	East Finley Twp
		8/3/2017	125-28039*	Washington	East Finley Twp
		8/3/2017	125-28036*	Washington	East Finley Twp
		8/3/2017	125-28037*	Washington	East Finley Twp
		8/3/2017	125-28049*	Washington	East Finley Twp
		8/3/2017	125-28045*	Washington	East Finley Twp
		8/3/2017	125-28046*	Washington	East Finley Twp
Mead Oil LLC	3	8/23/2017	123-48066	Warren	Cherry Grove Twp
		8/31/2017	123-48070	Warren	Cherry Grove Twp
		8/15/2017	123-48065	Warren	Sheffield Twp
PA Gen Energy Co LLC	1	8/15/2017	081-21686*	Lycoming	Plunketts Crk Twp
Range Resources Appalachia	8	8/2/2017	125-28218*	Washington	Robinson Twp
		8/18/2017	125-28228*	Washington	Somerset Twp
		8/18/2017	125-28414*	Washington	Somerset Twp
		8/18/2017	125-28224*	Washington	Somerset Twp
		8/21/2017	125-28227*	Washington	Somerset Twp
		8/22/2017	125-28225*	Washington	Somerset Twp
		8/22/2017	125-28226*	Washington	Somerset Twp
		8/22/2017	125-28229*	Washington	Somerset Twp
RE Gas Dev LLC	2	8/15/2017	019-22597*	Butler	Center Twp
		8/15/2017	019-22596*	Butler	Center Twp
Repsol Oil & Gas USA LLC	8	8/14/2017	015-23295*	Bradford	Columbia Twp
		8/15/2017	015-23288*	Bradford	Columbia Twp
		8/15/2017	015-23289*	Bradford	Columbia Twp
		8/15/2017	015-23290*	Bradford	Columbia Twp
		8/15/2017	015-23291*	Bradford	Columbia Twp
		8/15/2017	015-23292*	Bradford	Columbia Twp
		8/15/2017	015-23293*	Bradford	Columbia Twp
		8/15/2017	015-23294*	Bradford	Columbia Twp
Rice Drilling B LLC	10	8/10/2017	059-27285*	Greene	Franklin Twp
		8/10/2017	059-27289*	Greene	Franklin Twp
		8/11/2017	059-27286*	Greene	Franklin Twp
		8/11/2017	059-27287*	Greene	Franklin Twp
		8/11/2017	059-27288*	Greene	Franklin Twp
		8/14/2017	059-27280*	Greene	Franklin Twp
		8/14/2017	059-27284*	Greene	Franklin Twp
		8/15/2017	059-27281*	Greene	Franklin Twp
		8/15/2017	059-27282*	Greene	Franklin Twp
		8/15/2017	059-27283*	Greene	Franklin Twp
Seneca Resources Corp	8	8/24/2017	081-21676*	Lycoming	Eldred Twp
		8/24/2017	081-21677*	Lycoming	Eldred Twp
		8/25/2017	081-21648*	Lycoming	Eldred Twp
		8/25/2017	081-21674*	Lycoming	Eldred Twp
		8/26/2017	081-21675*	Lycoming	Eldred Twp
		8/26/2017	081-21649*	Lycoming	Eldred Twp
		8/26/2017	081-21678*	Lycoming	Eldred Twp
		8/26/2017	081-21679*	Lycoming	Eldred Twp
SWN Production Co LLC	5	8/18/2017	081-21689*	Lycoming	Jackson Twp
		8/19/2017	081-21691*	Lycoming	Jackson Twp
		8/20/2017	081-21631*	Lycoming	Jackson Twp
		8/15/2017	117-21906*	Tioga	Liberty Twp
		8/15/2017	117-21803*	Tioga	Liberty Twp
Whilton Brooks A	1	8/1/2017	123-48096	Warren	Glade Twp

	August	July	June	May	April	March
Total wells	**66**	**83**	**84**	**67**	**92**	**85**
Unconventional Gas	58	72	67	60	90	71
Conventional Gas	0	0	0	0	0	0
Oil	8	10	16	7	2	14
Combination Oil/Gas	0	1	1	0	0	0

2017 High Horsepower Summit

Registration is open for the 2017 Natural Gas for High Horsepower Summit, taking place November 6-9 in Jacksonville, Florida. The event will convene industry leaders from the E&P, marine, mining, rail and power gen sectors.

This is an exciting event for our industry, as transformative growth has swept the North American natural gas market over the past 12 months. New LNG plants are coming online, and LNG and CNG projects are hitting the water, tracks, and gravel month-after-month. Market momentum is ramping up!

Learn more at www.hhpsummit.com.

Calendar of Events

PIOGA Events

PIOGATech: Tips, Tools, and Strategies for Completing a Comprehensive Root Cause Accident Investigation
September 14, RJ Lee Group Office, Southpointe/Canonsburg

Annual Membership Meeting and Networking Reception
October 5, DoubleTree Pittsburgh/Cranberry

PIOGATech: Air Quality Compliance Training
CONSOL Energy Headquarters, Canonsburg

Tax & Accounting Seminar
November 30, location TBA

Industry events

Interstate Oil and Gas Compact Commission Annual Conference
October 1-3, Sheraton Station Square,Pittsburgh
Info: iogcc.ok.gov/general-information1

MSC Transportation Safety Day and Flagger Training Certification
October 18, Hilton Garden Inn, Canonsburg
Info: marcelluscoalition.org/get-involved/training-and-events

Platts 10th Annual Appalachian Oil & Gas Conference
October 23-24, DoubleTree Pittsburgh Downtown
Info: www.platts.com/events/americas/appalachian-oil-and-gas/index

OOGA Technical Conference and Oilfield Expo
November 1-2, Pritchard Laughlin Civic Center, Cambridge, OH
Info: oogatechexpo.com

IOGANY Annual Fall Luncheon
November 2, Holiday Valley Resort, Ellicottville, NY
Info: www.iogany.org/events.php

IPAA Annual Meeting
November 8-10, The Ritz-Carlton, Naples, FL
Info: www.ipaa.org/meetings-events

➔ **More events: www.pioga.org**

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115 VIP Drive, Suite 210, Wexford, PA 15090-7906
724-933-7306 • fax 724-933-7310 • www.pioga.org

Harrisburg Office (Kevin Moody)
212 Locust Street, Suite 300, Harrisburg, PA 17101
717-234-8525

Northern Tier Office (Matt Benson)
167 Wolf Farm Road, Kane, PA 16735
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