

**2018**



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# **Eastern Gas Compression Roundtable**

**May 22-24, 2018  
David L. Lawrence Convention Center  
Pittsburgh, PA**

**[www.EGCR.org](http://www.EGCR.org)**

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### Volunteers Wanted

The EGCR has an all-volunteer Board of Directors that meets 3 times per year to plan the annual Roundtable and promote the common business interests of those engaged in the natural gas and energy related industries. Volunteers are needed to assist in leadership and committee positions and to provide input for future direction.

To continue the excellent work of the EGCR, we encourage you to consider getting involved! Visit our website to sign up and choose a committee you would like to join and you will be contacted by the Committee Chairman. Thank you for supporting the EGCR!

**On behalf of the EGCR Board of Directors, we would like to welcome you to the 46th Annual Eastern Gas Compression Roundtable and thank everyone for their support.**

As we’ve watched and been excited to see the EGCR grow in both attendance and offerings each year, we are equally excited to watch the growth and innovation in the industry itself. As a volunteer organization, we believe that everyone involved in the EGCR — from vendors to members and attendees — possesses the spirit to work together for our combined mutual benefit. It’s an especially exciting time thanks to improving technology and all of the energy available locally and throughout North America.

As we prepare to offer three days of unparalleled training, know that the EGCR is grateful for the continued support we receive from a vast group of great companies. We hope that you will make an opportunity to thank those companies and join them in their efforts.

**EGCR  
is  
your  
organization**

The EGCR is a non-profit organization that strives to provide quality training to all facets the Natural Gas Industry. As an organization, it is our goal each year to improve the quality and variety of our training.

Over the years we have developed our own programs and topics and have evolved to become more instructional focused to aid attendees in the performance of their duties and to become a better educational tool for attendees. Additionally, many of the instructors are employees with the Natural Gas companies we serve. These individuals bring a wealth of both experience and expertise to our sessions.

Interested in getting involved? EGCR is your organization. We encourage member participation in planning the future of the EGCR and hope you will consider volunteering. Write to us or stop by the registration desk at the Roundtable for more information.

Thank you for attending the 2018 EGCR!

## 46TH ANNUAL EASTERN GAS COMPRESSION ROUNDTABLE

### Schedule of Events

#### MONDAY, MAY 21, 2018

11:00am - 12:00pm	Golf Tournament Registration Quicksilver Golf Club
12:00pm	Shotgun Start @ Quicksilver Golf Club
6:00pm - 8:00pm	Welcome Reception at Bill's Bar & Burger (Everyone Welcome!)

#### TUESDAY, MAY 22, 2018

8:30am - 6:00pm	Registration
8:30am - 11:15am	Exhibits Open
11:15am - 11:40am	Lunch Buffet in Exhibit Hall C (Exhibit Hall Closed)
11:40am - 12:55pm	Keynote Address in Exhibit Hall C (Exhibit Hall Closed)
1:00pm - 4:10pm	Seminars
1:00pm - 6:00pm	Exhibits Open Reception in Exhibit Hall
6:00pm - 8:30pm	Shuttle To/From the Carnegie Science Center
6:30pm - 8:00pm	Reception - Carnegie Science Center

#### WEDNESDAY, MAY 23, 2018

8:00am - 4:10pm	Seminars
11:00am - 5:30pm	Exhibits Open / Lunch in Exhibit Hall
1:00pm - 4:00pm	Seminars
4:00pm - 5:30pm	Reception / Exhibit Hall

#### THURSDAY, MAY 24, 2018

8:00am - 11:10am	Seminars
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### Annual Golf Outing

#### MONDAY, MAY 21, 2018

The annual Golf Outing is an opportunity to join your colleagues, customers and friends for an afternoon of socializing, networking and fun. Participation is open to all, whether an industry veteran or newcomer, including vendors, buyers, friends and family members. Fees include green fees, bag handling, carts, lunch and prizes.



# CARNEGIE SCIENCE CENTER

### Carnegie Science Center Reception

#### TUESDAY, MAY 22, 2018

6:30PM – 8:00PM | \$15.00

Explore hands-on robotics, challenge a robot to a game of air hockey or take your picture with replicas of some of Hollywood's most famous robots such as Gort, HAL 9000 and C-3PO. It's the ultimate robot gathering!

Complimentary transportation will be available from the David Lawrence Convention Center to/from the Carnegie Science Center between 6:00pm-8:30pm. Tickets available for purchase at the EGCR Registration Desk.

## Keynote Address

11:40am – 12:55pm

Exhibit Hall C

**WHAT GOT US HERE... WILL GET US THERE!**

**CLIFF BAKER, SVP MIDSTREAM FIELD OPERATIONS  
EQT MIDSTREAM**



Like many in the industry, Cliff Baker worked his way through the ranks at EQT Corporation. During the 80s mowing grass, rebuilding compressor engines, painting... you name it, he did it! By 1991, he was elevated to Team Leader over various field assets, pipelines and compressor stations. Recognizing that education could fast track his proven leadership abilities, Baker enrolled in Duquesne

University where he graduated Cum Laude in 1996 and went on to earn an MSLBE in 2004. A year later he was advanced to Manager of Gas Control and experienced a series of promotions and increased responsibility, to the position of Director of Commercial Operations then Vice President of the same division. He was then promoted to Sr. Vice President of Gas Management and Transportation. Currently he holds the position of Senior Vice President of Midstream Field Operations. It is evident Cliff gained the respect of his peers on every level but he also brings a wealth of hands-on experience and career success that inspires positive performance from his team members.

## Passport and P.E. Professional Development Hours

PASSPORT will be used to record your attendance in each class session available from Tuesday - Thursday.

1. Have the Classroom Monitor stamp your Passport as you exit each class session.
2. Print your name on your Passport, add up your hours, and check the box for Certificate of Completion or PDHs.
3. Turn in your completed PASSPORT at the Registration Desk on Thursday to receive the appropriate paperwork.



\* EGCR classes are typically one and a half hour in length. A 1-1/2 hour class will equate to 1.5 PDHs. A full day course (8am – 5pm with 1-hour for lunch) will equate to 8 PDHs.

## Code of Conduct

Vendors, attendees and anyone associated with the EGCR are expected to conduct themselves in a professional manner at the EGCR including on the vendor hall floor, during meetings, events, classes and in any correspondence associated with EGCR business. In addition, the EGCR does not tolerate any form of harassment towards anyone male or female, including unwelcome sexual advances, requests for sexual favors, offensive comments or other types of verbal or physical harassment.

Any person associated with the EGCR, doing business with the EGCR or attending an EGCR event who engages in such activity may be removed from the event and potentially banned from future attendance. Anyone who believes he or she has been the target of harassment, sexual or otherwise, is asked to inform the offender that such behavior is not tolerated and must stop immediately. Failures to do so should be reported to the Executive Director or the Board Chairman.



## Forty-six Years of Volunteer Service Dedicated to the Eastern Gas Compression Roundtable

### HISTORY

On April 20, 1972, a meeting was held at the Lakeview Country Club in Morgantown, WV by a group of men representing various companies operating natural gas compressors, product manufacturers and representatives supplying the industry, and representatives of West Virginia University. This group determined that the formation of a Gas Compression Roundtable for the Eastern United States would be of value. As a matter of procedure, the group became the General Committee for the formation of such an organization and adopted the name Eastern Gas Compression Roundtable.

The General Committee concluded that the area to be serviced by the Roundtable would include principally that portion of the United States East of the Mississippi River and eastern Canada. The General Committee also voted that the Eastern Gas Compression Roundtable be hosted and held at West Virginia University.

The first Roundtable was held May 16-18, 1973 on the Evansdale Campus of West Virginia University in cooperation with the College of Mineral Energy Resources. The "roundtable" discussion format was utilized with group discussions on eleven selected topics of interest.

A member of the industry served as discussion leader in each session with manufacturing and/or service organization representatives serving as resource leaders. Attendance of 341 people representing more than 100 companies was recorded. With this base to grow on, the roundtable continues to expand and now includes lectures and hands on workshops. Attendance has exceeded 1,000 with people from all over the country and even some foreign attendees.

In 1999, the General Committee voted to move the Eastern Gas Compression Roundtable to Robert Morris University, Moon Township, PA.

### PURPOSE

To provide opportunities for persons in the gas compression and related industries to add to their knowledge of the operation and maintenance of compression units and related equipment. This conference has been enhanced to offer learning opportunities for personnel in the following areas: Engineering, Purchasing, Gas Control, Automation & Controls, Management, Safety & Environmental and Human Resources.

## 2018 BOARD OF DIRECTORS

### CHAIRMAN

Tom Coyne, Hi-Tech Compressor & Pump Products, Inc.

### VICE CHAIRMEN

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Walter Sloan, Sloan Lubrication Systems

### SECRETARY

Keith Sauter, Interstate-McBee

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### PROGRAM VICE CHAIRMAN

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Mike Salmons, Biffinger Westcon

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### DIRECTOR

Matt McCarthy, Sloan Lubrication Systems

### DIRECTOR

Randy McDonald, Potemkin Industries

### EXECUTIVE DIRECTOR

Joyce Perhac, Foxfire Management

## Chairman's Choice Award

This annual award honors the outstanding participation of individuals and companies that have supported the EGCR.

2002	Columbia Gas Transmission Corp.
2003	Dominion Transmission, Inc.
2004	Equitable Resources
2005	National Fuel
2006	Equitable Production
2007	Columbia Gas Transmission Corp.
2008	Walter Sloan, Sloan Brothers Company
2009	Ariel Corporation
2010	David B. Kerr, Kerr Engineered Sales
2011	Keith Schafer, Columbia Gas Transmission
2012	ACI Services, Inc.
2013	Richard Lynch, Dominion   Jay Jackson, EQT
2014	Vic Campanelli, Potemkin Industries
2015	Matthew McCarthy, Sloan Lubricants
2016	Keith Sauter, Interstate-McBee
2017	Doug Kuzma, Black Box Corporation

## Emeritus/Honorary Membership

Applegate, Rodney S. (*Crestview Consulting*)  
 Barr, Jim (*Matthews Lubricants*)  
 Bench, Bill  
 Boulden, Richard (Deceased)  
 Gregg, James E.  
 Kerr, Arthur J. (*Kerr Engineered Sales Company*)  
 Moulton, Bob  
 Sloan, John (Deceased) (*Sloan Brothers Company*)  
 Tillman, Jack M. (Deceased) (*Tillman Technical Sales*)  
 Walker, Bruce (*Cook Compression*)

## General Chairman

1973	Edward S. Swartz	Consolidated LNG
1974	Edward S. Swartz	Consolidated LNG
1975	Edward S. Swartz	Consolidated LNG
1976	Rodney S. Applegate	Consolidated LNG
1977	John Sloan	Sloan Brothers
1978	I. C. Miller	Kansas Power & Light
1979	Paul A. Stoerker	P.C. McKenzie Co.
1980	Joseph E. Klinger	National Gas Supply
1981	James N. Schoenthal	Ingersoll-Rand
1982	Don E. Gasser	East Ohio Gas Co.
1983	Charles V. Clarkson	Columbia Gas Transmission
1984	James E. Gregg	Tennessee Gas Pipeline
1985	Glenn E. Poole	Equitable Gas
1986	Earl J. Jacob, Jr.	Gerhardt's Inc.
1987	Richard A. Boulden	M. A. Boulden Associates
1988	James T. Barr	Equitable Gas
1989	Arthur J. Kerr	Kerr Engineered Sales
1990	Mike Kasprzak	National Fuel Gas Supply
1991	Walter R. Sloan	Sloan Brothers
1992	William G. Runyan	Peoples Natural Gas
1993	Jack Tillman	Tillman Technical Sales
1994	Bob Lersch	Clark Filter Sales
1995	Gary G. Martin	Dynalco Controls
1996	Bill Bench	Tennessee Gas Pipeline
1997	Allen Larabee	Turbine Specialties, Inc.
1998	John J. Harper	Columbia Gas Transmission
1999	Lee Ann Wolfe	Union Carbide
2000	Ron Bretschneider	Williams Pipeline Co.
2001	Michael G. Haberman	BCMJ Group
2002	Clifford W. Baker	Equitrans, Inc.
2003	Jay M. Jackson	BCMJ Group
2004	Jeff S. Barna	Columbia Gas Transmission
2005	David B. Kerr	Kerr Engineered Sales Co.
2006	Kevin L. Einhaus	Exline, Inc.
2007	Andy Schubert	Cameron
2008	Ron Griffin	Equitrans, Inc.
2009	Jay Jackson	EQT
2010	Joe Reiheld	ACI Services, Inc
2011	Joe Reiheld	ACI Services, Inc
2012	David B. Kerr	Kerr Engineered Sales Co.
2013	Bruce Walker	Cook Compression
2014	Bob Painter	ACI Services, Inc.
2015	Bill Runyan	Dresser-Rand
2016	Bobbi Pethtel	Matthews Lubricants, Inc.
2017	Tom Coyne	Hi-Tech Compressor & Pump Products, Inc.
2018	Tom Coyne	Hi-Tech Compressor & Pump Products, Inc.

## Sponsors

Sincerest thanks to our sponsors.

# Solar<sup>®</sup> Turbines

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## CLASS DESCRIPTIONS

### Entry Level Compressor Station Operator Training

**Classroom: 311**

*\$350 per student includes EGCR registration fee, meals and exhibits (12 hours)*

**Topic Chairman: Jay Jackson, EQT**

*All classes taught by Jay Jackson and Steve Hower, EQT*

#### TUESDAY

**SESSION 1** **1:00 – 2:30**  
**COMPRESSOR STATIONS AND THEIR FUNCTIONS**

**SESSION 2** **2:40 – 4:10**  
**COMPRESSOR STATION EQUIPMENT AND YARD PIPING**

#### WEDNESDAY

**SESSION 3** **8:00 – 9:30**  
**AUXILIARY SYSTEMS AND EQUIPMENT**

**SESSION 4** **9:40 – 11:10**  
**OPERATING CHARACTERISTICS OF RECIPROCATING AND CENTRIFUGAL COMPRESSORS**

**SESSION 5** **1:00 – 2:30**  
**DESIGN CHARACTERISTICS OF PRIME MOVERS**

**SESSION 6** **2:40 – 4:10**  
**FACTORS BASIC TO RECIPROCATING COMPRESSOR OPERATION**

#### THURSDAY

**SESSION 7** **8:00 – 9:30**  
**CHARACTERISTICS OF THE PRIMARY EQUIPMENT IN A COMPRESSOR STATION**

**SESSION 8** **9:40 – 11:10**  
**RECIPROCATING COMPRESSOR COMPONENTS AND CYLINDER OPERATION**

## Auxiliary Equipment/Filtration

**Classroom: 323**

*Included in Registration Price of \$195*

**Topic Chairman: Bill Couch, Parker Hannifin Corp.**

#### TUESDAY

**SESSION 1** **1:00 – 2:30**  
**STARTUP & GENERAL MAINTENANCE FOR AIR COOLED HEAT EXCHANGERS**

*Kendal Barber, Smithco Engineering*

**SESSION 2** **2:40 – 4:10**  
**GAS HEATING EQUIPMENT DESIGN**

*Daniel Huffaker, Total Products Services*

#### WEDNESDAY

**SESSION 3** **8:00 – 9:30**  
**STARTUP & GENERAL MAINTENANCE FOR AIR COOLED HEAT EXCHANGER**

Class will provide general startup guidelines and maintenance for air cooled heat exchangers.

*Kendal Barber, Smithco Engineering*

**SESSION 4** **9:40 – 11:10**  
**KEEPING CONTAMINANTS OUT OF YOUR NATURAL GAS COMPRESSORS, PROCESSING FACILITIES, METER RUNS AND PIPELINES**

This two session class will take a deep dive into natural gas filtration. We will first look into how natural gas contaminants have changed over time with the ever increasing coal seam gas and shale play gas mixed with the more traditional dry natural gas and associated natural gas streams. We will look at other factors affecting the movement of contaminants such as deregulation of natural gas, interstate natural gas pipeline nomination timelines, dry low NOx combustion systems, enhanced pipeline pigging and pipeline flow reversals. Next, we will investigate particulate size and types of contaminants and how they affect natural gas filtration and separation technologies. We will then discuss natural gas filtration and separation technologies upstream and downstream of compressor stations, meter runs and processing facilities. Lastly, we will look at several case studies of natural gas filtration, what worked and what didn't work, and more importantly, why.

*Bill Couch, Parker Hannifin*

**SESSION 5** **1:00 – 2:30**  
**KEEPING CONTAMINANTS OUT OF YOUR NATURAL GAS COMPRESSORS, PROCESSING FACILITIES, METER RUNS AND PIPELINES CONTINUED**



**SESSION 6** **2:40 – 4:10**  
**GAS HEATING EQUIPMENT MAINTENANCE**  
*Daniel Huffaker, Total Products Services*

**THURSDAY**

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**SESSION 7** **8:00 – 9:30**  
**NO SESSION**

**SESSION 8** **9:40 – 11:10**  
**NO SESSION**

## Compressor Maintenance

**Classroom: 324**

*Included in Registration Price of \$195*

**Topic Chairman: Jacob Shackelford, Ariel Corporation**

**TUESDAY**

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**SESSION 1** **1:00 – 2:30**  
**COMPRESSOR THEORY**

This class will cover the basic theory and formulas on how reciprocating compressors work and their basic components.

*Randy Dal Molin, Hoerbiger*

**SESSION 2** **2:40 – 4:10**  
**RECIP COMPRESSOR PACKING, VENTS AND DRAINS**

A discussion on reciprocating compressor packing design, function, and troubleshooting as well as their associated vent and drain systems on compressor packages.

*Paul Cook, Cook Compression*

**WEDNESDAY**

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**SESSION 3** **8:00 – 9:30**  
**RECIP COMPRESSORS, PROTECTION AND CONDITION MONITORING**

This course describes the sensors required for protection and condition monitoring of reciprocating compressors, and the information those sensors provide. This includes a description of the various plots used in compressor diagnostics.

*Charles 'Chuck' Jenkins, Bently Nevada, a BHGE Company*

**SESSION 4** **9:40 - 11:10**  
**TROUBLE SHOOTING SCREW COMPRESSORS**

This class is for anyone that is running or working on a screw compressor. We will be learning about how the screw compressor works and how to get the best runtime with least amount of problems.

*Lee Levisay, The PROS Company*

**SESSION 5** **1:00 - 2:30**  
**ROUNDTABLE DISCUSSION**  
**COMPRESSOR MAINTENANCE FRAMES & COMPONENTS**

**SESSION 6** **2:40 – 4:10**  
**ROUNDTABLE DISCUSSION**  
**CYLINDERS & COMPONENTS**

**THURSDAY**

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**SESSION 7** **8:00–9:30**  
**COMPRESSOR VALVE SHORT COURSE, PART 1**

Topics will include Basics of compressor valve operation; Description of poppet, plate, and ring valves; Compressor valve selection process; Repair and reconditioning; and Valve failure analysis with case studies

*Patrick Taylor, Hoerbiger,  
 Steve Chaykosky, Dresser-Rand/Siemens*

**SESSION 8** **9:40 – 11:10**  
**COMPRESSOR VALVE SHORT COURSE, PART 2**

See above for class description.

*Patrick Taylor, Hoerbiger,  
 Steve Chaykosky, Dresser-Rand/Siemens*

## Electrical and Ignition Equipment

**Classroom: 325**

*Included in Registration Price of \$195*

**Topic Chairman: David Davenport, FW Murphy**

**TUESDAY**

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**SESSION 1** **1:00 – 2:30**  
**ROUNDTABLE DISCUSSION**  
**IGNITION SYSTEMS**

A brief review of today's modern ignition systems components, function and operation, followed by an open "roundtable" discussion with class participant's questions being fielded by a panel of industry experts.

*Michael Porter, Paul McHenry, Hoerbiger/Altronic Pat Runnels,  
 Darrell Schmitt, FW Murphy Prod Controls Robert Virchow,  
 Mark Skidmore, Motortech*

**SESSION 2** **2:40 – 4:10****SPARK PLUGS & IGNITION ACCESSORIES**

Presentation on spark plugs and ignition accessories, including proper uses of each, analysis of spark plugs and accessory components, and troubleshooting. Open discussion about spark plug and ignition accessory related issues on engines.

*Ken Blanchard, Stitt, Charles Chewning, Champion,  
Alain LeFloch, BG Services*

**WEDNESDAY****SESSION 3** **8:00 – 9:30****SAFETY INSTRUMENTED SYSTEMS SOLUTIONS FOR SIL COMPLIANCE**

Session will focus on the basics of SIS; sorting out the complexity of safety instrumented functions, safety integrity level and safe failure fractions. Formulating a simple solution for safety solutions in pressure and temperature.

*Scott Pierce, United Electronics Controls*

**SESSION 4** **9:40 - 11:10****EICS - ENGINE INTEGRATED CONTROL SYSTEM**

Gone are the days of the "one size fits all" approach of separate components that led to tedious setups and "dialing in" procedures. "EICS" represents a fresh, OEM-like, integrated approach to aftermarket engine control within the stationary natural gas engine market.

*Pat Runnels, Darrell Schmitt, FW Murphy Production Controls*

**SESSION 5** **1:00 - 2:30****ELECTRICAL HAZARDOUS AREA CLASSIFICATION**

Hazardous Area Classification is a method of analyzing and classifying the environment where explosive gas atmospheres may occur to allow the proper selection of electrical apparatus to be installed in that environment. The class will focus on natural gas facilities.

*George Samo, EQT*

**SESSION 6** **2:40 – 4:10****BACK TO BASICS - RICE COMPLIANCE THROUGH BASIC MAINTENANCE**

*Pat Runnels, FW Murphy Production Controls*

**THURSDAY****SESSION 7** **8:00-9:30****INSTRUMENTATION & CONTROLS TROUBLESHOOTING PART 1**

Review of basic electricity, fundamentals of troubleshooting, familiarization with documentation, effective troubleshooting practices, hazardous area information, troubleshooting controllers and control panels.

*Raymond Carr, FW Murphy Production Controls*

**SESSION 8** **9:40 – 11:10****INSTRUMENTATION & CONTROLS TROUBLESHOOTING PART 2**

Review of basic electricity, fundamentals of troubleshooting, familiarization with documentation, effective troubleshooting practices, hazardous area Information, troubleshooting controllers and control panels.

*Raymond Carr, FW Murphy Production Controls*

**Environmental Health and Safety****Classroom: 326**

*Included in Registration Price of \$195*

**Topic Chairman: Larry Guess, PIC Appalachia**

**TUESDAY****SESSION 1** **1:00 – 2:30****HAZARDS WITH STORAGE TANKS / SAFE SOLUTIONS IN OPERATIONS**

This seminar presents information on oil and gas storage tanks and the hazards posed to the environment and human health. The content includes the most recent field data captured by the National Institute of Occupational Safety and Health (NIOSH) as found in the oil and gas shale locally and nationally over the past decade. The class is designed to show real world hazards and present engineering solutions to reduce or eliminate exposure. Engineering solutions include Tank level sensors, Enardo ventilation equipment, and vapor recovery units.

*Brandon Bajek, ECI*

**SESSION 2** **2:40 – 4:10****AIR PERMITTING-COMPRESSOR STATIONS/WELL PADS USING AVAILABLE GENERAL PERMITS IN PA, OH, WV**

Update and background on gas turbine air permitting requirements for NE USA. Also will summarize technical aspects of SoLoNOx (DLE) combustion technology.

*Patty Centofanti, Trinity Consultants*

**WEDNESDAY****SESSION 3** **8:00 – 9:30****NO SESSION****SESSION 4** **9:40 - 11:10****HAZARDS WITH STORAGE TANKS / SAFE SOLUTIONS IN OPERATIONS**

*Brandon Bajek, ECI*

**SESSION 5** **1:00 - 2:30**

**WHAT TO EXPECT WHEN YOU'RE INSPECTED**

Tips and strategies for successfully navigating air quality audits and inspections at industrial facilities. How do I prepare for audits or inspections? What records should be available for review? What areas of focus should I expect from the auditor/inspector? Seminar topics include Regulatory Background – Air Quality Highlights; Pre-Inspection Activities; Inspection Steps (Arrival & Entry, Site Walk Through, Records Review, Closing Meeting); Post-Inspection Activities; and Enforcement Trends (National and State/Local)

*Patty Centofanti, Trinity Consultants*

**SESSION 6** **2:40 – 4:10**

**UPDATE/BACKGROUND ON GAS TURBINE AIR PERMITTING REQUIREMENTS FOR NE USA**

Update and background on gas turbine air permitting requirements for NE USA. Also will summarize technical aspects of SoLoNOx (DLE) combustion technology.

*Anthony Pocengal, Solar Turbines*

**THURSDAY**

**SESSION 7** **8:00-9:30**

**NO SESSION**

**SESSION 8** **9:40 – 11:10**

**NO SESSION**

**Gas Engine Maintenance**

**Classroom: 327**

*Included in Registration Price of \$195*

**Topic Chairman: Frank Parker, EQT**

**TUESDAY**

**SESSION 1** **1:00 – 2:30**

**GAS ENGINE PRINCIPLES; BASICS OF COMBUSTION; BASIC EXHAUST EMISSIONS**

*Bill Wirz, Dresser-Rand Company*

**SESSION 2** **2:40 – 4:10**

**TURBO, BLOWERS, SCAVENGING/EMISSION TECHNOLOGY**

- Turbochargers – Blowers overview
- Slow Speed applications
- High Speed applications
- Operation – Monitoring – Maintenance
- Why turbos fail – Mitigation – Corrective Action

*Mitch Opat, Archrock, Greg Adams, GE Oil & Gas*

**WEDNESDAY**

**SESSION 3** **8:00 – 9:30**

**ROUNDTABLE DISCUSSION  
MAJOR COMPONENTS EVALUATION AND MAINTENANCE**

Topics will include: Power Cylinder, Power Pistons and Rings, Crankshafts, Connecting Rods, Frames, Bearings & Governors.

*Dusty Smith, Andy Zimmerman, Bryan Beachy; EQT, Greg Adams, GE, Mitch Opat, Archrock, Bill Wirz, Dresser-Rand*

**SESSION 4** **9:40 – 11:10**

**ROUNDTBLE DISCUSSION CONTINUED  
MAJOR COMPONENTS EVALUATION AND MAINTENANCE**

See previous

**SESSION 5** **1:00 – 2:30**

**GAS VALVES & ENGINE BALANCING**

An in-depth discussion of the effects of engine balancing on engine performance. Types of balancing equipment and types of combustion will be discussed.

*Scott Fletcher, TransCanada*

**SESSION 6** **2:40 – 4:10**

**FOUNDATIONS & GROUT**

Review of best practices for engine/compressor foundation design & grouting of slow & high speed compressors & turbines. Proper prealignment techniques & installation of epoxy grout materials.

*Scott Vercoe, Energy Tech Systems; Jay Greer, Iron Horse*

**THURSDAY**

**SESSION 7** **8:00 – 9:30**

**PREVENTATIVE/PREDICTIVE MAINTENANCE**

An overview of maintenance philosophies, programs & techniques for problem identification/resolution.

*Keith Schafer, TransCanada*

**SESSION 8** **9:40 – 11:10**

**JOURNAL BEARINGS**

*Greg Bone, MIBA Bearing Group*

## Gas Processing

**Classroom: 328**

*Included in Registration Price of \$195*

**Topic Chairman: Terry Nelson, WPI**

### TUESDAY

**SESSION 1** **1:00 – 2:30**  
**FLARES AND THERMAL OXIDIZERS**

This class covers the History of Flares and Thermal Oxidizer design; Current design requirements for flares and Thermal Oxidizers; Detail review of Natural Gas Plant environmental equipment Designs and requirements; Detail review of Ignition system and control systems and how they relate to Flares and Thermal Oxidizers; and a Review of safety equipment and how it is used in combustion systems

*Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)*

**SESSION 2** **2:40 – 4:10**  
**PASSIVE/ ROBOTIC INSPECTIONS OF FIRE TUBES**

Passive inspection of fire tubes using SLOFEC technology paired with a tethered robotic ILLI platform.

*Jamie Gauthier, GE Inspection Services*

### WEDNESDAY

**SESSION 3** **8:00 – 9:30**  
**ROUNDTABLE DISCUSSION**  
**GAS PROCESSING SYSTEMS: TYPES OF EQUIPMENT,**  
**OPERATION & SUGGESTED MAINTENANCE**

*Terry Nelson, WPI, Mike Riddell, RMS Engineers*

**SESSION 4** **9:40 – 11:10**  
**GAS DEHYDRATION PART I**

Process flow for dehydration of natural gas, operations and maintenance.

*Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)*

**SESSION 5** **1:00 – 2:30**  
**GAS DEHYDRATION PART II**

*Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)*

**SESSION 6** **2:40 – 4:10**  
**GAS DEHYDRATION PART III**

*Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)*

### THURSDAY

**SESSION 7** **8:00 – 9:30**  
**GAS FILTERS / SEPARATION**

Process flow for filtration and separation, operations and maintenance.

*Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)*

**SESSION 8**

**NO SESSION**

**9:40 – 11:10**

## Gas Turbines & Centrifugal Compressor

**Classroom: 329**

*Included in Registration Price of \$195*

**Topic Chairman: Glenn Mastmann, Iroquois Pipeline**

### TUESDAY

**SESSION 1** **1:00 – 2:30**  
**TROUBLESHOOTING GAS TURBINE & CENTRIFUGAL GAS**  
**COMPRESSORS**

Roundtable type discussion on typical troubleshooting and field problems on Gas Turbines/Centrifugal Compressors.

*Gary Corbello, Ethos Energy*

**SESSION 2** **2:40 – 4:10**  
**FIRE AND GAS DETECTION FOR TURBINE AND**  
**COMPRESSOR SETS**

*Ken Salmen, Salmen Tech Co.*

### WEDNESDAY

**SESSION 3** **8:00 – 9:30**  
**ROSEMOUNT PRESSURE AND TEMPERATURE**  
**TRANSMITTERS**

*Greg Wentzel, Emerson*

**SESSION 4** **9:40 - 11:10**  
**HART COMMUNICATIONS HANDS ON CLASS**

*Greg Wentzel, Emerson*

**SESSION 5** **1:00 – 2:30**  
**TURBINE RECYCLE VALVE OPERATION, MAINTENANCE**

This session will discuss the function of a compressor recirculation valve, styles of various valve types, installation, start-up and tuning. Particular designs to be discussed include Fisher pneumatic controllers, globe valves and ball valves.

*Jim Neville, ECI*

**SESSION 6** **2:40 – 4:10**  
**MICRO MOTION FLOW METERS**

*Emerson*

**THURSDAY**

**SESSION 7** **8:00 – 9:30**  
**TESTING/SETTING TURBINE CONTROL/DIFFERENTIAL PRESSURE SWITCHES**

Testing and setting switches for safety and compliance. Course will involve dead band, tolerances, increasing and decreasing settings, safety critical settings, differential switch uses, testing and setting, documentation.

*Glenn Mastmann, Iroquois Gas*

**SESSION 8** **9:40 – 11:10**  
**NO SESSION**

**General Interest I**

**Classroom: 330**

*Included in Registration Price of \$195*

**Topic Chairman: Stephen Wright, CSI Compressco**

**TUESDAY**

**SESSION 1** **1:00 – 2:30**  
**COMPRESSOR ALIGNMENT: SHAFT AND FLATNESS IN COMPLIANCE WITH ARIEL ER-82 SPECIFICATION**

*Jay Richardson, LUDECA Inc.*

**SESSION 2** **2:40 – 4:10**  
**ASCO - 2, 3 AND 4-WAY SOLENOID VALVES**

We will discuss the proper selection, application and operation of 2-way, 3-way and 4-way solenoid operated valves, and our Low Power and Low Ambient Temperature Series solenoid valves. The ASCO solenoid operated valves are currently used in many shale gas applications, including piloting larger control valves at the well heads, compression stations and distribution/processing/separation centers all across the country. We will cover our innovative Low Power series valves which operate on as low as 0.55 Watts and are ideal for shale sites without generated power, using minimal power from solar panels and battery systems for operation. Topics will include Low Ambient Temperature valves with valve constructions rated for service at -50°C ambient, to meet the harsh winter conditions in our region. We will also discuss and demonstrate our New Low Power Spool Valves. These spool valves are ideal for valve automation for the oil and gas market. They have a reliable and robust design with high flow performance, are Corrosion Resistant, are rated for air, inert gas and sweet dry natural gas, and are SIL 3 Certified.

*Frank Farina, Emerson ASCO*

**WEDNESDAY**

**SESSION 3** **8:00 – 9:30**  
**NO SESSION**

**SESSION 4** **9:40 – 11:10**  
**ZERO EMISSION BLOWDOWN**

*Thomas Kerr, Kerr Engineered Sales*

**SESSION 5** **1:00 – 2:30**  
**PROPER TENSIONING AND TORQUEING**

*Mike Mutich, Bolttech Mannings*

**SESSION 6** **2:40 – 4:10**  
**RECIPROCATING COMPRESSOR PERFORMANCE SOFTWARE**

Overview of creating and understanding reciprocating compressor performance reports generated by various OEM and commercial software.

*Joe Wilson, Dwayne Hickman, ACI Services, Inc.*

**THURSDAY**

**SESSION 7** **8:00 – 9:30**  
**NO SESSION**

**SESSION 8** **9:40 – 11:10**  
**NO SESSION**

**General Interest II**

**Classroom: 333**

*Included in Registration Price of \$195*

**Topic Chairman: Stephen Wright, CSI Compressco**

**TUESDAY**

**SESSION 1** **1:00 – 2:30**  
**RECIPROCATING COMPRESSOR FLEET RELIABILITY: PART 1**

This short course will share experience and provide insights into the design considerations and industry best practices for reciprocating compressor installations, to maximize system integrity and avoid costly repairs.

*Alex Sosnowski, Jiten Mistry, Wood*

**SESSION 2** **2:40 – 4:10**  
**RECIPROCATING COMPRESSOR FLEET RELIABILITY: PART 2**

See above

*Alex Sosnowski, Jiten Mistry, Wood*

**WEDNESDAY****SESSION 3** 8:00 – 9:30**MANAGING SMALL-BORE PIPING VIBRATION - THE LEADING CAUSE OF FATIGUE FAILURES**

While vibration related to rotating equipment is well understood as a reliability risk, there are other vibration sources in the piping system that can compromise its integrity. This session will talk about piping vibration sources; small-bore piping risks; risk evaluation methods; and how to reduce piping vibration risks and avoid small-bore piping failures

*Alex Sosnowski, Wood*

**SESSION 4** 9:40 – 11:10**CONSIDERATIONS FOR A FLEXIBILITY ANALYSIS OF PIPING SYSTEMS IN VIBRATION APPLICATIONS**

Compared to non-vibrating piping, there are fundamental differences in performing a flexibility analysis for piping systems subject to vibration. This session will discuss the special considerations and techniques required to account for the unique characteristics of vibrating piping and to fulfill the code requirements for a flexibility analysis.

*Gary Maxwell, Wood*

**SESSION 5** 1:00 – 2:30**BACK TO BASICS VIBRATION PROBLEM SOLVING**

The use of advanced analysis tools is not a substitute for careful examination of basic factors that might cause high vibration levels. In many cases, basic observations and analysis can lead to the identification of causes without having to resort to more costly field measurements or advanced analyses. Sometimes a "back-to-basics" analysis approach is all that is required to solve a problem.

*Jiten Mistry, Wood*

**SESSION 6** 2:40 – 4:10**INTRODUCTION TO RECIPROCATING AND CENTRIFUGAL PUMPS**

A brief introduction to reciprocating and centrifugal pump vibration design and its impact on operations includes reciprocating pumps; centrifugal pumps; key differences between each type; and overview of typical analysis standards applied to each type of pump

*Gary Maxwell, Wood*

**THURSDAY****SESSION 7** 8:00 – 9:30**NO SESSION****SESSION 8** 9:40 – 11:10**NO SESSION****General Interest III****Classroom: 334**

*Included in Registration Price of \$195*

**Topic Chairman: Stephen Wright, CSI Compressco****TUESDAY****SESSION 1** 1:00 – 2:30**PERFORMANCE CONTROL DEVICES SHORT COURSE PART I**

Various types of capacity control and unloading devices for reciprocating compressors are presented, including a variety of devices for: end deactivation, clearance modification, pressure regulation, synched valve-closing, stroke variation, bore variation, speed variation, and dynamic internal pressure variation. Unbiased pros and cons for each class of devices are reviewed, specifically in regards to hardware, operations, maintenance, and installation. Additionally, the effects those devices have on the compression event are discussed to better know how those devices specifically affect flow and load. Attendees will be empowered with the knowledge to fundamentally understand the various types of unloading and capacity control devices, the ability to decipher product claims, and the skills to identify methods and equipment used to modify unit performance. Additional information provided includes: diagrams, pictures and schematics; product advantages and disadvantages; performance considerations; operational limitations; and practical applicability of devices.

*Tyler Clark, Dwayne Hickman, ACI Services, Inc.*

**SESSION 2** 2:40 – 4:10**PERFORMANCE CONTROL DEVICES SHORT COURSE PART II**

See above

*Tyler Clark, Dwayne Hickman, ACI Services, Inc.*

**WEDNESDAY****SESSION 3** 8:00 – 9:30**CORROSION PROTECTION FOR COMPRESSION FACILITIES**

*William Hudak, P.E., Tim Quetsch, E.I.T*

**SESSION 4** 9:40 – 11:10**EMPIRICAL HP CURVES**

*Bob Webber, Siemens*

**SESSION 5** 1:00 – 2:30**ROUNDTABLE DISCUSSION  
USERS GROUP - HIGH SPEED RECIP ENGINE & COMPRESSORS**

*Frank Parker, EQT*

**SESSION 6** **2:40 – 4:10**

**GE WAUKESHA PRODUCT UPDATE**

With the current challenges in the O&G market, we know you need lower operating costs to be successful. Attend this session to see how you can get more out of your Waukesha fleet. What you'll learn:

- How to upgrade your existing Waukesha engines
- How to reduce your operating costs and/or site emissions
- How to generate more revenue and improve overall Waukesha asset availability

*Chris Kipp, GE Power*

**THURSDAY**

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**SESSION 7** **8:00 – 9:30**

**NO SESSION**

**SESSION 8** **9:40 – 11:10**

**NO SESSION**

**Lubrication and Filtration**

**Classroom: 338**

*Included in Registration Price of \$195*

**Topic Chairman: Matt McCarthy, Sloan Lubrication**

**TUESDAY**

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**SESSION 1** **1:00 – 2:30**

**BASICS OF LUBRICANTS - WHAT ARE THE 5 GROUPS?**

We will review the basics of lubrication and the different base stocks so that attendees can understand the difference and why it is important.

*Chad George, Summit*

**SESSION 2** **2:40 – 4:10**

**ROUNDTABLE DISCUSSION  
FORCE FEED LUBRICATION SYSTEM COMPONENTS AND  
FLOW RATES**

*Matt McCarthy - Sloan Lubrication; Bill Pullin - Reynolds French*

**WEDNESDAY**

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**SESSION 3** **8:00 – 9:30**

**NO SESSION**

**SESSION 4** **9:40 – 11:10**

**NO SESSION**

**SESSION 5** **1:00 – 2:30**

**FORCE FEED LUBRICATION SYSTEMS FOR ENGINES AND  
COMPRESSORS: SYSTEM MAINTENANCE,  
TROUBLESHOOTING & REPAIR**

Operation and Hands-On troubleshooting of engine and compressor lubrication systems, including pump to point systems and series progressive/divider block lubrication systems. This will be a "Brand Generic" seminar focusing on the operation of all types of lubrication systems, how to properly set up, maintain, troubleshoot, and repair systems on both engines and compressors. The class will consist of a power point presentation covering various types of systems and components, their functionality, problems that occur during operation, how to spot problem areas and how to troubleshoot and properly repair the lube systems. There will also be a hands-on, working lubrication system display, used for troubleshooting the system.

*Matt McCarthy, Sloan Lubrication; Bill Pullin, Reynolds French*

**SESSION 6** **2:40 – 4:10**

**NO SESSION**

**THURSDAY**

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**SESSION 7** **8:00 – 9:30**

**NO SESSION**

**SESSION 8** **9:40 - 11:10**

**NO SESSION**

**Pipeline Valve & Actuation  
Maintenance**

**Classroom: 335**

*Included in Registration Price of \$195*

**Topic Chairman: Richard Askin, Mid-Atlantic, Inc.**

**TUESDAY**

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**SESSION 1** **1:00 – 2:30**

**BALL VALVE BASICS**

A general overview of common ball valve components and characteristics including seat designs. Beginning with the different body designs (welded body, two-piece, and three piece) for side entry and top entry ball valves. Floating Seat Design discussions - what is a self-relieving seat (SRS) and what is a Double-Piston-Effect seat DPE, how they differ and advantages to each. What is a rotating seat and how does it work. Detailed conversations on double block and bleed procedure (DBB) and how to perform safely. What are the common fittings found, what they are used for and a

conversation about on sealant injection system? Classroom valve cutaways with hand-on demonstrations.

*Tim Northrup, Walt Elmquist, Northrup Equipment*

**SESSION 2 2:40 – 4:10**  
**PLUG VALVE BASICS**

Discussions of the common plug valve components, characteristics, and its unique design. An overview of the most common designs (top entry – bottom entry) and how the stem designs differ and their effect on troubleshooting. A detailed discussion on the plug movement and how the evolution of the dynamic balanced/pressure balanced design has impacted the plug valves operation. Great detail to be given to the pros and cons of “adjusting the plug”.

*Chad Nienser, CSN Solutions*

**WEDNESDAY**

**SESSION 3 8:00 – 9:30**  
**ROUNDTABLE DISCUSSION**  
**BALL VALVE MAINTENANCE AND FIELD PRACTICAL TROUBLESHOOTING**

Best practices and recommended troubleshooting techniques for handling maintenance issues focusing on a field practical approach. The importance of the valve tag reviewed. A broad ranged topic stimulated by class participation from why valves leak to repairing techniques in line under pressure.

*Chad Nienser - CSN Solutions; Tim Northrup; Walt Elmquist - Northrup Equipment*

**SESSION 4 9:40 - 11:10**  
**VALVE MAINTENANCE INJECTION EQUIPMENT**

A review of the most common equipment and a review of safe operations of each. An extensive explanation of the proper use and troubleshooting techniques for each.

*Ward Hzuza, Sealweld USA*

**SESSION 5 1:00 – 2:30**  
**ROTARY VANE ACTUATOR**

Detailed discussions centering on the rotary vane actuator; their principles of operation, sizing considerations and application. Hands on demonstrations including setting stops and troubleshooting will be examined.

*Robbie Broussard, TransCanada CPG*

**SESSION 6 2:40 – 4:10**  
**SCOTCH YOKE ACTUATORS**

Fundamental overview of operations, design, key components and the application of scotch yoke actuators. A review of the principles of operation along with sizing considerations will be discussed. A detailed review of both the full stroke test and partial stroke test.

*John Brown, TQT (Texas Quarter Turn)*

**THURSDAY**

**SESSION 7 8:00 – 9:30**  
**ACTUATOR MAINTENANCE AND TROUBLESHOOTING**

Hands on demonstrations including setting stops and troubleshooting will be examined. The review of potential causes for erratic movements, short stroking, and lack of torques discussed along with field practical solutions.

*Robbie Broussard, TransCanada - CPG; John Brown, TQT*

**SESSION 8 9:40 – 11:10**  
**ROUNDTABLE DISCUSSION**  
**VALVE COMMISSIONING**

Purpose, aspects and group think on the commissioning process from initial receipt of valve (handling) to storage and/or installation. A focus on inspection, preparation for storage and the “how to” of a reverse low pressure test. Additional points for discussion will address riser pipe inspection, fitting identification and inspection, gear box (manual) and actuator inspection. Class involvement and participation encouraged.

*Tim Northrup; Walt Elmquist - Northrup Equipment; Ward Hzuza - Sealweld USA; Chad Nienser - CSN Solutions*

**Technical & Engineering**

**Classroom: 336**

*Included in Registration Price of \$195*

**Topic Chairman: Mitch Mazaher, Basic Systems, Inc.**

**TUESDAY**

**SESSION 1 1:00 – 2:30**  
**ELECTRICAL HAZARDOUS AREA CLASSIFICATION**

Overview of hazardous area classification for gas compressor stations and electrical equipment and installation techniques required.

*George Samo and Andrew Manski, EQT*

**SESSION 2 2:40 – 4:10**  
**COMPRESSOR STATION CONTROL SYSTEM DESIGN**

In a landscape of ever-evolving regulatory guidelines, design standards, and electronics technology, project engineers and managers must pay particular attention to their compressor stations’ control system implementation. Many design decisions, even early ones, may affect or be affected by a station’s control system, control philosophy, and/or operational philosophy. This course will walk through the details involved with design and implementation of compressor station control systems, citing recommended considerations and potential pitfalls. Although every compressor station is unique in many ways, we will focus the discussion around a high level view of a well-instrumented engine-drive recip station, while paying mention to electric-drive and centrifugal applications as well.

*Chuck Huizenga & Ryan Fitzgerald, Basic Systems, Inc.*



**WEDNESDAY****SESSION 3** **8:00 – 9:30**  
**COMPRESSOR STATION DESIGN PROCESS PART 1 - FACILITY ENGINEERING**

We will walk through a compressor station design from concept to the beginning of construction and explore the role of the engineer and the development of the engineering drawing package. We will discuss the basic station systems such as Main Gas, Fuel Gas, Lube Oil, Cooling Water, Waste Fluids, etc. We'll identify the major pieces of equipment that make up each system and how they function. We'll explore the design information required by the design engineer in order for him to properly size the equipment in these systems. We'll discuss the design drawings - how they are developed, taking a closer look at the information needed to develop the design drawings. We'll discuss the different types of drawings and how they're used to provide information in the design drawing package.

*Mitch Mazaher, PE, Basic Systems Inc.*

**SESSION 4** **9:40 – 11:10**  
**COMPRESSOR STATION DESIGN PROCESS PART 2 - CONTROL SYSTEMS**

In a landscape of ever-evolving regulatory requirements, security concerns, design standards, and electronics technology, project engineers and managers must pay particular attention to their compressor stations' control system implementation. Many design decisions, even early ones, may affect or be affected by a station's control system, control philosophy, and/or operational philosophy. This course will walk through the details involved with design and implementation of compressor station control systems, citing recommended considerations and potential pitfalls. Although every compressor station is unique in many ways, we will focus the discussion around a high level view of a well-instrumented engine-drive recip station, while paying attention to electric-drive and centrifugal applications as well.

*Mitch Mazaher, PE, Basic Systems, Inc.*

**SESSION 5** **1:00 – 2:30**  
**COST REDUCTION AND RELIABILITY IMPROVEMENTS FOR RECIPROCATING COMPRESSORS IN SHALE GAS APPLICATIONS**

*Randy Dal Molin, Hoerbiger Compressor Technology*

**SESSION 6** **2:40 – 4:10**  
**ENGINEERING EFFICIENCY INTO YOUR COMPRESSION FACILITY**

This informative course begins with compressor design & operation fundamental theories, then expands to show other gas cleaning and gas conditioning equipment and how to arrange, or rearrange the equipment parts to optimize electric power and natural gas fuel usage.

*Howard Murphy, EarthRes*

**THURSDAY****SESSION 7** **8:00 – 9:30**  
**ENGINEERING EFFICIENCY INTO YOUR COMPRESSION FACILITY**

This informative course begins with compressor design & operation fundamental theories, then expands to show other gas cleaning and gas conditioning equipment and how to arrange, or rearrange the equipment parts to optimize electric power and natural gas fuel usage.

*Howard Murphy, EarthRes*

**SESSION 8** **9:40 - 11:10**  
**NO SESSION****Original Equipment Manufacturers (OEM) Solar Turbines**

**Classroom: 307**

*Included in Registration Price of \$195*

**Topic Chairman: Christopher Stroble, Solar Turbines**

**TUESDAY****SESSION 1** **1:00 – 2:30**  
**OEM SOLAR TURBINES #1**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**SESSION 2** **2:40 – 4:10**  
**OEM SOLAR TURBINES #2**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**WEDNESDAY****SESSION 3** **8:00 – 9:30**  
**OEM SOLAR TURBINES #3**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**SESSION 4** **9:40 – 11:10**  
**OEM SOLAR TURBINES #4**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**SESSION 5** **1:00 – 2:30**  
**OEM SOLAR TURBINES #5**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**SESSION 6** **2:40 – 4:10**  
**OEM SOLAR TURBINES #6**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**THURSDAY**

**SESSION 7 8:00 – 9:30**

**OEM SOLAR TURBINES #7**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**SESSION 8 9:40 - 11:10**

**OEM SOLAR TURBINES #8**

*Mike Baltz and Evan Sharbrough, Solar Turbines*

**OEM BHGE HSR**

**Classroom: 309**

*Included in Registration Price of \$195*

**Topic Chairman: Joseph Mares, GE Oil & Gas**

**TUESDAY**

**SESSION 1 1:00 – 2:30**

**GE WAUKESHA ENGINE CONVERSIONS, MODIFICATIONS AND UPGRADES**

Discuss new unit offerings for the Waukesha gas engine line, featuring the new 1500 hp 7042GSI S5 and 1900 hp 7044GSI S5. Provide a fleet update for the 12V275GL+ (3750 hp) and 16V275GL+ (5000 hp) engines. Discuss VGF SE models (F18 - 400 hp and H24 - 530 hp) featuring ESM controls and EPA stationary and mobile certifications.

**SESSION 2 2:40 – 4:10**

**GE WAUKESHA ESM1, ESM2 OVERVIEW / TROUBLESHOOTING**

Discuss the core functionality of Waukesha's ESM1 and ESM2 control systems, with an emphasis on E-Help troubleshooting to minimize downtime and maximize throughput.

*Ryan Rudnitzki, GE Power*

**WEDNESDAY**

**SESSION 3 8:00 – 9:30**

**PRODUCT OVERVIEW MODELS/FRAMES**

*Joseph Mares, Baker Hughes a GE Company*

**SESSION 4 9:40 – 11:10**

**GAS COMPRESSION FUNDAMENTALS**

*Joseph Mares, Baker Hughes a GE Company*

**SESSION 5 1:00 – 2:30**

**LUBRICATION REQUIREMENTS**

*Joseph Mares, Baker Hughes a GE Company*

**SESSION 6 2:40 – 4:10**

**GENERAL MAINTENANCE**

*Joseph Mares, Baker Hughes a GE Company*

**\*Also see General Interest III, Session 6**

**GE WAUKESHA PRODUCT UPDATE**

With the current challenges in the O&G market, we know you need lower operating costs to be successful. Attend this session to see how you can get more out of your Waukesha fleet. What you'll learn:

- How to upgrade your existing Waukesha engines
- How to reduce your operating costs and/or site emissions
- How to generate more revenue and improve overall Waukesha asset availability

*Chris Kipp, GE Power*

**THURSDAY**

**SESSION 7 8:00 – 9:30**

**TROUBLE SHOOTING**

*Joseph Mares, Baker Hughes a GE Company*

**SESSION 8 9:40 - 11:10**

**COMMISSIONING & START UP/EVALS**

*Joseph Mares, Baker Hughes a GE Company*

**OEM Caterpillar**

**Classroom: 310**

*Included in Registration Price of \$195*

**Topic Chairman: Scott Double, Cleveland Brothers**

**TUESDAY**

**SESSION 1 1:00 – 2:30**

**CAT ENGINE ELECTRONICS**

*Matt Curry*

**SESSION 2 2:40 – 4:10**

**CAT G3600 A4 INTRODUCTION**

*Scott Double*

**WEDNESDAY**

**SESSION 3 8:00 – 9:30**

**G3600 / G3500 GAS COMPRESSION OPEN FORUM**

*Scott Double & Matt Curry*

**SESSION 4** **9:40 – 11:10**  
**CAT G3600 A4 INTRODUCTION**  
*Scott Double*

**SESSION 5** **1:00 – 2:30**  
**CAT GERP**  
*Matt Curry*

**SESSION 6** **2:40 – 4:10**  
**CAT G3600A3 / A4TUNING**  
*Scott Double*

**THURSDAY**

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**SESSION 7** **8:00 – 9:30**  
**CAT ENGINE INSTALLATION / COOLING SYSTEM**  
*Scott Double*

**SESSION 8** **9:40 - 11:10**  
**G3500 / G3600 OPEN FORUM**  
*Scott Double & Matt Curry*

**Exhibitor List**

- |   |                 |
|---|-----------------|
| <b>A. BLAIR POWELL</b>  | <b>620, 622</b> |
| 5409 Enterprise Boulevard<br>Bethel Park PA 15102<br>(412) 347-0446<br>abpowell.com     |                 |
| <b>ACI SERVICES, INC.</b>   | <b>414</b>      |
| 125 Steubenville Ave.<br>Cambridge OH 43725<br>(740) 435-0240<br>www.aciservicesinc.com |                 |
| <b>ADVANCED GAS ENGINE SOLUTIONS INC</b>  | <b>207</b>      |
| 616-B Beatty Rd<br>Monroeville PA 15146<br>(412) 956-6320<br>www.agesinc.us             |                 |
| <b>AKRON ELECTRIC INC.</b>  | <b>422</b>      |
| 1025 Eagon Street<br>Barberton OH 44203<br>(330) 745-8891<br>www.akronelectric.com      |                 |
| <b>ALLIED VALVE, INC.</b>   | <b>426</b>      |
| 1019 W Grand Ave.<br>Chicago IL 60642<br>(312) 520-0235<br>www.alliedvalveinc.com       |                 |
| <b>APPLIED PIPELINE, INC.</b>   | <b>520, 522</b> |
| PO Box 124<br>Knox PA 16232<br>(814) 938-1079<br>www.appliedpipeline.com                |                 |
| <b>ARCHROCK</b>   | <b>210</b>      |
| 1404 Mohawk Road<br>McPherson KS 67460<br>(620) 241-8740                                |                 |
| <b>ARIEL CORPORATION</b>  | <b>701</b>      |
| 35 Blackjack Road<br>Mount Vernon OH 43050<br>(740) 397-0311<br>www.arielcorp.com       |                 |
| <b>ARKOS FIELD SERVICES</b>   | <b>730</b>      |
| 1010 Lamar Street, Suite 1700<br>Houston TX 77002<br>(985) 209-3129<br>www.arkos.com    |                 |

	<b>Booth #</b>		<b>Booth #</b>
<b>AUDUBON FIELD SOLUTIONS</b> 404 Stonecliff Lane Butler PA 16001 (814) 882-9532 www.auduboncompanies.com	<b>203</b>	<b>CIRCOR</b> 945 Bunker Hill, Suite 650 Houston TX 77024 (713) 400-2241 www.circorenergy.com	<b>601</b>
<b>AUMA ACTUATORS, INC.</b> 100 Southpointe Blvd. Canonsburg PA 15317 (724) 743-2862 www.auma.com	<b>624</b>	<b>CLEVELAND BROTHERS</b> 4565 William Penn Highway Murrysville PA 15668 (724) 327-1300 www.clevelandbrothers.com	<b>707</b>
<b>BASIC SYSTEMS, INC.</b> 9255 Cadiz Road Cambridge OH 43725 (740) 432-7223 www.basic-systems.com	<b>607</b>	<b>COMPRESSOR PRODUCTS INTL. (CPI)</b> 4410 Greenbriar Dr. Stafford TX 77477 (281) 207-4619 CPIcompression.com	<b>419</b>
<b>BCMJ CONTROLS, INC.</b> PO Box 1273 Coraopolis PA 15108 (412) 264-5434 www.bcmjcontrols.com	<b>427, 526</b>	<b>COMPRESSORTECH2</b> 20855 Watertown Road #220 Waukesha WI 53186 (262) 754-7100 www.khl.com	<b>524</b>
<b>BOLLAND MACHINE</b> 2718 Darlington Rd Beaver Falls PA 15010 (724) 846-1290 www.bollandmachine.com	<b>431, 530</b>	<b>COOK COMPRESSION</b> 2445 Technology Forest Blvd The Woodlands TX 77381 (616) 826-8246 CookCompression.com	<b>702</b>
<b>BOLTING SYSTEMS &amp; SERVICES INC.</b> 121 Schoonmaker Ave Monessen PA 15062 (724) 942-3654 www.boltingco.com	<b>631</b>	<b>CSD SOLUTIONS/PRO1ONE INDUSTRIAL LUBRICANTS</b> 5257 Buckeystown Pike #183 Frederick MD 21704 240-440-8471 www.pro-one.us	<b>209- 211</b>
<b>BOLTTECH MANNINGS INC.</b> 501 Mosside Blvd. North Versailles PA 15137 (614) 264-3635 www.bolttechmannings.com	<b>709</b>	<b>CSI COMPRESSCO LP</b> 24010 Oak Bend Dr Luther OK 73054 (405) 229-1625 www.csicompressco.com	<b>212, 214</b>
<b>CECO COMPRESSOR ENGINEERING</b> 5440 Alder Dr. Houston TX 77081 (713) 663-1885 tryceco.com	<b>421</b>	<b>DCL AMERICA</b> 27603 Commerce Oaks Drive Oak Ridge North TX 77385 (281) 253-3091 WWW.DCL-INC.COM	<b>509</b>
<b>CECO PEERLESS</b> 14651 North Dallas Parkway, Suite 500 Dallas TX 75254 (214) 272-5312 www.cecoenviro.com/peerless	<b>403</b>	<b>DFT INC.</b> 2177 Spinningwheel Lane Cincinnati OH 45244 (513) 446-3583	<b>412</b>
<b>CHARBONNEAU INDUSTRIES, INC.</b> 1619 E Richey Road Houston TX 77073 (281) 209-3800 www.ciactuation.com	<b>309</b>	<b>EASY FOAM, INCORPORATED</b> 1881 Emma Road Basalt CO 81621 (405) 830-3000 www.easyfoam.net	<b>231</b>

	<b>Booth #</b>		<b>Booth #</b>
<b>ELLWOOD CRANKSHAFT GROUP</b> 2727 Freedland Road Hermitage PA 16148 (724) 308-4048 www.ellwoodcrankshaftgroup.com	<b>700</b>	<b>FREDERICK LOGAN COMPANY INC</b> 140 Commonwealth Drive Warrendale PA 15086 (724) 776-9300	<b>323</b>
<b>EMERSON</b> 19200 Northwest Freeway Houston TX 77065 (284) 477-4156 www.Emerson.com	<b>327</b>	<b>FW MURPHY PRODUCTION CONTROLS</b> 5417 S. 122nd E. Ave. Tulsa OK 74146 (918) 346-7513 www.fwmurphy.com	<b>531</b>
<b>EMERSON ASCO</b> 343 Rocky Ridge Road Bethel Park PA 15102 (412) 848-1492	<b>201</b>	<b>GAS COMPRESSION MAGAZINE</b> 15814 Champion Forest Drive, Suite 419 Houston TX 77379 (832) 271-7380 www.gascompressionmagazine.com	<b>711</b>
<b>ENERGY TECH SYSTEMS, INC.</b> 300 National Road, Suite 100 Exton PA 19341 (800) 880-2150 www.energytechsys.com	<b>719</b>	<b>GILSON ENGINEERING</b> 535 Rochester Road Pittsburgh PA 15237 (412) 651-0579 www.gilsoneng.com	<b>218</b>
<b>EPIC INTERNATIONAL - ENERGY DIVISION</b> 21227 Hufsmith Kohrville Road Tomball TX 77375 (713) 937-1000 www.epic-int.com	<b>303</b>	<b>GLYCOL TECHNOLOGIES INC</b> 140 Commonwealth Drive Warrendale PA 15086 (724) 776-3554 www.glycoltech.com	<b>325</b>
<b>ETHOSENERGY LIGHT TURBINES</b> 6225 W. Sam Houston Houston TX 77041 (713) 849-8802 www.ethosenergygroup.com/products-services/ light-turbines-solar	<b>731</b>	<b>HEATH CONSULTANTS INCORPORATED</b> 9030 Monroe Rd Houston TX 77061 (713) 844-1300 www.heathus.com	<b>418</b>
<b>EXLINE, INC.</b> 3256 E. Country Club Rd. Salina KS 67402 (785) 825-4683 www.exline-inc.com	<b>619, 718</b>	<b>HFW INDUSTRIES</b> 196 Philadelphia St Buffalo NY 14207 (716) 875-3380 www.hfwindustries.com	<b>319</b>
<b>FILTECH INC</b> 221 W. 8th Ave West Homestead PA 15120 (412) 742-9328 www.filtechinc.com	<b>424</b>	<b>HI-TECH COMPRESSOR &amp; PUMP PRODUCTS, INC.</b> 1113 Branagan Drive Tullytown PA 19007 (215) 547-8800 www.hi-techcompressor.com	<b>401, 500</b>
<b>FLOW-DATA</b> 119 ICMI Rd.. Building 3 Dunbar PA 15401 (724) 317-9589 www.flow-data.com	<b>313</b>	<b>HOERBIGER COMPRESSION TECHNOLOGY</b> 1358 W. Newport Center Dr. Deerfield Beach FL 33442 (954) 246-1352 www.hoerbiger.com	<b>307</b>
<b>FLSMIDTH INC</b> 2040 Avenue C Bethlehem PA 18017 (610) 266-4415 www.conveyorspneumatic.com	<b>519</b>	<b>HOTSTART</b> 5723 E Alki Spokane WA 99212 (509) 534-6171 www.hotstart.com	<b>618</b>

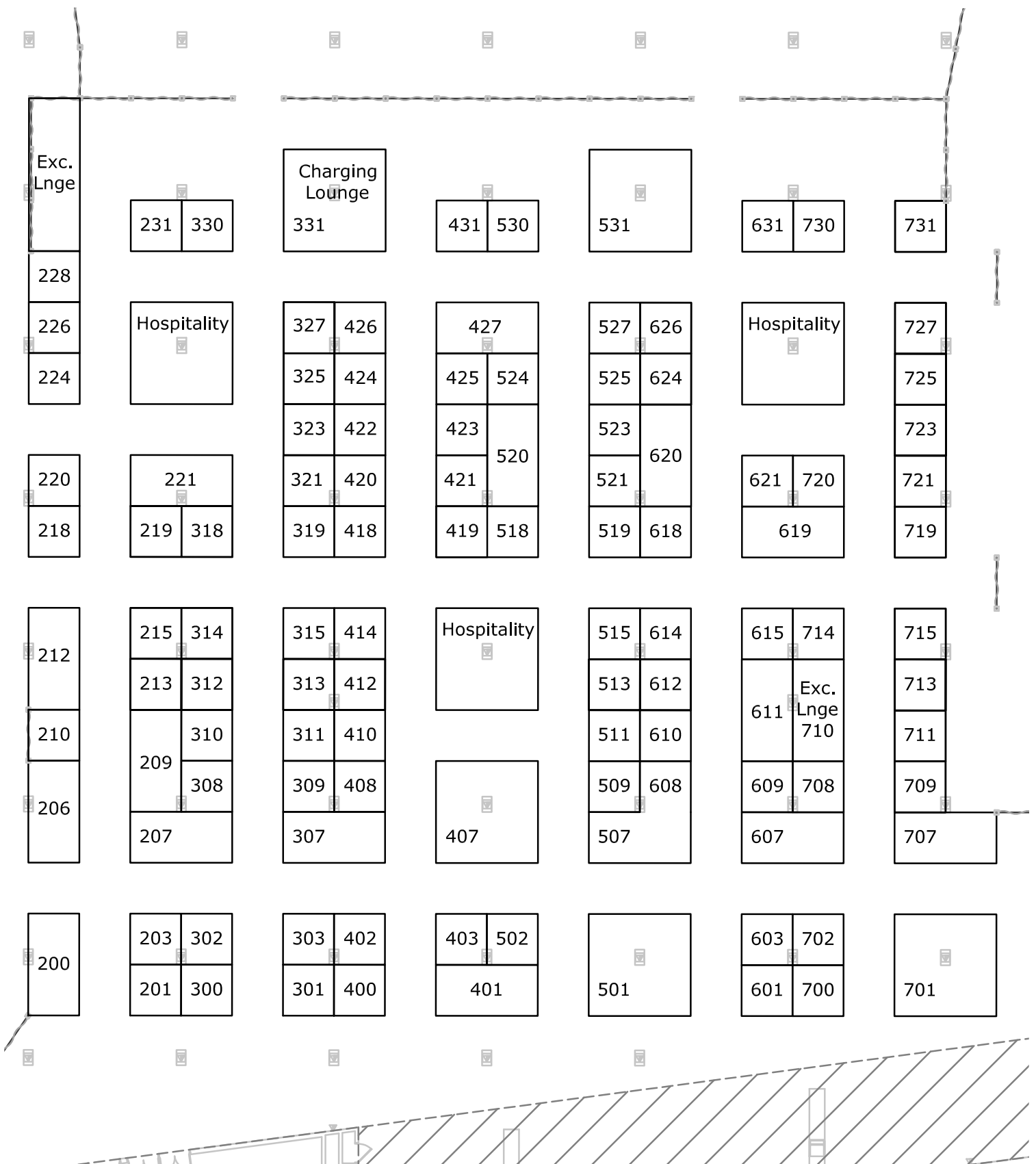
	<b>Booth #</b>		<b>Booth #</b>
<b>INDUSTRIAL CONTROLS &amp; EQUIPMENT</b> 2 Park Dr Lawrence PA 15055 (724) 746-3705 ice-vip.com	<b>603</b>	<b>M&amp;J VALVE SERVICES</b> 110 Gill Drive Lafayette LA 70507 (337) 769-9260 mjvalve.com	<b>502</b>
<b>INTERSTATE CHEMICAL COMPANY INC.</b> 2797 Freedlend Rd Hermitage PA 16148 (724) 981-3771 www.interstatechemical.com	<b>521</b>	<b>MATTHEWS LUBRICANTS</b> 17 RT 50 West Clarksburg WV 26301 (304) 623-3361 matthewslubricants.com	<b>423</b>
<b>INTERSTATE MCBEE</b> 5300 Lakeside Ave Cleveland OH 44133 (412) 889-0486 www.interstate-mcbee.com	<b>301</b>	<b>MAXIM SILENCERS</b> 10635 Brighton Lane Stafford TX 77477 (832) 554-0980 www.MaximSilencers.com	<b>714</b>
<b>JOHN HOPKINS UNLIMITED, INC.</b> 510 Country Ln San Antonio TX 78209 (361) 813-7362	<b>220</b>	<b>MID ATLANTIC INC</b> 1 Dollar Avenue, PO Box 409 Scottsdale PA 15683 (724) 366-9178	<b>300</b>
<b>JONES PETROLEUM SERVICES</b> 67 Lonesome Cedar Lane Pikeville KY 41501 (606) 432-5724 jonespetroleum.com	<b>621</b>	<b>MILLENNIUM TORQUE &amp; TENSIONING, INC.</b> 1886 Route 136 Eighty Four PA 15330 (724) 229-5020 www.milltorc.com	<b>228</b>
<b>KAMS, INC.</b> 1831 N.W. 4th Dr. Oklahoma City OK 73106 (405) 232-2636 www.kamsinc.com	<b>219</b>	<b>MIRATECH GROUP</b> 420 S 145th E Avenue, #A Tulsa OK 74108 (918) 442-2413 www.miratechcorp.com	<b>221, 320</b>
<b>KENCO ENGINEERING</b> 10001 E. 54th Street Tulsa OK 74146 (918) 663-4406 kenco-eng.com	<b>518</b>	<b>MOBIL INDUSTRIAL LUBRICANTS</b> 303 Thornberry Lane Ellamore WV 26267 (304) 614-4329 www.mobilindustrial.com	<b>312</b>
<b>KERR ENGINEERED SALES COMPANY</b> 5940 Baum Square Pittsburgh PA 15206 (412) 362-6553 www.kerrengineeredsales.com	<b>408</b>	<b>MONICO INC.</b> 18530 Klein Church Rd. Spring TX 77379 (281) 705-8841 www.monicoinc.com	<b>527</b>
<b>LIMITORQUE - FCX PERFORMANCE</b> 1409 Smoketree Drive Forest VA 24551 (434) 258-6718 www.flowserve.com	<b>321</b>	<b>NATIONAL HEAT EXCHANGE</b> 8397 Southern Blvd Youngstown OH 44512 (330) 482-0893 nationalheatexchange.com	<b>609</b>
<b>LUDECA, INC.</b> 1425 NW 88th Avenue Doral FL 33172 (305) 591-8935 www.ludeca.com	<b>715</b>	<b>NORTHEAST ONG</b> PO Box 1001 Youngwood PA 15697 (724) 787-4451 www.ongmarketplace.com	<b>213</b>

	<b>Booth #</b>		<b>Booth #</b>
<b>OHIO VALLEY INDUSTRIAL SERVICES</b> 530 Moon Clinton Rd, Unit B Moon Township PA 15108 (412) 269-0020 www.ovisinc.com	<b>308</b>	<b>POWER THERM</b> 7420 Wright Rd Houston TX 77041 (713) 682-6777 www.Powertherm.com	<b>615</b>
<b>PARKER HANNIFIN (PECO)</b> PO Box 640 Mineral Wells TX 76067 (940) 327-6247 www.parker.com	<b>206, 208</b>	<b>PPC LUBRICANTS</b> 150 Bonnie Dr. Butler PA 16002 (724) 831-9564 www.ppclubricants.com	<b>725</b>
<b>PEAKER SERVICES</b> 8080 Kensington Brighton MI 48116 (248) 437-4174 www.peaker.com	<b>215</b>	<b>PROFIRE ENERGY</b> 321 South, 1250 West Suite 1 Lindon UT 84042 (801) 851-0828 profireenergy.com	<b>310</b>
<b>PENN-OHIO SALES</b> 2107 Sheffield Rd. Aliquippa PA 15001 (412) 977-2424 www.hytorcpennohio.com	<b>410</b>	<b>RAVAN AIR</b> 13116 Hwy 18 Conneaut Lake PA 16316 (814) 853-5127 Ravanair.com	<b>200, 202</b>
<b>PHILLIPS 66 LUBRICANTS</b> P.O. Box 421959 Houston TX 77242-1959 (724) 931-3810 www.Phillips66Lubricants.com	<b>523</b>	<b>RECIPROCATING TECHNOLOGY SERVICES</b> 9848 Windfern Road Houston TX 77064 (407) 947-2860 www.reciprotech.com	<b>314</b>
<b>PIC APPALACHIA</b> 210 Riverview Drive Monessen PA 15062 (724) 684-5117	<b>608, 507</b>	<b>RUSSELL F CLARK CO</b> 1105 Rochester Rd Pittsburgh PA 15237 (412) 635-9500 www.rfclark.com	<b>720</b>
<b>PILOT THOMAS LOGISTICS</b> 494 4H Camp Road Morgantown WV 26508 (304) 619-5796 www.pilotthomas.com	<b>226</b>	<b>S2W CONTRACTING LLC</b> PO Box 422 Clarks Summit PA 18411 (940) 745-1421 www.s2wcontracting.com	<b>626</b>
<b>POTEMKIN INDUSTRIES, INC.</b> 8043 Columbus Road Mount Vernon OH 43050 (740) 397-4888 potemkinindustries.com	<b>611, 613</b>	<b>SAMCO ENTERPRISES, INC.</b> 1172 Industrial Park Drive Mt. Braddock SD 57465 (724) 277-1011 www.Samcoenterprises.com	<b>402</b>
<b>POWER PARTS SUPPLY</b> 353 Keystone Dr. Charleston WV 25311 (304) 342-0600 powerpartssupply.com	<b>610</b>	<b>SHALEPRO ENERGY SERVICES</b> 17 Lane Drive Clarksburg WV 26301 (304) 709-7100 www.shalepro.com	<b>311</b>
<b>POWERSMITH GROUP</b> 6774 Salerno St NW Canton OH 44718 (330) 714-4339 www.powersmithgroup.com	<b>614</b>	<b>SIEMENS</b> 4400 Alafaya Trail Orlando FL 32826 (407) 455-4364 siemens.com	<b>612</b>

	<b>Booth #</b>		<b>Booth #</b>
<b>SINOR ENGINE</b> 1100 Georgia Ave Deer Park TX 77536 (832) 527-8486 www.sinorengine.com	<b>224</b>	<b>UNITED ELECTRIC CONTROLS CO.</b> 5829 Grazing Court Mason OH 45040 (513) 535-5486 ueonline.com	<b>400</b>
<b>SLOAN LUBRICATION SYSTEMS</b> 168 Armstrong Drive Freeport PA 16229 (412) 828-2420 www.sloanlubrication.com	<b>600, 501, 503. 602</b>	<b>VANEC INDUSTRIAL SILENCERS</b> 3374 Benzing Rd Orchard Park NY 14127 (716) 827-4959 www.vanec.com	<b>511</b>
<b>SOLAR TURBINES INCORPORATED</b> 2200 Georgetowne Drive, #601 Sewickley PA 15143 (724) 759-7800 www.solarturbines.com	<b>407, 409, 508</b>	<b>VIZAAR INDUSTRIAL IMAGING</b> 4533 Gibsonia Rd Gibsonia PA 15044 (724) 449-3270 vizaar-na.com	<b>318</b>
<b>SOR MEASUREMENT &amp; CONTROL</b> 14685 West 105th Street Lenexa KS 66215 (913) 888-2630 www.sorinc.com	<b>525</b>	<b>W.M. WILSON CO., INC.</b> 2579 Center Road Hinckley OH 44233 (330) 225-0663 www.wmwilsoncoinc.com	<b>723</b>
<b>SUMMIT</b> 9010 CR 2120 Tyler TX 75707 (903) 534-8021 www.klsummit.com	<b>420</b>	<b>WESCO VALVE &amp; SAFETY SEAL PISTON RING CO.</b> 4000 Airport Rd. Marshall TX 75672 (817) 271-3074 www.sswesco.com	<b>721</b>
<b>THE BG SERVICE COMPANY</b> 1400 Alabama Ave, #15 West Palm Beach FL 33401 (561) 659-1471 www.bgservice.com	<b>515</b>	<b>WINDROCK, INC.</b> 1832 Midpark Rd, Suite 102 Knoxville TN 37921 (865) 330-1100 www.windrock.com	<b>708</b>
<b>THE DOW CHEMICAL COMPANY</b> 2211 H.H. Dow Way Midland MI 48674 (989) 636-8480 www.dow.com/en-us/oil-gas-mining	<b>425</b>	<b>WOOD</b> 17325 Park Row Drive Houston TX 77084 (281) 920-4441 www.woodplc.com/vdn	<b>727</b>
<b>TM FILTRATION/FLUID ENGINEERING</b> 1432 Walnut Street Erie PA 16502 (814) 453-5014 www.tmfiltration.com	<b>513</b>	<b>WPI</b> 203 Freedom Drive Lawrence PA 15055 (724) 288-8085 www.wpi.com	<b>302</b>
<b>TORCUP INDUSTRIAL BOLTING TOOLS</b> 3530 Tuscarawas Road Beaver PA 15009 (610) 250-5800 www.torcup.com	<b>330</b>		
<b>UE SYSTEMS INCORPORATED</b> 14 Hayes Street Elmsford NY 10523 (800) 223-1325 www.uesystems.com	<b>315</b>		



# Exhibition Floor Plan



AUXILIARY EQUIPMENT / FILTRATION	COMPRESSOR MAINTENANCE	ELECTRICAL AND IGNITION EQUIPMENT
Room 323	Room 324	Room 325
<b>Tuesday</b>	<b>Tuesday</b>	<b>Tuesday</b>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Startup &amp; General Maintenance for Air Cooled Heat Exchangers</b> <i>Kendal Barber, Smithco Engineering</i>	<b>Compressor Theory</b> <i>Randy Dal Molin, Hoerbiger</i>	<b>Ignition Systems ROUNDTABLE DISCUSSION</b> <i>Michael Porter, Paul McHenry, Hoerbiger/Altronic Pat Runnels, Darrell Schmitt, FW Murphy Prod Controls Robert Virchow, Mark Skidmore, Motortech</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Gas Heating Equipment Design</b> <i>Daniel Huffaker, Total Products Services</i>	<b>Recip Compressor Packing, Vents and Drains</b> <i>Paul Cook, Cook Compression</i>	<b>Spark Plugs &amp; Ignition Accessories</b> <i>Ken Blanchard, Stitt, Charles Chewning, Champion, Alain LeFloch, BG Services</i>
<b>Wednesday</b>	<b>Wednesday</b>	<b>Wednesday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Startup &amp; General Maintenance for Air Cooled Heat Exchangers</b> <i>Kendal Barber, Smithco Engineering</i>	<b>Recip Compressors, Protection and Condition Monitoring</b> <i>Charles 'Chuck' Jenkins, Bently Nevada, a BHGE Company</i>	<b>Safety Instrumented Systems Solutions for SIL Compliance</b> <i>Scott Pierce, United Electric Controls</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
<b>Keeping Contaminants Out of Compressors, Facilities &amp; Pipelines Part 1</b> <i>Bill Couch, Parker Hannifin</i>	<b>Trouble Shooting Screw Compressors</b> <i>Lee Levisay, The PROS Company</i>	<b>EICS - Engine Integrated Control System</b> <i>Pat Runnels, Darrel Schmitt, FW Murphy Production Controls</i>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Keeping Contaminants Out of Compressors, Facilities &amp; Pipelines Part 2</b> <i>Bill Couch, Parker Hannifin</i>	<b>Compressor Maintenance Frames &amp; Components ROUNDTABLE DISCUSSION</b>	<b>Electrical Hazardous Area Classification</b> <i>George Samo, EQT</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Gas Heating Equipment Maintenance</b> <i>Daniel Huffaker, Total Products Services</i>	<b>Compressor Maintenance Cylinders &amp; Components ROUNDTABLE DISCUSSION</b>	<b>Back to Basics - RICE Compliance Through Basic Maintenance</b> <i>Pat Runnels, FW Murphy Production Controls</i>
<b>Thursday</b>	<b>Thursday</b>	<b>Thursday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
- No Session -	<b>Compressor Value Short Course Part 1</b> <i>Patrick Taylor, Hoerbiger, Steve Chaykosky, Dresser-Rand/Siemens</i>	<b>Instrumentation &amp; Controls Troubleshooting: Part 1</b> <i>Raymond Carr, FW Murphy Production Controls</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
- No Session -	<b>Compressor Value Short Course Part 2</b> <i>Patrick Taylor, Hoerbiger, Steve Chaykosky, Dresser-Rand/Siemens</i>	<b>Instrumentation &amp; Controls Troubleshooting: Part 2</b> <i>Raymond Carr, FW Murphy Production Controls</i>

ENVIRONMENTAL HEALTH AND SAFETY	GAS ENGINE MAINTENANCE	GAS PROCESSING
Room 326	Room 327	Room 328
<b>Tuesday</b>	<b>Tuesday</b>	<b>Tuesday</b>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Hazards with Storage Tanks / Safe Solutions in Operations</b>	<b>Gas Engine Principles; Basics of Combustion; Basic Exhaust Emissions</b>	<b>Flares / Thermal Oxidizers</b>
<i>Brandon Bajek, ECI</i>	<i>Bill Wirz, Dresser-Rand Company</i>	<i>Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Air Permitting—Comp. Stations /Well Pads Using Available Gen'l Permits in PA, OH, WV</b>	<b>Turbo, Blowers, Scavenging/Emissions Technology</b>	<b>Passive/ Robotic Inspections of Firetubes</b>
<i>Patty Centofanti, Trinity Consultants</i>	<i>Mitch Opat, Archrock, Greg Adams, GE Oil &amp; Gas</i>	<i>Jamie Gauthier, GE Inspection Services</i>
<b>Wednesday</b>	<b>Wednesday</b>	<b>Wednesday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
- No Session -	<b>Major Components: Evaluation and Maintenance</b> <b>ROUNDTABLE DISCUSSION</b>	<b>Gas Processing Systems: Types of Equipment, Operation &amp; Sugg. Maint.</b> <b>ROUNDTABLE DISCUSSION</b>
	<i>Dusty Smith, Andy Zimmerman, Bryan Beachy; EQT, Greg Adams, GE, Mitch Opat, Archrock, Bill Wirz, Dresser-Rand</i>	<i>Terry Nelson, WPI, Mike Riddell, RMS Engineers</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
<b>Hazards with Storage Tanks / Safe Solutions in Operations</b>	<b>Major Components: Evaluation and Maintenance</b> <b>ROUNDTABLE DISCUSSION</b>	<b>Gas Dehydration Part I</b>
<i>Brandon Bajek, ECI</i>	<i>Dusty Smith, Andy Zimmerman, Bryan Beachy; EQT, Greg Adams, GE, Mitch Opat, Archrock, Bill Wirz, Dresser-Rand</i>	<i>Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)</i>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>What to Expect When You're Inspected</b>	<b>Gas Valves &amp; Engine Balancing</b>	<b>Gas Dehydration Part II</b>
<i>Patty Centofanti, Trinity Consultants</i>	<i>Scott Fletcher, TransCanada</i>	<i>Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Update/Background on Gas Turbine Air Permitting Requirements for NE USA</b>	<b>Foundations and Grout</b>	<b>Gas Dehydration Part III</b>
<i>Anthony Pocengal, Solar Turbines</i>	<i>Scott Vercoe, Energy Tech Systems, Jay Greer, Iron Horse</i>	<i>Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)</i>
<b>Thursday</b>	<b>Thursday</b>	<b>Thursday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
- No Session -	<b>Preventative/Predictive Maintenance</b>	<b>Gas Filters / Separation</b>
	<i>Keith Schafer, TransCanada</i>	<i>Terry Nelson, Tony Brown, Waukesha-Pearce Industries (WPI)</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
- No Session -	<b>Journal Bearings</b>	- No Session -
	<i>Greg Bone, MIBA Bearing Group</i>	

<b>GAS TURBINES &amp; CENTRIFUGAL COMPRESSOR</b>	<b>GENERAL INTEREST I</b>	<b>GENERAL INTEREST II</b>
<b>Room 329</b>	<b>Room 330</b>	<b>Room 333</b>
<b>Tuesday</b>	<b>Tuesday</b>	<b>Tuesday</b>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Troubleshooting Gas Turbine and Centrifugal Gas Compressors</b>  <i>Gary Corbello, Ethos Energy</i>	<b>Compressor Alignment: Shaft and Flatness in Compliance with Ariel ER-82 Specification</b>  <i>Jay Richardson, LUDECA Inc.</i>	<b>Reciprocating Compressor Fleet Reliability: Part 1</b>  <i>Alex Sosnowski, Jiten Mistry, Wood</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Fire and Gas Detection for Turbine and Compressor Sets</b>  <i>Ken Salmen, Salmen Tech Co.</i>	<b>ASCO - 2, 3 and 4-way Solenoid Valves</b>  <i>Frank Farina, Emerson ASCO</i>	<b>Reciprocating Compressor Fleet Reliability: Part 2</b>  <i>Alex Sosnowski, Jiten Mistry, Wood</i>
<b>Wednesday</b>	<b>Wednesday</b>	<b>Wednesday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Rosemount Pressure and Temperature Transmitters</b>  <i>Greg Wentzel, Emerson</i>	- No Session -	<b>Managing Small-Bore Piping Vibration - the Leading Cause of Fatigue Failures</b>  <i>Alex Sosnowski, Wood</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
<b>Hart Communications Hands on Class</b>  <i>Greg Wentzel, Emerson</i>	<b>Zero Emission Blowdown</b>  <i>Thomas Kerr, Kerr Engineered Sales</i>	<b>Considerations for a Flexibility Analysis of Piping Systems in Vibration Applications</b>  <i>Gary Maxwell, Wood</i>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Turbine Recycle Valve Operation, Maintenance</b>  <i>Jim Neville, ECI</i>	<b>Proper Tensioning and Torqueing</b>  <i>Mike Mutich, Bolttech</i>	<b>Back to Basics Vibration Problem Solving</b>  <i>Jiten Mistry, Wood</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Micro Motion Flow Meters</b>  <i>Emerson</i>	<b>Reciprocating Compressor Performance Software</b>  <i>Joe Wilson, Dwayne Hickman, ACI Services, Inc.</i>	<b>Introduction to Reciprocating and Centrifugal Pumps</b>  <i>Gary Maxwell, Wood</i>
<b>Thursday</b>	<b>Thursday</b>	<b>Thursday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Testing/Setting Turbine Control/Differential Pressure Switches</b>  <i>Glenn Mastmann, Iroquois Gas</i>	- No Session -	- No Session -
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
- No Session -	- No Session -	- No Session -

GENERAL INTEREST III	LUBRICATION & FILTRATION	PIPELINE VALVE & ACTUATION MAINTENANCE
Room 334	Room 338	Room 335
<b>Tuesday</b>	<b>Tuesday</b>	<b>Tuesday</b>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
<b>Performance Control Devices Short Course, Part 1</b>  <i>Tyler Clark, Dwayne Hickman, ACI Services, Inc.</i>	<b>Basics of Lubricants - What Are the 5 Groups?</b>  <i>Chad George, Summit</i>	<b>Ball Valve Basics</b>  <i>Tim Northrup; Walt Elmquist - Northrup Equipment</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
<b>Performance Control Devices Short Course, Part 2</b>  <i>Tyler Clark, Dwayne Hickman, ACI Services, Inc.</i>	<b>Force Feed Lubrication System Comp &amp; Flow Rates Roundtable</b>  <i>Matt McCarthy - Sloan Lubrication; Bill Pullin - Reynolds French</i>	<b>Plug Valve Basics</b>  <i>Chad Nienser - CSN Solutions</i>
<b>Wednesday</b>	<b>Wednesday</b>	<b>Wednesday</b>
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
<b>Corrosion Protection for Compression Facilities</b>  <i>William Hudak, P.E., Tim Quetsch, E.I.T.</i>	- No Session -	<b>Ball Valve Maintenance and Field Practical Troubleshooting Roundtable</b>  <i>Chad Nienser - CSN Solutions; Tim Northrup; Walt Elmquist - Northrup Equipment</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
<b>Empirical HP Curves</b>  <i>Bob Webber, Siemens</i>	- No Session -	<b>Valve Maintenance Injection Equipment</b>  <i>Ward Hzuza - Sealweld USA</i>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
<b>Users Group - High Speed Recip Engine &amp; Compressor Roundtable</b>  <i>Frank Parker, EQT</i>	<b>Force Feed Lubrication Systems for Engines and Compressors: System Maintenance, Troubleshooting &amp;</b> <i>Matt McCarthy - Sloan Lubrication; Bill Pullin - Reynolds French</i>	<b>Rotary Vane Actuators</b>  <i>Robbie Broussard - TransCanada - CPG</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
<b>GE Waukesha Product Update</b>  <i>Chris Kipp, GE Power</i>	- No Session -	<b>Scotch Yoke Actuators</b>  <i>John Brown - TQT</i>
<b>Thursday</b>	<b>Thursday</b>	<b>Thursday</b>
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
- No Session -	- No Session -	<b>Actuator Maintenance and Troubleshooting</b> <i>Robbie Broussard - TransCanada - CPG; John Brown - TQT</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
- No Session -	- No Session -	<b>Valve Commissioning Roundtable Discussion</b>  <i>Tim Northrup; Walt Elmquist - Northrup Equipment; Ward Hzuza - Sealweld USA;</i>

TECHNICAL AND ENGINEERING      ENTRY LEVEL COMPRESSOR STATION OPERATOR TRAINING - \$350      OEM SOLAR TURBINES		
Room 336	Room 311	Room 307
<b>Tuesday</b>	<b>Tuesday</b>	<b>Tuesday</b>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Electrical Hazardous Area Classification</b>  <i>George Samo and Andrew Manski, EQT</i>	<b>Compressor Stations and Their Functions</b>  <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #1</b>  <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Compressor Station Control System Design</b> <i>Chuck Huizenga, Ryan Fitzgerald, Basic Systems, Inc.</i>	<b>Compressor Station Equipment and Yard Piping</b> <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #2</b> <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>Wednesday</b>	<b>Wednesday</b>	<b>Wednesday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Compressor Station Design Process Part 1</b>  <i>Mitch Mazaher, PE, Basic Systems, Inc.</i>	<b>Auxiliary Systems and Equipment</b>  <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #3</b>  <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
<b>Compressor Station Design Process Part 2</b>  <i>Mitch Mazaher, PE, Basic Systems, Inc.</i>	<b>Operating Characteristics of Reciprocating and Centrifugal Compressors</b>  <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #4</b>  <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Cost Reduction and Reliability Improvements for Reciprocating Compressors in Shale Gas</b> <i>Randy Dal Molin, Hoerbiger Compressor Technology</i>	<b>Design Characteristics of Prime Movers</b>  <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #5</b>  <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>Engineering Efficiency Into Your Compression Facility</b>  <i>Howard Murphy, EarthRes</i>	<b>Factors Basic to Reciprocating Compr. Operation</b>  <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #6</b>  <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>Thursday</b>	<b>Thursday</b>	<b>Thursday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Engineering Efficiency Into Your Compression Facility</b> <i>Howard Murphy, EarthRes</i>	<b>Characteristics of the Primary Equipment in a Compressor Station</b> <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #7</b> <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
- No Session -	<b>Reciprocating Compressor Comp &amp; Cylinder Operation</b>  <i>Jay Jackson and Steve Hower, EQT</i>	<b>OEM Solar Turbines #8</b>  <i>Mike Baltz and Evan Sharbrough, Solar Turbines</i>

OEM BHGE HSR	OEM CAT
Room 309	Room 310
<b>Tuesday</b>	<b>Tuesday</b>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>GE Waukesha Engine Conversions, Modifications and Upgrades</b>	<b>CAT Engine Electronics</b>
	<i>Matt Curry</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>GE Waukesha ESM1, ESM2 Overview / Troubleshooting</b>	<b>CAT G3600 A4 Introduction</b>
<i>Ryan Rudnitzki, GE Power</i>	<i>Scott Double</i>
<b>Wednesday</b>	<b>Wednesday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Product Overview Models/Frames</b>	<b>G3600 / G3500 Gas Compression Open forum</b>
<i>Joseph Mares, Baker Hughes a GE Company</i>	<i>Scott Double &amp; Matt Curry</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
<b>Gas Compression Fundamentals</b>	<b>CAT G3600 A4 Introduction</b>
<i>Joseph Mares, Baker Hughes a GE Company</i>	<i>Scott Double</i>
<b>1:00 - 2:30</b>	<b>1:00 - 2:30</b>
<b>Lubrication Requirements</b>	<b>CAT GERP</b>
<i>Joseph Mares, Baker Hughes a GE Co.</i>	<i>Matt Curry</i>
<b>2:40 - 4:10</b>	<b>2:40 - 4:10</b>
<b>General Maintenance / Joseph Mares, Baker Hughes</b>	<b>CAT G3600A3 / A4Tuning</b>
<i>*Also see General Interest III, 2:40pm</i> <b>GE Waukesha Product Update</b>	<i>Scott Double</i>
<b>Thursday</b>	<b>Thursday</b>
<b>8:00 - 9:30</b>	<b>8:00 - 9:30</b>
<b>Trouble Shooting</b>	<b>CAT Engine Installation / Cooling System</b>
<i>Joseph Mares, Baker Hughes a GE Company</i>	<i>Scott Double</i>
<b>9:40 - 11:10</b>	<b>9:40 - 11:10</b>
<b>Commissioning &amp; Start up/Evals</b>	<b>G3500 / G3600 Open Forum</b>
<i>Joseph Mares, Baker Hughes a GE Company</i>	<i>Scott Double &amp; Matt Curry</i>

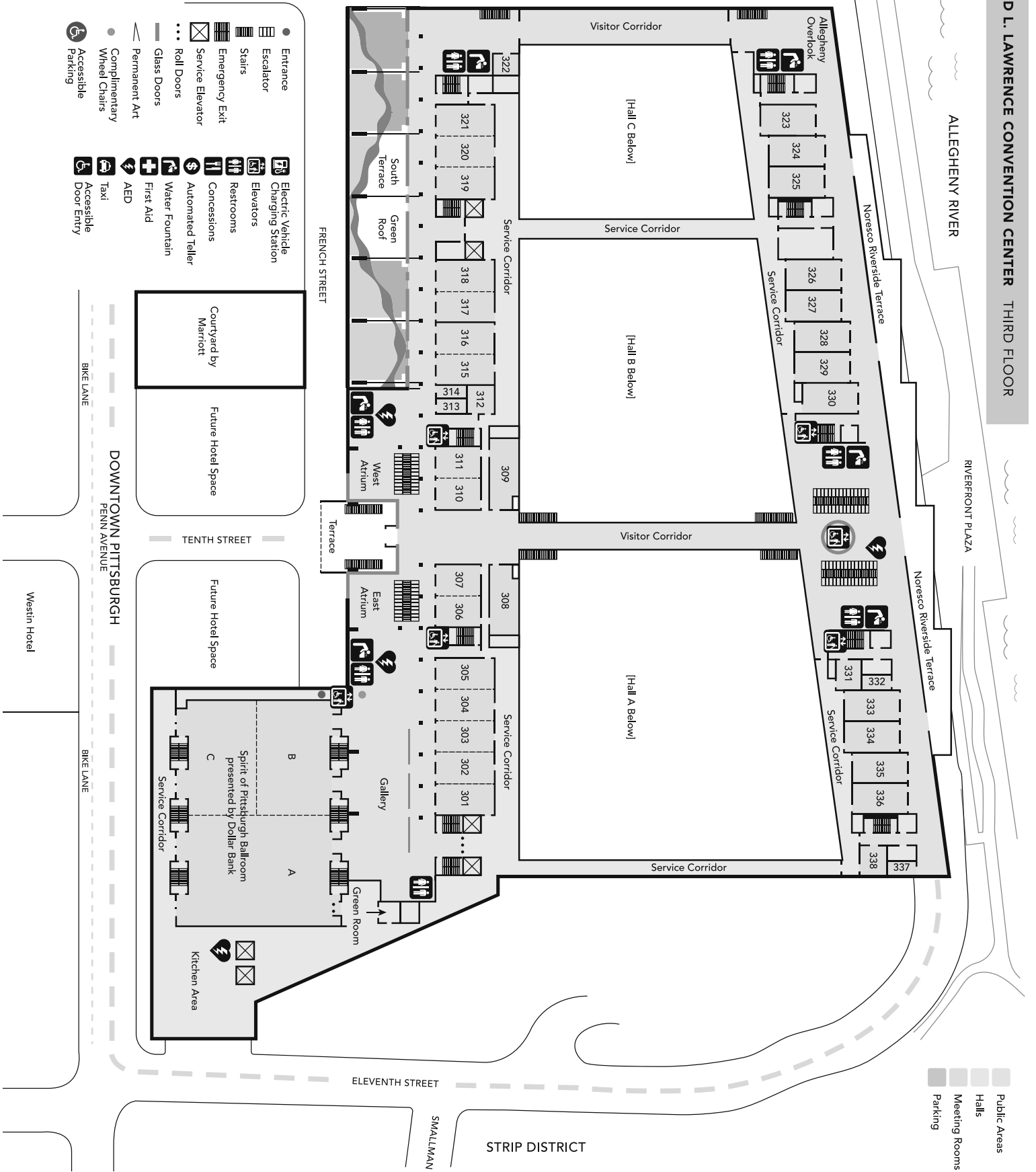
# Classroom Layout

CULTURAL DISTRICT  
GARRISON STREET

ALLEGHENY RIVER

RIVERFRONT PLAZA

STRIP DISTRICT



- Public Areas
- Halls
- Meeting Rooms
- Parking

- Entrance
- Escalator
- Stairs
- Emergency Exit
- Service Elevator
- Roll Doors
- Glass Doors
- Permanent Art
- Complimentary Wheel Chairs
- Accessible Parking
- Electric Vehicle Charging Station
- Elevators
- Restrooms
- Concessions
- Automated Teller
- Water Fountain
- First Aid
- AED
- Taxi
- Accessible Door Entry



# NOTES

**Mark Your Calendar  
for Next Year**

**May 21-23, 2019**



**Eastern Gas Compression Roundtable**

PO Box 922  
Monroeville, PA 15146  
412-372-4301

**[www.EGCR.org](http://www.EGCR.org)**