



egcr.org



2019 Eastern Gas Compression Roundtable

May 21-23, 2019
David L. Lawrence Convention Center
Pittsburgh, PA

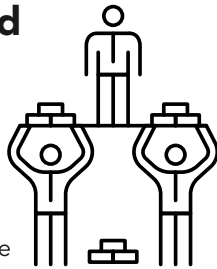
Table of Contents

Letter to Attendees	1
Schedule of Events	2
Keynote Address	3
Professional Development Hours	3
Code of Conduct	3
History and Purpose	4
Board of Directors	4
Chairman's Choice Award	5
Emeritus and Honorary Membership	5
General Chairman Roster	5
Sponsors	6
Class Descriptions	7-19
Exhibitor List	20-24
Exhibition Floor Plan	25
Education Schedule	26-31
Classroom Layout	32

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 47th Annual Eastern Gas Compression Roundtable and to extend our sincerest thanks for your 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.

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.

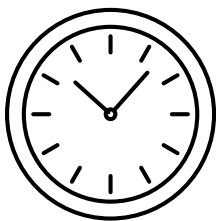
Interested in getting involved? EGCR is your organization. We encourage member participation in planning the future of the EGCR and hope you will consider volunteering. Write to us or stop by the registration desk at the Roundtable for more information.

Thank you for attending the 2019 EGCR!



47TH ANNUAL EASTERN GAS COMPRESSION ROUNDTABLE

Schedule of Events



MONDAY, MAY 20, 2019

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 21, 2019

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
6:30pm - 8:00pm	Reception at the Allegheny Overlook David Lawrence Convention Center

WEDNESDAY, MAY 22, 2019

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

THURSDAY, MAY 23, 2019

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

MONDAY, MAY 20, 2019

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.



Welcome Reception

MONDAY, MAY 20, 2019

6:00pm - 8:00pm	Bill's Bar & Burger The Westin Pittsburgh
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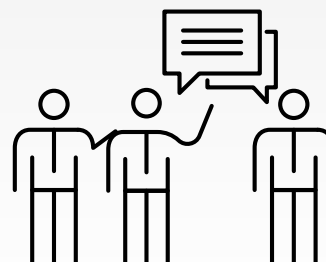
Help us kick off the 2019 EGCR at a Welcome Reception for all attendees on Monday evening from 6-8pm at Bill's Bar & Burger in the Westin Hotel. We'll provide the hors d'oeuvres (plus 2 free drink tickets), you bring the camaraderie!

Reception

TUESDAY, MAY 21, 2019

6:00pm - 7:30pm	Allegheny Overlook David Lawrence Convention Center
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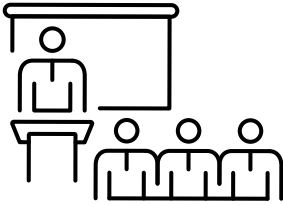
Enjoy complimentary hors d'oeuvres, 2 free drink tickets and a cash bar as you relax with friends and colleagues at the Allegheny Overlook, located on the 3rd floor of the Convention Center.



Keynote Address

11:40AM – 12:55PM

EXHIBIT HALL C



Operational Excellence:



How to increase safety and regulatory compliance while cutting cost

CHRIS HUMES

Senior Vice President of Operations
Crestwood Midstream Partners

Chris is responsible for the operation and maintenance of

Crestwood's processing and treating, underground storage, and the pipelines associated with those facilities. In addition, he is responsible for Crestwood's trucking, rail, and propane facilities as well. A veteran of the Oil and Gas industry for 28 years, he has worked in various facets of the energy industry including exploration and transportation of refined products, crude oil, LNG, and natural gas.

Mr. Humes is a graduate of Oklahoma State University with a degree in Mechanical Engineering and resides in Houston with his wife and two children.

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.

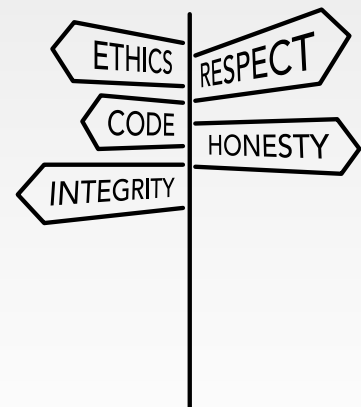


* EGCR classes are typically one and a half hour in length. A 1-1/2 hour class will equate to 1.5 PDHs. A full day course (8am – 5pm with 1-hour for lunch) will equate to 8 PDHs.

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.

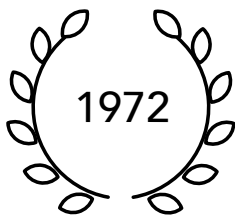
Any person associated with the EGCR, doing business with the EGCR or attending an EGCR event who engages in such activity may be removed from the event and potentially banned from future attendance. Anyone who believes he or she has been the target of harassment, sexual or otherwise, is asked to inform 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-seven 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.

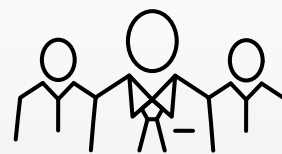
A member of the industry served as discussion leader in each session with manufacturing and/or service organization representatives serving as resource leaders. Attendance of 341 people representing more than 100 companies was recorded. With this base to grow on, the roundtable continues to expand and 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.

2019 BOARD OF DIRECTORS



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Matt McCarthy, Sloan Lubrication Systems

Mike Roy, Crestwood Midstream

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
2018	Melissa Schaffer, Solar Turbines

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)
 Sloan, Walter (Sloan Lubrication)
 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	Arther 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 Pethel	Matthews Lubricants, Inc.
2017	Tom Coyne	Hi-Tech Compressor & Pump Products, Inc.
2018	Tom Coyne	Hi-Tech Compressor & Pump Products, Inc.
2019	Keith Schafer	TC Energy

Sponsors

Sincerest thanks to our sponsors.



Walker



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CLASS DESCRIPTIONS

Entry Level Compressor Station Operator Training

Classroom: 309

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

Topic Chairman: Jay Jackson, Steve Hower, Equitrans Midstream

All classes taught by Jay Jackson, Steve Hower, Equitrans Midstream

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: 324

Included in Registration Price of \$225

Topic Chairman: Bill Couch, Parker Hannifin Corp.

TUESDAY

SESSION 1 **1:00 – 2:30**
NO SESSION

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

Daniel Huffaker, Total Products Services

WEDNESDAY

SESSION 3 **8:00 – 9:30**
DFT INC. - AXIAL FLOW CHECK VALVES

DFT Axial Flow Check Valves are designed for compressor discharge in line sizes up to 42" and pressure classes 150# to 1500#. The PDC was designed for one application - reciprocating gas or air compressor discharge. The GLC is a dual guided axial flow check valve for turbine discharge applications. Both are API 6D monogrammed and are installed at EQT, Dominion, Williams, TransCanada, National Fuel Gas, etc.

Steve Calvert, DFT Valves

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

SESSION 7 **8:00 – 9:30**
NO SESSION

SESSION 8 **9:40 – 11:10**
NO SESSION

Compressor Maintenance

Classroom: 325

Included in Registration Price of \$225

Topic Chairman: Kyle Jones, Ariel Corp

TUESDAY

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

This course will be a basic introduction to how reciprocating compressors work with emphasis on the theory of compression, the compression cycle, and a discussion of the basic components of a reciprocating compressor.

Randy Dal Molin & Stephen Woodstock, 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.

John Dunaway, Cook Compression

WEDNESDAY

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

This presentation will describe the different vibration and pressure sensors utilized for condition monitoring of recip compressors. We will also go over the data that these sensors supply, and how this data can be utilized to diagnose common recip problems such as valve leakage, liquid ingestion, loose crosshead pins and pistons, packing leakage and improper rod load reversal.

John Kingham, 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

Aaron Hite, Ariel Corp; Vic Campanelli, Potemkin; Mike Roy, Crestwood; Derek Hughes, Antero; Matt Gilbert, Siemens

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

Stephen Woodstock, Hoerbiger; Mike Roy, Crestwood; Jose Llamas, Ariel; Vic Campanelli, Potemkin; Derek Hughes, Antero; Matt Gilbert, Siemens

THURSDAY

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

A detailed discussion of the design, maintenance, and troubleshooting of reciprocating compressor valves.

Stephen Woodstock, Hoerbiger
Steve Chaykosky, Dresser-Rand/Siemens

SESSION 8 9:40 – 11:10

COMPRESSOR VALVE SHORT COURSE, PART 2

See above for class description.

Stephen Woodstock, Hoerbiger

Steve Chaykosky, Dresser-Rand/Siemens

Electrical and Ignition Equipment

Classroom: 326

Included in Registration Price of \$225

Topic Chairman: Mike Porter

TUESDAY

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

SESSION 2 2:40 – 4:10

SPARK PLUGS & IGNITION ACCESSORIES

Discussion on installation methods, material and design choices, failure mode analyses, and visual analysis procedures pertaining to industrial spark plugs and spark plug accessories

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

WEDNESDAY

SESSION 3 8:00 – 9:30

SAFETY INSTRUMENTED SOLUTIONS FOR TODAY'S CHALLENGES FOR PRESSURE TEMPERATURE AND GAS DETECTION

Session will focus on the basics of safety instrumented systems, formulating a simple solution around cyber threats for pressure, temperature and point gas detection. We will explore solutions using the IIOT (industrial internet of things) solution to creating a simple solution using independent layers of protection (ILP).

Scott Pierce, United Electric 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

Review of AGA XL1001 and NEC Chapter 5 as pertaining to Natural Gas compressor stations and pipelines

George Samo, Equitrans Midstream

SESSION 6 2:40 – 4:10

POST-CATALYST FEEDBACK AND CONTROL

Michael Young, Hoerbiger/Altronic

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: 327

Included in Registration Price of \$225

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.

Alec Sunderlin, 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

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.

Alec Sunderlin, 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 GAS TURBINES EMISSIONS REGULATORY UPDATE FUGITIVE GAS EMISSIONS TECHNOLOGIES (RE-INJECTIONS)

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

Ryan McKennon, Solar Turbines

THURSDAY

SESSION 7 8:00 – 9:30 NO SESSION

SESSION 8 9:40 – 11:10 NO SESSION

Integral Gas Engine Maintenance

Classroom: 328

Included in Registration Price of \$225

Topic Chairman: Andy Zimmerman, Equitrans Midstream

TUESDAY

SESSION 1 1:00 – 2:30 GAS ENGINE PRINCIPLES; BASICS OF COMBUSTION; BASIC EXHAUST EMISSIONS

Bob Webber, 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 & Nick Brumbaugh, GE Oil & Gas

WEDNESDAY

SESSION 3 8:00 – 9:30 JOURNAL BEARINGS

Greg Bone, MIBAS Bearing Group

SESSION 4 9:40 – 11:10 PREVENTATIVE/PREDICTIVE MAINTENANCE

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

Keith Schafer, TC Energy

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.

Keith Schafer, TC Energy

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.

Richard O'Malley, Five Star Products

THURSDAY

SESSION 7 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.

Bob Webber, Dresser-Rand; Mitch Opat, Archrock; Greg Adams, Nick Brumbaugh, GE Oil & Gas

SESSION 8 9:40 – 11:10 NO SESSION

Gas Processing

Classroom: 329

Included in Registration Price of \$225

Topic Chairman: Terry Nelson, WPI

TUESDAY

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

An open discussion on operations of a flare or thermal oxidizer system.

Mike Riddell, Flare Services

SESSION 2 2:40 – 4:10 UNMANNED ARIAL SITE INSPECTIONS & DATA PLATFORMS

Dave McPhillips, Avitas - GE

WEDNESDAY

SESSION 3 8:00 – 9:30 ROUNDTABLE DISCUSSION

Terry Nelson, WPI; Mike Riddell, Flare Services; David McPhillips, Avitas - GE

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

Process flow discussion on TEG glycol dehydration. troubleshooting, operations, pumps, filters, cleaning and servicing.

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****IMPROVING PERFORMANCE OF GLYCOL DEHYDRATION SYSTEMS WITH FORMULATED SOLVENTS**

Triethylene glycol (TEG) is widely used in the industry for gas dehydration and in a lot of cases it works quite well. But are there better options available? In certain situations, the answer is yes. This session will explore several scenarios where a formulated product offers a more stable operation, reducing both operating cost and headaches for the facility.

Nicholas Shurgott, Dow and Bryan Kuehne, Dow

THURSDAY**SESSION 7****8:00 – 9:30****IN-LINE GAS HEATING TECHNOLOGY OVER THE YEARS**

Compressor station gas turbine engines require protection from fuel gas liquid drop-out and subsequent freeze caused by the Joule-Thomson effect when natural gas pressure is cut or regulated from transportation line to burner supply pressure. Today's gas turbine manufacturers require high gas heat to maintain and optimize the function of their turbines. In-line heating or treatment of natural gas has long been a practice to prevent the JT effect. This technology has developed over the years and today's heaters provide greater efficiency, less gas emission and fuel gas consumption in the process. Presenters will review the development of this technology over time and where it may be headed in the future.

Jim Hansen, Tecvalco USA; John Gorham, Mulcare Pipeline Solutions

SESSION 8**9:40 – 11:10****NO SESSION****General Interest I**

Classroom: 331

Included in Registration Price of \$225

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**

Chris Greene, LUDECA Inc.

SESSION 2**2:40 – 4:10****HOSE ESSENTIALS**

We'll teach you how to expertly incorporate hoses into your fluid system, how to choose the optimum hose type for your particular application and maximize overall hose service life. We'll also show you how to understand multiple end-connection options and methods and how to install and routinely maintain hoses.

Mike Gagel & Gary Osman, Swagelok

WEDNESDAY**SESSION 3****8:00 – 9:30****COMPRESSOR STATION NOISE ANALYSIS AND PROACTIVE NOISE CONTROL**

Lindsey Aplan, Noise Solutions

SESSION 4**9:40 – 11:10****TROUBLESHOOTING SCREW COMPRESSORS**

Lee Levisay, The PROS Co.

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

Fred Funk & Brian Gruber, Bolt Tech 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**
TUBE BENDING EFFICIENCY IMPROVEMENT, PART I

We'll teach you how to expertly make quality bends of 45 degrees, 90 degrees, 180 degrees and offsets. Instruction will include how to use a hand tube bender, how to properly bend tubing 3/4" and greater in accordance with API suggestions and how to apply our proven measure-mark-bend methodology. We will also cover how to cut and deburr tubing and how to spot potential tubing defects.

Mike Gagel, Swagelok

SESSION 8 **9:40 – 11:10**
TUBE BENDING EFFICIENCY IMPROVEMENT, PART II

Mike Gagel, Swagelok

General Interest II

Classroom: 333

Included in Registration Price of \$225

Topic Chairman: Stephen Wright, CSI Compressco

TUESDAY**SESSION 1** **1:00 – 2:30**
SOLVING SCREW COMPRESSOR PACKAGE VIBRATIONS

Steven Crocker, Wood

SESSION 2 **2:40 – 4:10**
PIPE SUPPORTS FOR VIBRATION AND THERMAL GROWTH SERVICE

Starr Dalton, Wood

WEDNESDAY**SESSION 3** **8:00 – 9:30**
USING BUSINESS INTELLIGENCE TOOLS TO DRIVE ASSET PERFORMANCE

Matt Brandon, Wood

SESSION 4 **9:40 – 11:10**
PLUNGER PUMP BASICS, COMMON ISSUES AND MEASUREMENT TECHNIQUES

Steven Crocker, Wood

SESSION 5 **1:00 – 2:30**
TRENDS IN NOISE MANAGEMENT & REDUCING ACOUSTIC INSULATION

Farhana Lamis, Wood

SESSION 6 **2:40 – 4:10**
RESOLVING VIBRATION ISSUES ON RECIPROCATING COMPRESSORS

Steven Crocker, 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 \$225

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, how 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**
ZERO EMISSION BLOWDOWN

Doug Sahm, TPE Midstream

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

Bob Webber, Siemens

SESSION 5 **1:00 – 2:30**
PREDICTIVE MAINTENANCE PROGRAMS "HOW TO JUSTIFY
THEM FROM A BUSINESS PERSPECTIVE"

Bob Webber, Siemens

SESSION 6 **2:40 – 4:10**
NO SESSION

THURSDAY

SESSION 7 **8:00 – 9:30**
NO SESSION

SESSION 8 **9:40 – 11:10**
NO SESSION

Lubrication and Filtration

Classroom: 335

Included in Registration Price of \$225

Topic Chairman: Darrell Schmitt

TUESDAY

SESSION 1 **1:00 – 2:30**
ENGINE OIL LUBRICATION CHALLENGES AND
PERFORMANCE FACTORS FOR COST OPTIMIZATION

Engine manufactures are focusing on developing engines with higher power density and high BMEP which makes engine components operate at higher temperatures. Combustion for these engines have been optimized for better efficiency and higher output through design changes and metallurgical development. However, gas engines are sensitive to knocking and the incorporation of waste heat recovery systems to increase the overall efficiency, as well as after treatment devices in exhaust system, generate additional demands.

As engines become more demanding, the challenges on engine oil have also increased as a result of higher oil stress. Engine oil needs to ensure wear protection and deposit control so that overall plant efficiency is not compromised. As oil stress level increases, oil can degrade faster, prompting frequent oil changes and therefore another challenge for engine oil is to offer optimum oil life. By looking at used oil analysis trends in various new generation engines, the increase in oil stress level is quite evident. Understanding oil stress helps to provide guidance to choose most economical choice of lubricant considering challenges from fuel composition. The session focuses in reviewing typical engine lubrication challenges and requirements for optimal performance, field experience, oil analysis trends, and development considerations for higher performance oils, focusing in meeting ash level balance and other OEM demands.

Cesar Lizcano, Shell Oil Products US

SESSION 2 **2:40 – 4:10**
ROUNDTABLE DISCUSSION
FORCE FEED LUBRICATION SYSTEMS FOR ENGINES AND
COMPRESSORS

Matt McCarthy , Sloan Lubrication

WEDNESDAY**SESSION 3 8:00 – 9:30**

**FORCE FEED LUBRICATION SYSTEMS: HO
MAINTENANCE/TROUBLESHOOTING - PART I**

Bill Pullin, Reynolds French

SESSION 4 9:40 – 11:10

**FORCE FEED LUBRICATION SYSTEMS: HO
MAINTENANCE/TROUBLESHOOTING - PART II**

Bill Pullin, Reynolds French

SESSION 5 1:00 – 2:30

**ROUNDTABLE DISCUSSION
FORCE FEED LUBRICATION SYSTEMS FOR ENGINES AND
COMPRESSORS**

Matt McCarthy, Sloan Lubrication

SESSION 6 2:40 – 4:10

**ROUNDTABLE DISCUSSION
ENGINE, COMPRESSOR OIL FILTRATION - MICRONS**

John Hopkins, John Hopkins Unlimited

THURSDAY**SESSION 7 8:00 – 9:30**

NO SESSION

SESSION 8 9:40 -11:10

NO SESSION

Pipeline Valve & Actuation Maintenance

Classroom: 336

Included in Registration Price of \$225

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

TUESDAY**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 on sealant injection system. Class room valve cutaways with hand-on demonstrations will be shown.

Tim Northrup & Walt Elmquist, Northrup Equipment

SESSION 2 2:40 – 4:10

PLUG VALVE BASICS

Discussions of the common plug valve components, characteristics, and their unique design. Includes 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 will be given on the plug movement and how the evolution of the dynamic balanced/pressure balanced design has impacted the plug valve's 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, for why valves leak to repairing techniques in line under pressure.

Chad Nienser, CSN Solutions; Tim Northrup and Walt Elmquist Jr, Northrup Equipment

SESSION 4 9:40 -11:10

**VALVE MAINTENANCE INJECTION EQUIPMENT FITTINGS
AND ADAPTERS**

A review of the most common equipment and the safe operations of each. Includes an extensive explanation of the proper use and troubleshooting techniques. We will also review fittings design and discuss cylinderization and valve adapter methodology

Ward Hruza; 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.

Dale Opperman, Emerson-Shafer

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.

David Garner, MRC Global

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.

David Garner, Curtis Gill, MRC Global; Rich Askin, Circor

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 be but not limited to riser pipe inspection, fitting identification and inspection, gear box (manual) and actuator inspection. Class involvement and participation will be encouraged.

*Tim Northrup, Richie Riggelman; Northrup Equipment;
Ward Hruza, Sealweld USA; Chad Nienser, CSN Solutions*

Technical & Engineering

Classroom: 338

Included in Registration Price of \$225

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, Equitrans Midstream

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 may affect or be affected by a station's control system, control philosophy, and/or operational philosophy. We'll 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.

Ryan Fitzgerald, Basic Systems, Inc.

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

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. and 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**

Explain the importance and needs of automation at compressor stations. Discuss how the data pulled and derived from these devices are used in controlling and shutting down equipment along with using the data to predict potential failures.

Mitch Mazaher, PE, Basic Systems, Inc.

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

Randy Dal Molin, Hoerbiger Compressor Technology

SESSION 6 **2:40 – 4:10** **IDENTIFYING THE OPTIMAL COMPRESSOR STATION LOCATION TO MINIMIZE INVESTMENT**

This class addresses pipeline operator questions on how to evaluate and select the best location for a compressor station, evaluating the types of compressor units to install, and evaluating the compressor driver options, all to minimize life-cycle costs.

Howard Murphy, EarthRes Group

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. We will also cover how to arrange, or rearrange, the equipment parts to optimize electric power and natural gas fuel usage.

Howard Murphy, EarthRes Group

SESSION 8 **9:40 -11:10** **PSV REMEDIATION CASE STUDY: REFINED STRESS VS. PHYSICAL REMEDIATION**

In this class, the audience will be presented a Pressure Safety Valve (PSV) remediation case study that will illustrate how implementing detailed stress analysis techniques and appealing to a more rigorous Section of the ASME Code can demonstrate component qualification and avoid physical remediation of the affected piping system and unnecessary shutdown costs.

Tom Meikle, Barton-Lawson

Original Equipment Manufacturers (OEM) Solar Turbines

Classroom: 307

Included in Registration Price of \$225

Topic Chairman: Vic Campanelli

All classes taught by Edouard Bahous and Edward Fichtner, Solar Turbines

TUESDAY

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

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

WEDNESDAY

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

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

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

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

THURSDAY

SESSION 7 **8:00 – 9:30** **OEM SOLAR TURBINES #7**

SESSION 8 **9:40 -11:10** **OEM SOLAR TURBINES #8**

OEM BHGE HSR

Classroom: 310

Included in Registration Price of \$225

Topic Chairman: Vic Campanelli

All classes taught by Joseph Mares, Baker Hughes a GE Company

TUESDAY

SESSION 1 1:00 – 2:30

AJAX INTRODUCTION - PRODUCT OVERVIEW

SESSION 2 2:40 – 4:10

AJAX-SEQUENCE TWO CYCLE POWER
CYLINDER/INTAKE/EXHAUST

WEDNESDAY

SESSION 3 8:00 – 9:30

PRODUCT OVERVIEW MODELS/FRAMES

SESSION 4 9:40 – 11:10

GAS COMPRESSION FUNDAMENTALS

SESSION 5 1:00 – 2:30

LUBRICATION REQUIREMENTS

SESSION 6 2:40 – 4:10

GENERAL MAINTENANCE

THURSDAY

SESSION 7 8:00 – 9:30

TROUBLE SHOOTING

SESSION 8 9:40 -11:10

COMMISSIONING & START UP/EVALS

OEM Caterpillar

Classroom: 311

Included in Registration Price of \$225

Topic Chairman: Vic Campanelli

TUESDAY

SESSION 1 1:00 – 2:30

CAT ENGINE ELECTRONICS TROUBLESHOOTING

Matt Curry

SESSION 2 2:40 – 4:10

ROUNDTABLE DISCUSSION
G3600 / G3500 GAS COMPRESSION - ASK THE EXPERT

Scott Double & Matt Curry, Aaron Snyder

WEDNESDAY

SESSION 3 8:00 – 9:30

G3600 A4 OPERATOR CONTROL PANEL

Aaron Snyder

SESSION 4 9:40 – 11:10

CAT ENGINE ELECTRONICS TROUBLESHOOTING

Matt Curry

SESSION 5 1:00 – 2:30

CAT ELECTRONIC TECHNICIAN (ET)

Aaron Snyder

SESSION 6 2:40 – 4:10

ROUNDTABLE DISCUSSION
G3600 / G3500 GAS COMPRESSION - ASK THE EXPERT

Scott Double & Matt Curry, Aaron Snyder

THURSDAY

SESSION 7 8:00 – 9:30

CAT ENGINE INSTALLATION / COOLING SYSTEM / GERP

Scott Double

SESSION 8 9:40 -11:10

CAT G-3600A 4 PRODUCT HEALTH & ENGINE TUNING

Scott Double & Matt Curry

OEM Waukesha Engine

Classroom: 323

Included in Registration Price of \$225

Topic Chairman: Vic Campanelli

TUESDAY

SESSION 1 1:00 – 2:30

ESM1/ESM2 FUNDAMENTALS & TROUBLESHOOTINGV

Tony Mente

SESSION 2 2:40 – 4:10

IMPROVING LEGACY WAUKESHA ENGINE ISSUES IN
APPALACHIA

Ryan Rudnitzki

WEDNESDAY

SESSION 3 8:00 – 9:30

ROUNDTABLE DISCUSSION
VHP

Waukesha Sales Team

SESSION 4 9:40 – 11:10

INSTALLATION, STARTUP & COMMISSIONING

Tony Mente

SESSION 5 1:00 – 2:30

PRODUCT UPDATE & SERIES 5 INTRODUCTION

Ryan Rudnitzki

SESSION 6 2:40 – 4:10

CM&U OFFERINGS & INSTALLATION

Chris Kipp

THURSDAY

SESSION 7 8:00 – 9:30

SERIES 2/SERIES 4 TO SERIES 5 UPGRADE DEEP DIVE

Chris Kipp

SESSION 8 9:40 -11:10

PRODUCT OVERVIEW

Tony Mente

Exhibitor List

	Booth #		Booth#
ACI SERVICES, INC. 125 Steubenville Ave Cambridge OH 43725 (740) 435-0240 www.aciservicesinc.com	400	BARON FILTRATION CO INC 102 Four Coins Dr Suite 4 Canonsburg PA 15317 (724) 223-0299 www.baronfiltration.com	312
ADVANCED GAS ENGINE SOLUTIONS, INC. 616-B Beatty Road Monroeville BC 15146 (412) 380-7456 www.agesinc.us	303	BASIC SYSTEMS, INC. 9255 Cadiz Road Cambridge OH 43725 (740) 432-7223 www.basic-systems.com	207
ALLIED VALVE, INC. 1019 W. Grand Ave Chicago IL 60642 (312) 520-0235 www.alliedvalveinc.com	523	BCMJ CONTROLS, INC. 701 Fourth Avenue Coraopolis PA 15108 (412) 264-5434 www.bcmjcontrols.com	427
APPLIED PIPELINE, INC. PO Box 124 Knox PA 16232 (814) 938-1079 www.appliedpipeline.com	420	BELZONA MOLECULAR REPAIR 2950 Westway Drive #110 Brunswick OH 44212 (330) 460-7026 www.belzonamrs.com	611
ARCHROCK 1404 Mohawk Rd McPherson KS 67460 (620) 755-2249 www.archrock.com	201	BOLLAND MACHINE 2718 Darlington Rd Beaver Falls PA 15010 (724) 846-1290 www.bollandmachine.com	331
ARIEL CORPORATION 35 Blackjack Road Mount Vernon OH 43050 (740) 397-7999 www.arielcorp.com	206	BOLTING SYSTEMS & SERVICES INC. 121 Schoonmaker Ave. Monessen PA 15062 (724) 942-3654 www.Boltingco.com	330
ARKOS FIELD SERVICES 19750 FM 362 Road, Suite 100 Waller TX 77484 (832) 783-5400 www.arkos.com	727	BOLTTECH MANNINGS INC. 501 Mossie Blvd. North Versailles PA 15137 (614) 264-3635 www.bolttechmannings.com	220
AUMA ACTUATORS, INC. 100 Southpointe Blvd Canonsburg PA 15317 (724) 743-2862 www.auma-usa.com	315	CECO COMPRESSOR ENGINEERING 5440 Alder Drive HOUSTON TX 77081 (713) 663-1885 www.tryceco.com	403
BAKER HUGHES, A GE COMPANY 16240 Port NW Houston TX 77041 (832) 590-2305 www.bhge.com	503	CENTRAL PENNSYLVANIA INSTITUTE OF SCIENCE AND TECHNOLOGY 540 North Harrison Road Pleasant Gap PA 16823 (814) 359-3489 www.cpi.edu	709
		CLEVELAND BROTHERS 4565 William Penn Hwy Murrysville PA 15668 (717) 635-7450 www.clevelandbrothers.com	707

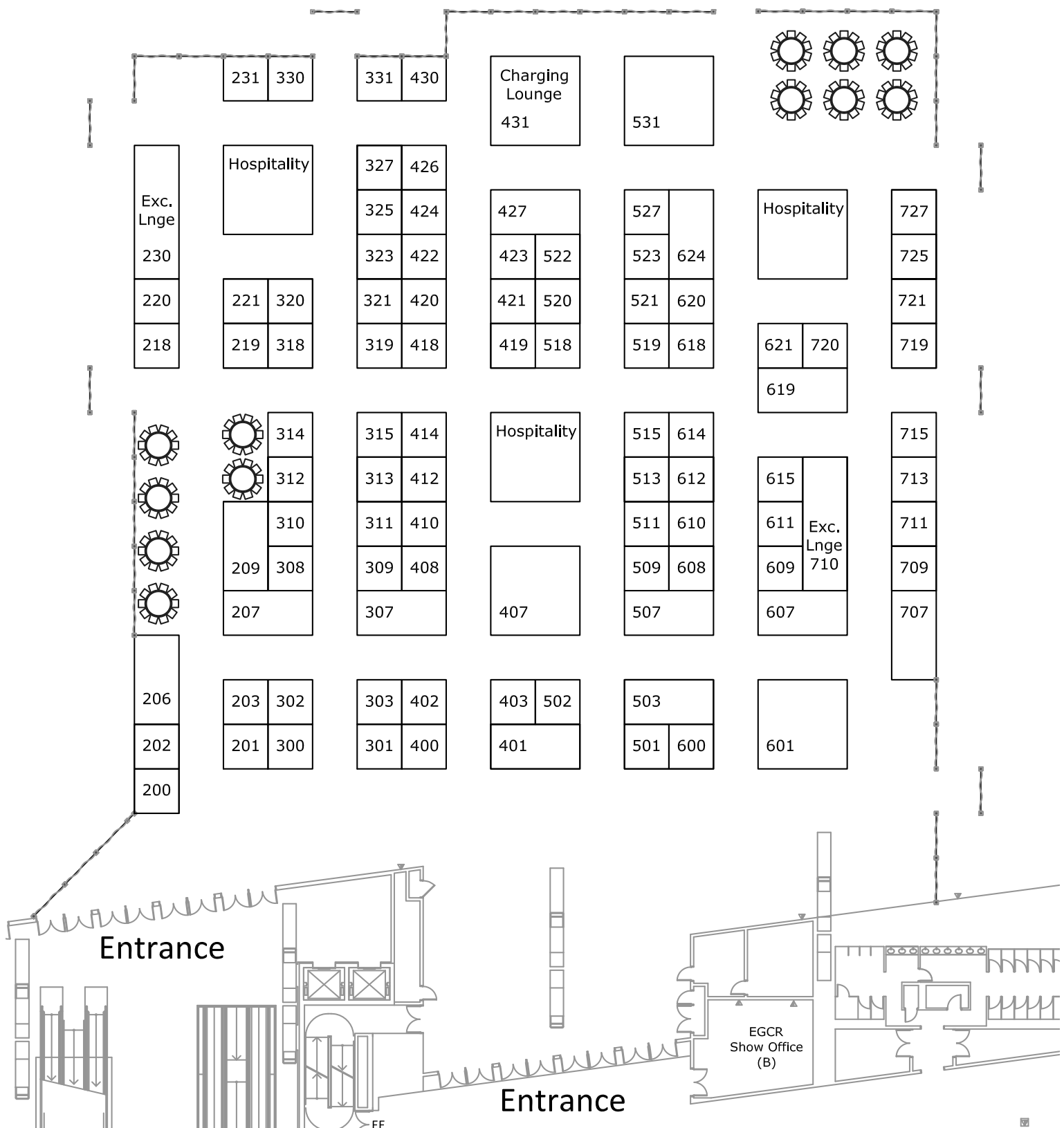
	Booth #		Booth#
COMPRESSORTECH2 20855 Watertown Road #220 Waukesha WI 53186 (262) 754-7100 www.khl.com	610	EMERSON 19200 Northwest Freeway Houston TX 77065 (713) 805-4216 www.emerson.com	520
CONTROL ANALYTICS INC. 6017 Enterprise Drive Export PA 15632 (724) 387-2367 www.controlanalytics.com	614	ENERGY TECH SYSTEMS, INC. 300 National Road, Suite 100 Exton PA 19341 (800) 880-2150 www.energytechsys.com	621
CPI (COMPRESSOR PRODUCTS INTERNATIONAL) 4410 Greenbriar Dr. Stafford TX 77477 (281) 207-4619 www.CPIcompression.com	419	EQUIPMENT & CONTROLS 2 Park Drive Lawrence PA 15055 (412) 977-2513 www.eci.us	608
CSI COMPRESSCO LP 24955 I-45 North The Woodlands TX 77380 (281) 367-1983 www.compressco.com	200	EXLINE, INC. 3256 E Country Club Rd Salina KS 67401-9528 (785) 825-4683 www.exline-inc.com	619
DCL AMERICA 27603 Commerce Oaks Drive Conroe TX 77385 (281) 253-3091 www.dcl-inc.com	509	FILTECH INC 221 W. 8th Ave. West Homestead PA 15120 (412) 742-9328 www.filtechinc.com	613
DFT INC. 2177 Spinningwheel Lane Cincinnati OH 45244 (513) 446-3583 www.dft-valves.com	513	FREDERICK LOGAN CO INC 140 Commonwealth Drive Warrendale PA 15086 (724) 776-9300 www.floco.com	323
DISTRIBUTION NOW 7402 N Eldridge Pkwy Houston TX 77041 (281) 823-4700 www.distributionnow.com	609	FW MURPHY PRODUCTION CONTROLS 4646 S. Harvard Tulsa OK 74135 (918) 957-1000 www.fwmurphy.com	531
EARTHRES GROUP, INC. 8000 Coombs Farm Drive, Suite 101 Morgantown WV 26508 (800) 264-4553 www.earthres.com	615	GAS COMPRESSION MAGAZINE 15814 Champion Forest Drive, Suite 419 Houston TX 77379 (832) 271-7380 www.thirdcoastpublishing.com	209
EASY FOAM, INCORPORATED 1881 Emma Road Basalt CO 81621 (405) 830-3000 www.easyfoam.net	414	GE/BENTLY NEVADA 515 West Park Blvd Haddonfield NJ 8033 (856) 854-4545 www.bentlynevada.com	519
ELLWOOD CRANKSHAFT GROUP 2727 Freedland Road Hermitage PA 16148 (724) 308-4048 www.ellwoodcrankshaftgroup.com	711	GILSON ENGINEERING 535 Rochester Road Pittsburgh PA 15237 (412) 651-0579 https://gilsoneng.com	730

	Booth #		Booth#
GLYCOL TECHNOLOGIES INC 140 Commonwealth Drive Warrendale PA 15086 (724) 776-3554 www.glycoltech.com	325	KOST USA, INC. 1000 Tennessee Avenue Cincinnati OH 45229 (513) 316-1757 www.kostusa.com	311
HEATH CONSULTANTS INCORPORATED 9030 Monroe Rd Houston TX 77061 (713) 844-1300 http://heathus.com	319	M&J VALVE SERVICES, INC 700 Bursca Drive Suite 703 Bridgeville PA 15017 (412) 221-5851 mjvalve.com	502
HI-TECH COMPRESSOR & PUMP PRODUCTS 1113 Branagan Dr Tullytown PA 19007 (215) 547-8800 https://hi-techcompressor.com	401	MACHINERY MONITORING SYSTEMS, LLC 11020 Solway School Road, Suite 105 Knoxville TN 37931 (865) 228-5444 www.mmsysllc.com	300
HOERBIGER 1358 W. Newport Center Dr. Deerfield Beach FL 33442 (954) 246-1352 www.hoerbiger.com	307	MATTHEWS LUBRICANTS Rt 50 West Clarksburg WV 26302 (304) 623-3361 www.matthewslubricants.com	423
HOTSTART 5723 E Alki Spokane WA 99212 (509) 534-6171 www.hotstart.com	418	MAXIM SILENCERS 10635 Brighton Lane Houston TX 77477 (832) 554-0980 www.maximsilencers.com	607
HYTORC PENN-OHIO 2115 Sheffield Rd Aliquippa PA 15001 (724) 378-4456 www.hytorcpennohio.com	402	MILLENNIUM TORQUE AND TENSIONING 1886 PA Rt 136 Eighty Four PA 15330 (724) 229-5020 https://milltorc.com	620
IMES USA 210 Fairway Drive Abingdon VA 24211 (276) 451-5265 www.imes.de	631	MILLER ENERGY INC 555 Golden Oak Parkway Cleveland OH 44146 (440) 735-0100 www.millerenergy.com	522
INTERSTATE-MCBEE 5300 Lakeside Avenue Cleveland OH 44114 (216) 881-0015 www.interstate-mcbee.com	501	MIRATECH 420 S 145th E Avenue, #A Tulsa OK 74108 (918) 442-2413 www.miratechcorp.com	302
KAMS, INC. 1831 N.W. 4th Dr. Oklahoma City OK 73106 (405) 232-2636 www.kamsinc.com	231	MONICO INC. 18530 Klein Church Rd. Spring TX 77379 (832) 299-4688 www.monicoinc.com	301
KERR ENGINEERED SALES COMPANY 5940 Baum Square Pittsburgh PA 15206 (412) 860-8527 www.kerreneeredsales.com	408	MYERS & CO, INC 121 Seventh Avenue Valencia PA 16059 (724) 625-0003 www.myerscoinc.com	721

	Booth #		Booth#
NATIONAL HEAT EXCHANGE CLEANING 8397 Southern Blvd Youngstown OH 44512 (330) 482-0893 www.nationalheatexchange.com	318	RECIPROCATING TECHNOLOGY SERVICES 9848 Windfern Road Houston TX 77064 (407) 947-2860 www.reciptech.com	527
PARKER HANNIFIN (PECO) PO Box 640 Mineral Wells TX 76068 (940) 325-2575 www.parker.com/ipf	314	REYNOLDS FRENCH & COMPANY 12525 S. 60th St. Tulsa OK 74146 (918) 252-7545 www.r-f.com	219
PEERLESS 50 Cobham Drive Orchard Park NY 14127 (716) 539-7488 cecoenviro.com	422	S2W CONTRACTING LLC PO Box 422 Clarks Summit PA 18411 (940) 745-1421 www.s2wcontracting.com	521
PIC APPALACHIA 210 Riverview Drive Monessen PA 15062 (412) 463-1586 www.pic-appalachia.com	507	SAMCO ENTERPRISES, INC. 1172 Industrial Park Drive Mt. Braddock PA 15465 (724) 277-1011 www.samcoenterprises.com	320
PILOT THOMAS LOGISTICS 103 East Brady Avenue Summersville WV 26651 304-619-5796 www.pilotthomas.com	313	SINOR ENGINE 1100 Georgia Ave Deer Park TX 77536 (832) 527-8486 http://sinorengine.com/	221
POTEMKIN INDUSTRIES, INC. 8043 Columbus Road Mount Vernon OH 43050 (740) 397-4888 www.potemkinindustries.com	624	SLOAN LUBRICATION SYSTEMS 168 Armstrong Dr Freeport PA 16229-2616 (412) 828-2420 sloanlubrication.com	601
POWER PARTS SUPPLY 353 Keystone Drive Charleston WV 25311 (304) 342-0600 www.powerpartssupply.com	410	SOLAR TURBINES, INC. 2200 Georgetown Drive #601 Sewickley PA 15143 (724) 759-7800 www.solarturbines.com	407
PPC LUBRICANTS, INC. 305 Micro Dr. Jonestown PA 17038 (724) 831-9564 www.ppclubricants.com	612	SWAGelok PITTSBURGH 49 Meade Avenue Pittsburgh PA 15202 (412) 761-3212 pittsburgh.swagelok.com	426
PRECISION CATALYST 2690 S County Rd West Odessa TX 79766 (432) 363-7889 www.precat.net	321	TECVALCO 3481 Stanley Avenue Niagra Falls, Ontario, CAN L2J 0E4 (905) 353-0101 www.tecvalco.com	424
PROFIRE ENERGY INC. 321 South 1250 West, Suite1 Lindon PA 84042 (801) 851-0828 www.profireenergy.com	308	THE BG SERVICE COMPANY 1400 Alabama Ave West Palm Beach FL 33401 (561) 659-1471 www.bgservice.com	515

	Booth #		Booth#
THE DOW CHEMICAL COMPANY 2211 H.H. Dow Way Midland MI 48674 (989) 397-6939 www.dow.com	421	WAUKESHA ENGINES 11330 Clay Road Houston TX 77041 (281) 740-1515 www.ge.com	202
UNITED ELECTRIC CONTROLS 180 Dexter Ave Watertown MA 2472 (617) 321-1209 www.ueonline.com	600	WB WELLS CO., INC. 1852 Painters Run Road Pittsburgh PA 15241 (412) 221-0390 www.wbwellsco.com	719
UNIVERSAL PLANT SERVICES (MIDSTREAM SERVICES) 806 Seaco Ct Deer Park TX 77536 (309) 351-2968 www.universalplant.com	327	WESCO VALVE & MFG. / SAFETY SEAL PISTON RING CO. 4000 Airport Rd. Marshall TX 75672 (817) 271-3074 www.sswesco.com	720
UNLIMITED IMAGING SOLUTIONS LLC 4533 Gibsonia Rd Gibsonia PA 15044 (412) 443-3946 www.unlimited-imaging.com	309	WINDROCK, INC. 1832 Midpark Rd., Suite 102 Knoxville TN 37921 (865) 330-1100 www.windrock.com	203
VAN AIR SYSTEMS 2950 Mechanic Street Lake City PA 16423 (631) 631-2631 www.vanairsystems.com	310	WOOD 17325 Park Row Drive Houston TX 77084 (281) 920-4441 woodplc.com	518
VANEC 258 West Girard Blvd. Buffalo NY 14217 (716) 553-8564 www.vanec.com	511	WPI 203 Freedom Drive Lawrence PA 15055 (724) 288-8085 www.wpi.com	412
W. M. WILSON CO., INC. 2579 Center Road Hinckley OH 44233 (440) 572-3877 www.wmwilsoncoinc.com	618		

Exhibition Floor Plan



AUXILIARY EQUIPMENT / FILTRATION	COMPRESSOR MAINTENANCE	ELECTRICAL AND IGNITION EQUIPMENT
Room 324	Room 325	Room 326
Tuesday	Tuesday	Tuesday
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
	Compressor Theory <i>Randy Dal Molin & Stephen Woodstock, Hoerbiger</i>	Ignition Systems *ROUNDTABLE* <i>Michael Porter, Paul McHenry, Hoerbiger/Altronic; Pat Runnels, Darrell Schmitt, FW Murphy</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Gas Heating Equipment Design <i>Daniel Huffaker, Total Products Services</i>	Recip Compressor Packing, Vents and Drains <i>John Dunaway, Cook Compression</i>	Spark Plugs & Ignition Accessories <i>Ken Blanchard, Stitt; Charles Chewning, Champion; Alain LeFloch, BG Services</i>
Wednesday	Wednesday	Wednesday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
DFT Inc. - Axial Flow Check Valves <i>Steve Calvert, DFT Valves</i>	Recip Compressors, Protection and Condition Monitoring <i>John Kingham, Bently Nevada, a BHGE Co.</i>	Safety Instrumented Solutions for Today's Challenges <i>Scott Pierce, United Electric Controls</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Keeping Contaminants Out of Compressors, Facilities & Pipelines Pt I <i>Bill Couch, Parker Hannifin</i>	Trouble Shooting Screw Compressors <i>Lee Levisay, The PROS Company</i>	EICS - Engine Integrated Control System <i>Pat Runnels, Darrell Schmitt, FW Murphy</i>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Keeping Contaminants Out of Compressors, Facilities & Pipelines Pt II <i>Bill Couch, Parker Hannifin</i>	Compressor Maintenance Frames & Components *ROUNDTABLE* <i>Aaron Hite, Ariel Corp; Vic Campanelli, Potemkin; Mike Roy, Crestwood; Derek Hughes, Antero; Matt Gilbert, Siemens</i>	Electrical Hazardous Area Classification <i>George Samo, Equitrans Midstream</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Gas Heating Equipment Maintenance <i>Daniel Huffaker, Total Products Services</i>	Compressor Maintenance Cylinders & Components *ROUNDTABLE* <i>Stephen Woodstock, Hoerbiger; Mike Roy, Crestwood; Jose Llamas, Ariel; Vic Campanelli,</i>	Post-Catalyst Feedback and Control <i>Michael Young, Hoerbiger/Altronic</i>
Thursday	Thursday	Thursday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
	Compressor Value Short Course Part I <i>Stephen Woodstock, Hoerbiger; Steve Chaykosky, Dresser-Rand/Siemens</i>	Instrumentation & Controls Troubleshooting Part 1 <i>Raymond Carr, FW Murphy Production Controls</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
	Compressor Valve Short Course Part II <i>Stephen Woodstock, Hoerbiger, Steve Chaykosky, Dresser-Rand/Siemens</i>	Instrumentation & Controls Troubleshooting Part 2 <i>Raymond Carr, FW Murphy Production Controls</i>

ENVIRONMENTAL HEALTH AND SAFETY	INTEGRAL GAS ENGINE MAINTENANCE	GAS PROCESSING
Room 327	Room 328	Room 329
Tuesday	Tuesday	Tuesday
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Hazards with Storage Tanks / Safe Solutions in Operations <i>Alec Sunderlin, ECI</i>	Gas Engine Principles; Basics of Combustion; Basic Exhaust Emissions <i>Bob Webber, Dresser-Rand Company</i>	Flares / Thermal Oxidizers <i>Mike Riddell, Flare Services</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Air Permitting—Compressor Stations/Well Pads Using Avail. Gen'l Permits in PA, OH, WV <i>Patty Centofanti, Trinity Consultants</i>	Turbo, Blowers, Scavenging/Emissions Technology <i>Mitch Opat, Archrock; Greg Adams, Nick Brumbaugh, GE Oil & Gas</i>	Unmanned Aerial Site Inspections & Data Platforms <i>Dave McPhillips, Avitas - GE</i>
Wednesday	Wednesday	Wednesday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
	Journal Bearings <i>Greg Bone, MIBA Bearing Group</i>	*ROUNDTABLE* <i>Terry Nelson, WPI; Mike Riddell, Flare Services; David McPhillips, Avitas - GE</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Hazards with Storage Tanks / Safe Solutions in Operations <i>Alec Sunderlin, ECI</i>	Preventative/Predictive Maintenance <i>Keith Schafer, TC Energy</i>	Gas Dehydration - Part 1 <i>Terry Nelson, Tony Brown, Waukesha-Pearce</i>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
What to Expect When You're Inspected <i>Patty Centofanti, Trinity Consultants</i>	Gas Valves & Engine Balancing <i>Keith Schafer, TC Energy</i>	Gas Dehydration - Part II <i>Terry Nelson, Tony Brown, Waukesha-Pearce (WPI)</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Gas Turbine Regulatory & Fugitive Gas Emissions <i>Anthony Pocengal, Solar Turbines Ryan McKennon, Solar Turbines</i>	Foundations & Grout <i>Richard O'Malley, Five Star Products</i>	Improving Perf. of Glycol Dehydration Systems w/Formulated Solvents <i>Nicholas Shurgott, Dow and Bryan Kuehne, Dow</i>
Thursday	Thursday	Thursday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
	Major Components: Eval. and Maint. *ROUNDTABLE* <i>Bob Webber, Dresser-Rand; Mitch Opat, Archrock; Greg Adams, Nick Brumbaugh, GE Oil & Gas</i>	In-Line Gas Heating Technology Over the Years <i>Jim Hansen, Tecvalco USA; John Gorham, Mulcare Pipeline Solutions</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10

GENERAL INTEREST I	GENERAL INTEREST II	GENERAL INTEREST III
Room 331	Room 333	Room 334
Tuesday	Tuesday	Tuesday
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
COMPRESSOR ALIGNMENT: Shaft and Flatness in Compliance with Ariel ER-82 Specification <i>Chris Greene, LUDECA Inc.</i>	Solving Screw Compressor Package Vibrations <i>Steven Crocker, Wood</i>	Performance Control Devices Short Course, Part I <i>Tyler Clark, ACI Services; Dwayne Hickman, ACI Services</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Hose Essentials <i>Mike Gagel & Gary Osman, Swagelok</i>	Pipe Supports for Vibration and Thermal Growth Service <i>Starr Dalton, Wood</i>	Performance Control Devices Short Course, Part II <i>Tyler Clark, ACI Services Dwayne Hickman, ACI Services</i>
Wednesday	Wednesday	Wednesday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
Compr. Station Noise Analysis & Proactive Noise Control <i>Lindsey Aplan, Noise Solutions</i>	Using Business Intelligence Tools to Drive Asset Performance <i>Matt Brandon, Wood</i>	Zero Emission Blowdown <i>Doug Sahm, TPE Midstream</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Troubleshooting Screw Compressors <i>Lee Levisay, The PROS Co.</i>	Plunger Pump Basics, Common Issues and Measurement Techniques <i>Steven Crocker, Wood</i>	Empirical HP Curves <i>Bob Webber, Siemens</i>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Proper Tensioning and Torqueing <i>Fred Funk and Brian Gruber, Bolt Tech Mannings</i>	Trends in Noise Management & Reducing Acoustic Insulation <i>Farhana Lamis, Wood</i>	Predictive Maintenance Programs "How to justify them from a business perspective" <i>Bob Webber, Siemens</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Reciprocating Compressor Performance Software <i>Joe Wilson, ACI Services and Dwayne Hickman, ACI Services</i>	Resolving Vibration Issues on Reciprocating Compressors <i>Steven Crocker, Wood</i>	
Thursday	Thursday	Thursday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
Tube Bending Efficiency Improvement, Part I <i>Mike Gagel, Swagelok</i>		
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Tube Bending Efficiency Improvement, Part II <i>Mike Gagel, Swagelok</i>		

LUBRICATION & FILTRATION	PIPELINE VALVE & ACTUATION MAINTENANCE	TECHNICAL AND ENGINEERING
Room 335	Room 336	Room 338
Tuesday	Tuesday	Tuesday
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Engine Oil Lubrication Challenges and Performance Factors for Cost Optimization <i>Cesar Lizcano, Shell Oil Products US</i>	Ball Valve Basics <i>Tim Northrup, Walt Elmquist, Jr; Northrup Equipment</i>	Electrical Hazardous Area Classification <i>George Samo and Andrew Manski, Equitrans</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Force Feed Lubrication Systems for Engines and Compressors *ROUNDTABLE* <i>Matt McCarthy, Sloan Lubrication</i>	Plug Valve Basics <i>Chad Nienser, CSN Solutions</i>	Compressor Station Control System Design <i>Ryan Fitzgerald, Basic Systems, Inc.</i>
Wednesday	Wednesday	Wednesday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
Force Feed Lubrication Systems: HO Maint/Troubleshooting - Part 1 <i>Bill Pullin, Reynolds French</i>	Ball Valve Maint/Field Practical Troubleshooting *ROUNDTABLE* <i>Chad Nienser, CSN Solutions; Tim Northrup and Walt Elmquist Jr, Northrup Equipment</i>	Compressor Station Design Process Part 1 <i>Mitch Mazaher, PE, Basic Systems, Inc.</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Force Feed Lubrication Systems: HO Maint/Troubleshooting - Part 2 <i>Bill Pullin, Reynolds French</i>	Valve Maintenance Injection Equipment Fittings and Adapters <i>Ward Hruza, Sealweld USA</i>	Compressor Station Design Process Part 2 <i>Mitch Mazaher, PE, Basic Systems, Inc.</i>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Force Feed Lubrication Systems for Engines and Compressors *ROUNDTABLE* <i>Matt McCarthy, Sloan Lubrication</i>	Rotary Vane Actuators <i>Dale Opperman, Emerson-Shafer</i>	Cost Reduction and Reliability Improvements for Reciprocating Compressors in Shale Gas <i>Randy Dal Molin, Hoerbiger Compressor Technology</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Engine, Compressor Oil Filtration - Microns *ROUNDTABLE* <i>John Hopkins - John Hopkins Unlimited</i>	Scotch Yoke Actuators <i>David Garner, MRC Global</i>	Identifying the Optimal Comp. Station Location to Minimize Investment <i>Howard Murphy, EarthRes</i>
Thursday	Thursday	Thursday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
	Actuator Maintenance and Troubleshooting <i>David Garner, Curtis Gill, MRC Global Rich Askin, Circor</i>	Engineering Efficiency Into Your Compression Facility <i>Howard Murphy, EarthRes</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
	Valve Commissioning *ROUNDTABLE* <i>Tim Northrup, Richie Riggleman; Northrup Equipment; Ward Hruza, Sealweld USA; Chad Nienser, CSN Solutions</i>	PSV Remediation Case Study: Refined Stress vs Physical Remediation <i>Tom Meikle, Borton-Lawson</i>

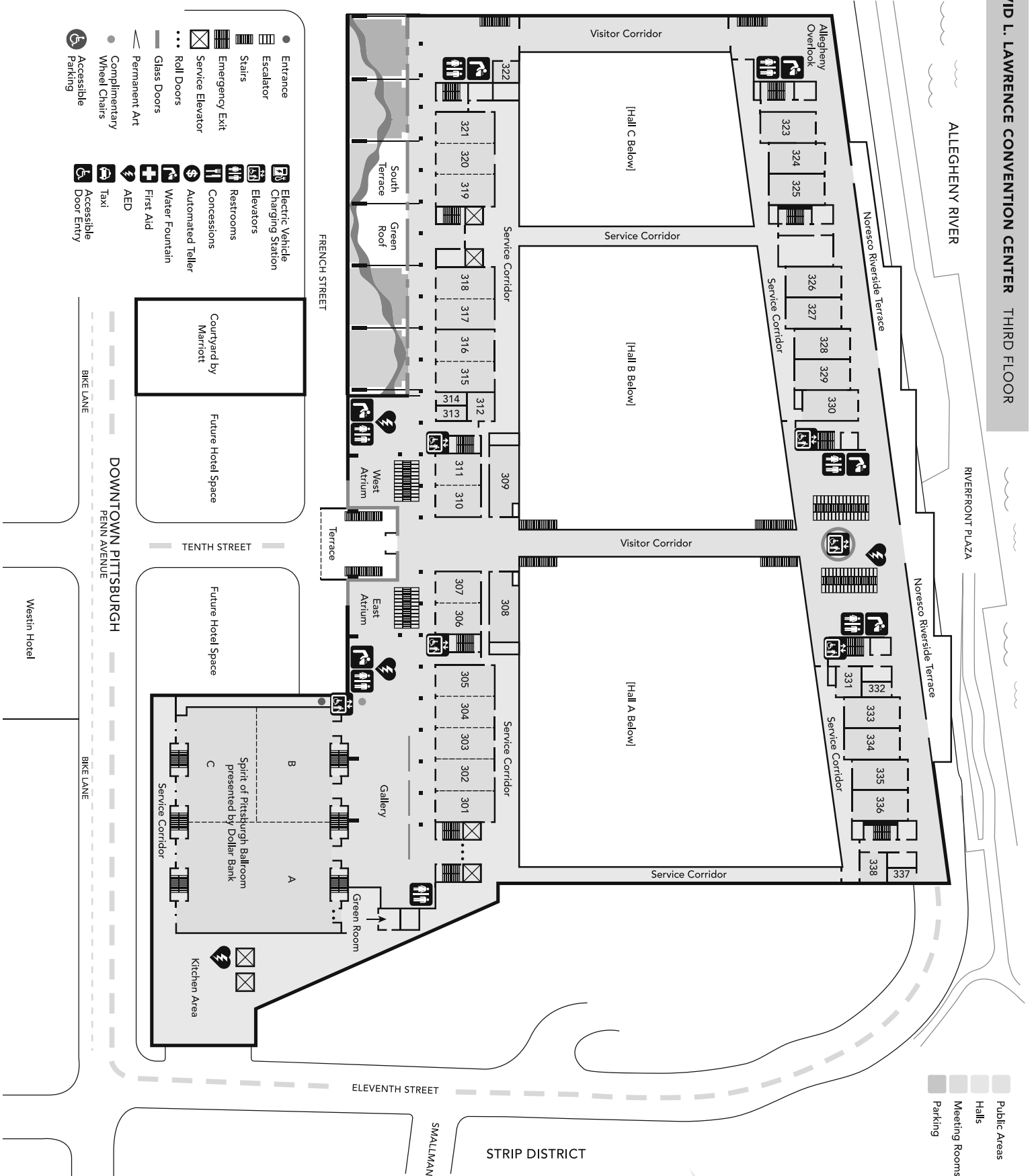
ENTRY LEVEL COMPRESSOR STATION OPERATOR TRAINING - \$350	OEM SOLAR TURBINES	OEM BHGE HSR
Room 309	Room 307	Room 310
Tuesday	Tuesday	Tuesday
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Compressor Stations and Their Functions <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #1 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	Ajax Introduction - Product Overview <i>Joseph Mares, Baker Hughes a GE Company</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Compressor Station Equipment and Yard Piping <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #2 <i>Edouard Bahous/Edward Fichtner, Solar Turbines</i>	Ajax - Sequence Two Cycle Power Cylinder/Intake/Exhaust
Wednesday	Wednesday	Wednesday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
Auxiliary Systems and Equipment <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #3 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	Product Overview Models/Frames <i>Joseph Mares, Baker Hughes a GE Company</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Operating Characteristics of Reciprocating and Centrifugal Compressors <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #4 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	Gas Compression Fundamentals <i>Joseph Mares, Baker Hughes a GE Company</i>
1:00 - 2:30	1:00 - 2:30	1:00 - 2:30
Design Characteristics of Prime Movers <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #5 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	Lubrication Requirements <i>Joseph Mares, Baker Hughes a GE Company</i>
2:40 - 4:10	2:40 - 4:10	2:40 - 4:10
Factors Basic to Reciprocating Compressor Operation <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #6 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	General Maintenance <i>Joseph Mares, Baker Hughes a GE Company</i>
Thursday	Thursday	Thursday
8:00 - 9:30	8:00 - 9:30	8:00 - 9:30
Characteristics of the Primary Equipment in a Compressor Station <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #7 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	Trouble Shooting <i>Joseph Mares, Baker Hughes a GE Company</i>
9:40 - 11:10	9:40 - 11:10	9:40 - 11:10
Reciprocating Compressor Components & Cylinder Operation <i>Jay Jackson; Steve Hower, Equitrans</i>	OEM Solar Turbines #8 <i>Edouard Bahous and Edward Fichtner, Solar Turbines</i>	Commissioning & Start up/Evals <i>Joseph Mares, Baker Hughes a GE Company</i>

OEM CAT	OEM WAUKESHA ENGINE
Room 311	Room 323
Tuesday	Tuesday
1:00 - 2:30	1:00 - 2:30
CAT Engine Electronics Troubleshooting	ESM1/ESM2 Fundamentals & Troubleshooting
<i>Matt Curry</i>	<i>Tony Mente</i>
2:40 - 4:10	2:40 - 4:10
G3600 / G3500 Gas Compression *ROUNDTABLE* "Ask the Expert"	Improving Legacy Waukesha Engine Issues in Appalachia
<i>Scott Double; Matt Curry; Aaron Snyder</i>	<i>Ryan Rudnitzki</i>
Wednesday	Wednesday
8:00 - 9:30	8:00 - 9:30
CAT G3600 A4 Operator Control Panel	VHP
<i>Aaron Snyder</i>	*ROUNDTABLE* Open Discussion
	<i>Waukesha Sales Team</i>
9:40 - 11:10	9:40 - 11:10
CAT Engine Electronics Troubleshooting	Installation, Startup & Commissioning
<i>Matt Curry</i>	<i>Tony Mente</i>
1:00 - 2:30	1:00 - 2:30
CAT Electronic Technician (ET)	Product Update & Series 5 Introduction
<i>Aaron Snyder</i>	<i>Ryan Rudnitzki</i>
2:40 - 4:10	2:40 - 4:10
G3600 / G3500 Gas Compression *ROUNDTABLE* "Ask the Expert"	CM&U Offerings and Installation
<i>Scott Double; Matt Curry; Aaron Snyder</i>	<i>Chris Kipp</i>
Thursday	Thursday
8:00 - 9:30	8:00 - 9:30
CAT Engine Installation / Cooling Systems / GERP	Series 2/Series 4 to Series 5 Upgrade Deep Dive
<i>Scott Double</i>	<i>Chris Kipp</i>
9:40 - 11:10	9:40 - 11:10
Cat G-3600A 4 Product Health and Engine Tuning	Product Overview
<i>Matt Curry - Scott Double</i>	<i>Tony Mente</i>

Classroom Layout

CULTURAL DISTRICT
GARRISON STREET

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Mark Your Calendar!

May 5-7, 2020

May 4-6, 2021



egcr.org

Eastern Gas Compression Roundtable

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