### DAY 1

Kick Off Keynote: Chet Thompson, President and CEO, AFPM

Industry Leadership Panel

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<tr>
<th>Profitability</th>
<th>Future of Industry</th>
<th>Practical Tools for Sites</th>
<th>Uses of Data</th>
<th>Roundtables</th>
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Learning objectives:
- Identify public policies that drive new product development
- Gain insight from operating company discussions on their use of VR/AR for turnaround planning, maintenance planning, and operator training
- Learn how to improve the ease of navigating through a PHA for all job functions involved and understanding the metrics to drive consistency
- Learn about safeguards on units and understand the risks, especially with the PSV and SIL systems
- Discover how to handle and prepare the data
- Learn how to use captured information
- Remote working
- Allowing access to consultants/vendors remotely
- Remote collaboration
- Gain insights from flexible training options tailored to compliment your educational needs
| A Practical Guide to Getting your Project Approved and Manage Economic and Technical Risk Speakers:  
| • Project SMEs for Operating Companies  
| • Process and Project Engineers  
| Learning objectives  
| • Gain insight into how to achieve alignment with stakeholders on getting approval to get an initiative approved  
| • Understand options to analyze economic and technical risk as part of profit improvement projects  
| • Provide advice and methods for junior engineers guide to guide their projects through an organization's approval process |
| Future of Refining |
| Human Organizational Performance (HOP) Facilitator: Abbas Dhalla, Chevron Corporation USA  
Speakers:  
Sahika Korkmaz and Chelsea Miller, Chevron Corporation USA  
Representative, Flint Hills Resources  
Learning Objectives: Discussion on company applications of HOP, achieved benefits, and case study examples |
| Digital Transformation In Refining: Looking Back, Looking Forward Facilitator: Michael Barham, Marathon Petroleum Corporation  
Speaker: Douglas White, Emerson Automation Solutions  
Participants will learn:  
• How to assess the potential operational financial benefits of new digital technologies  
• Which technologies are likely to be the most important in the future  
• What internal organizational requirements have a successful program implementation |
| Roundtable: Safety Before and After a Turnaround Turnaround Safety Panel, TBD  
Champion – Richard Grove  
Summary Topics include Shutdown, Safe Execution During TA, and Startup |
| Alignment on Asset Management Policies with Improving Site Profitability  
Learning objectives  
• Understanding process monitoring tools  
• Become familiarized with typical troubleshooting scenarios  
• Gain insight into useful digital process monitoring tools during troubleshooting scenarios |
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• Gain insight into useful digital process monitoring tools during troubleshooting scenarios |
| Walk the Line  
Real-time Crude Oil Data for Refinery Decisionmaking Speaker: Bill Poe, Mukund Unavane, AVEVA Learning objectives  
• Receive the latest information on crude oil knowledge management innovations  
• Understand the impact of timely and high-quality crude oil knowledge on purchasing and planning decisions  
• Gain insight on improved workflows to streamline the generation and usage of crude assays |
| Emerging Leaders  
• Presentations of practicable leadership practices for young professionals of 5-15 years’ experience and beyond |
| Crude/Coking  
FCC  
HydroProcessing  
Gasoline Processing  
Safety Award Recognition |
Crude Coking Roundtable: Reliability and Maintenance

FCC Pressure Balance Fundamentals
Topic – FCC 101: FCCU Pressure Balance Fundamentals
Champion – David Hunt
Presenter – Drey Holder
Summary
This interactive session provides a high-level overview for attendees that want to understand pressure balance fundamentals and the importance it has on FCC operations. Focus will primarily be on slide valve controlled units, but will also briefly discuss pressure balance controlled units. After the session, attendees will have a better understanding of how the pressure balance is related to standpipe aeration, circulation, slide valves, and reactor and regenerator pressures.

The How and Why of Hydroprocessing Safety
Systems Session moderators: Wendy Wildenberg, Flint Hills, Ken Chlapik, Johnson Matthey
Hydroprocessing Temperature Excursion
Review hazard, background – TBD
Potential Review of Avon incident 1997 – TBD
Generic Layer of Protection Analysis – TBD
Instrumentation/SIS – Temperature Measurement – TBD
Instrumentation/SIS – SIS programming – Triconex and Flint Hills
Hydroprocessing Relief Design – Special Consideration for Hydroprocessing Units
Review of individual scenarios
Where special considerations above and beyond API 521 are needed for hydroprocessing units

Gasoline Processing: Increased Octane Demand - Investment Strategy for the Future (Traditional Technologies vs Emerging Technologies)
Learning Objectives:
*Learn how increased octane demand is driving investment strategies in facilities
*Discuss how recent and upcoming regulations are challenging octane balances

We would like to take this opportunity to recognize those facilities and the contractors that received 2019 AFPM Safety Awards.

DAY 2

Crude Coking
FCC
Mechanical Integrity
Maintenance

Town Hall-Monitoring and Improving Equipment Operations "Train and Tickle Your Dragon"
Moderators: Maureen Price, Sam Lordo
Topics targeted are:
• Control Valves (SAL)
• Pumps (SAL)
• Instrument Calibration (importance of calibrations/impacts) (SAL-BC)
• Operational Benchmarking prior to operational changes (MP-Fluor)
Instrumentation calibration importance in benchmarking
Steps need to develop a benchmarking to base impact of changes on
First two topics are primarily like a PnP
• Control valve basics/flexibility/issues
• Pump types/curves/turndown/single stage vs multistage

Format – Panel of Catalyst Suppliers with Impartial Moderator / Chair
Champion – Ziad Jawad and Marc Secretan
Summary
3 or 4 experts evenly distributed. One or two subjects / questions per expert. Moderator / Chair presents the pre-determined subject question and expert presents response as well as initiate floor discussion. Session will include interactive questionnaires.

Roundtable and Case Study Session: Integrity Operating Windows

Flange Assembly Demonstration Unit
Facilitator: Scott Hinds, Marathon Petroleum Corporation
Speaker: John Jenco, JJenco, Inc.
Learning objectives: Demonstration, training and best practices
### Monitoring and Improving Equipment Operations

- **Optimization of the FCC at Lower Feed Rates**
  - Turbulent Markets – Getting the most out of the FCC during COVID-19
  - Champion – Darin Foote

- **Summary**
  - FCC Operation Safety and Reliability including optimization for minimization of financial impact (least negative), minimum feed rate, lack of storage, extreme constraints, long term park without entry.

### Gasoline Processing

#### Gasoline Processing Hydroprocessing OPCAT Emerging Leaders

- **Lessons Learned: PES Incident**
  - Speaker: Representative, Chemical Safety Board

- **Unloading Your Reactor: A Primer**
  - Speakers: Alfredo Romero, Eurecat & Danny Kurtz, CatSpec
  - Learning Objectives:
    1. Understanding available technology options & planning implications
    2. Relative comparison of options & reasons for selection
    3. Common pitfalls & solutions

- **Effective Catalyst Selection Strategies**
  - Champions: Christy Anderson, Albemarle; Sergio Robledo, Haldor Topsoe; Brian Watkins, ART
  - Speaker 1: Rahul Singh, Haldor Topsoe
  - Speaker 2: Steve Aycox, Albemarle

### AI Analytics

#### Managing Workflow Processes for Alarm Management, Safety Instrumented Systems, and Cybersecurity

- **Roundtable: Turnaround Scope**
  - Overview of turnaround scope development process – Hardy Kemp, Flint Hill Resources

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<th>MI Focused Session (API 751 Section 67)</th>
<th>Emerging Leaders</th>
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### Alkylation Unit Risk Management

- **Alkylation Unit Risk Management**
  - Speakers: Tim Sheppard, Becht; Matthew Wojtowicz, UOP (invited); Gary Kemeny, PBF (invited)
  - Learning Objectives:
    - *Recent risk reduction strategies being evaluated for alkylation units*
    - *API 751 updates*
    - *AFPM Survey on API 751 mitigation (2020 comparison to 2010)*

- **Effective Catalyst Selection Strategy**
  - Speaker 1: Rahul Singh, Haldor Topsoe
  - Speaker 2: Steve Aycox, Albemarle

- **Deep Learning/Machine Learning with APC and Online Optimization**
  - Facilitator: Atique Malik, Phillips 66
  - Speaker: Denis Tzerov, Phillips 66

- **Learning objectives**
  - Gain reported and verified benefits as well as verification procedures
  - Acquire the sustainability of the applications
  - Identify problems which could realistically benefit from deep learning or machine learning
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<tr>
<td><em>Corrosion in Alkylation Units</em></td>
<td>Session moderators: Joe Rydberg, Citgo; Hardy Kemp, Flint Hills</td>
<td>Facilitator: Bill Poe, AVEVA</td>
<td>Speaker: Joel Levitt, Springfield Resources</td>
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<tr>
<td><em>Issues with Higher Utilization of Naphtha Reformers</em></td>
<td>Overview of the scope development process – Hardy Kemp, Flint Hills Resources</td>
<td>Speaker: Julie Valentine, Emerson Automation Solutions</td>
<td>Learning objectives: 1. Routine job planning</td>
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<td><em>Chloride Management issues around Reformer/Isomer Units</em></td>
<td>Process Engineer Involvement (all except catalyst) – Joe Rydberg, CITGO</td>
<td>Learning objectives: 2. KPIs</td>
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<td><em>Unique Challenges around Preparation for TA of Gasoline Units with recent regulation updates</em></td>
<td>Shutdown and Decontamination – Speaker from RTI or Zymerflow</td>
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<td><em>Light Naphtha Balance Challenges</em></td>
<td>Discovery Scope – speaker TBD</td>
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<td><em>Issues around Gasoline Blending Qualities</em></td>
<td>Commissioning and Startup – speaker TBD,</td>
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**DAY 3**

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<th>Crude Coking</th>
<th>Hydroprocessing</th>
<th>Maintenance and Reliability Roubtables</th>
<th>Technical Session</th>
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<tr>
<td>Unit Optimization</td>
<td>Increasing Hydrocracker Profitability without Capital Investment</td>
<td>Dynamic Real Time Optimization for Value Sustainment: The Same Silos are not Going to Cut It</td>
<td>Comprehensive Blend Optimization and Analyzer Performance Monitoring</td>
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<td>Moderator: Andy Moreland, Valero</td>
<td>Opportunities (feed, pretreat, cracking, fractionation) – TBD</td>
<td>Speaker: TBD, KBC Advanced Technologies</td>
<td>Facilitator: Bill Poe, AVEVA</td>
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<tr>
<td>Feed management – speaker TBD</td>
<td>Pretreat catalyst - Chad Perrott, ExxonMobil and David Leach, Albemarle</td>
<td>Learning objectives:</td>
<td>Speakers: Bill Poe, Eric Gildea, AVEVA</td>
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<tr>
<td>Cracking catalyst</td>
<td>Fractionation</td>
<td>• Identify siloed human interactions that significantly negate the benefits of technological advances</td>
<td>Learning objectives:</td>
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<td>• Identify value sustainsments that need disruption in technology/ data, people and organizations</td>
<td>• Know the latest developments in blending and analyzer performance monitoring technologies</td>
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<td>• Gain insights into enhanced outcomes including consistent operations, bigger margin benefits and quicker responses</td>
<td>• Understand the latest statistical quality control techniques</td>
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<td>• Identify economic benefits or eliminating quality giveaway.</td>
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Coking and Lessons Learned

Regulatory Compliance: Perception vs. Reality
Session Moderator: Robert Ohmes, Becht

Electronic Permitting
Using Data Visualization and Advanced Analytics Methods for Troubleshooting Column Flooding Events
Speaker: Jose Bird, Valero Energy Corporation
Learning objectives:
• Employ advanced analytics methods to identify operating conditions prior to and during a process unit event
• Recognize the importance of having a multi-discipline team with a process unit subject matter expert when using advanced analytics methods to optimize process unit operations
• Develop operating guidelines to mitigate the risk of a flooding event.

Gasoline Processing

FCC
Equipment Fundamentals and Maintenance - Catalyst Slide Valves, Flue Gas Slide Valves, Orifice Chambers and Variable Orifice Valves
Champion – Matt Wojtowicz
Summary
1. Design basics, Maintenance, Health Monitoring, impact on process safety, calibration, decision strategy regarding repair.
2. Catalyst Slide Valves, Flue Gas Slide Valves, Orifice Chambers and Variable Orifice Valves.
3. Valve suppliers development on catalyst slide valves.
4. Latest response to industry incidents

Maintenance and Reliability Routables
Roundtable: Asset Strategy Optimization

Mechanical Integrity

OPCAT
Smart Manufacturing Platform and its Application to Equipment Monitoring
Facilitator: Tim Olsen, Emerson Automation Solutions
Speaker: Jesus Flores-Cerillo, Praxair Inc.
Learning objectives:
• Establish selection of monitored equipment, wireless sensors scope and field implementation learnings
• Identify cybersecurity and communication/network selections
• Learn the benefits of using the cloud-based equipment monitoring platform

Crude Troubleshooting and Lessons Learned

Gasoline Processing

Re-Visit MSAT-2 Benzene in Gasoline
Speakers: Terry helton, Exxon Mobil Corporation and Representative, GTC
*Discover changing drivers for MSAT-2 compliance
*Learn about new and alternative technology for managing Benzene in Gasoline
*Understanding considerations to shift from saturation or credits to octance or petrochemicals

Gasoline Maintenance and Reliability Routables
Mechanical Integrity
OPCAT
<table>
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<tr>
<th>Topic</th>
<th>Description</th>
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| **Naptha Reforming Unit Reliability** | Speakers: Russ Wiltze, Valero; Matthew Hitchinson, Axens; Steve Philoon, UOP  
*Experience and Improvements at Valero Three Rivers*  
*Discuss current issues with regard to reliability and approaches to manage them in aging units and higher maintenance equipment in UOP units* |
| **FCC Optimization** | FCC Optimization  
FCC 201: Operational changes with FCC Model runs (with FCCSim)  
Champion – Lee Wells  
Summary  
Paul Haugseth from KBC will present FCC Kinetic Model Optimization via Process Variables using Gulf Coast Economics to highlight economic optimization and sensitivity to key direct variables. |
| **Improving Machinery Reliability ... Defect Elimination:** | Tools for Today & Tomorrow  
Facilitator: Scott Hinds, Marathon Petroleum Corporation and Jimmy Jernigan, LyondellBasell Industries  
Speaker: Ian McKinnon, Reliability Solutions  
Reliability Solutions  
Learning objectives  
*Evaluate how captured data can determine how work is executed on the floor*  
*Get “on-the-floor” practices to determine whether work is completed as basic or essential*  
*Participate in a “live survey” of current skill set utilization* |
| **Industrial Autonomy in the Process Industries** | Speaker: Thomas Fiske, Yokogawa  
Learning objectives:  
*Identify industrial autonomy and how it is different from automation*  
*Describe the different levels of industrial autonomy within a process plant*  
*Identify applications and requirements*  
*Prepare for industrial autonomy* |
| **Gasoline Molecular Management** | Speakers: Andrew Becker, Burns & McDonnell and Randy Petersen, Dupont Stratco  
Learning Objectives:  
*Gain in depth knowledge on implication of composition on optimal naphtha separation*  
*Learn how a Divided Wall Column can simplify and improve naphtha prefractionation*  
*Recognize where Divided Wall Column applications make sense and which do not* |
Format - Panel of Catalyst Suppliers with Impartial Moderator / Chair  
Champion – Steve Gim, C J Farley  
Summary  
Abstract # 37, 38  
3 or 4 experts evenly distributed over the 45 minutes. One subject / question per expert. Moderator / Chair presents the pre-determined subject question and expert presents response. |
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Summary  
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3 or 4 experts evenly distributed over the 45 minutes. One subject / question per expert. Moderator / Chair presents the pre-determined subject question and expert presents response. |
| **Crude Coking Hydroprocessing** | Ask the Expert: Crude/Coking SME QA Panel | Ask the Expert: Hydroprocessing SME QA Panel  
Session Champion: Andy Moreland, Valero  
Will take Slido questions, app questions, session overflow questions, parking lot questions from P&P’s, planted questions and do several polls  
Moderator: Sravan Pappu, Crystaphase  
Panelists:  
Andy Moreland, Valero  
Wendy Wildenber, Flint Hills  
Jay Parekh, Chevron  
Paul Zimmerman, UOP  
Catalyst Company rep, TBD |
General Session Closing Event

Recorded Content:
Case Study Analysis of the World's First Commercial Fixed-Bed Catalyst Removal Robot
Invited Speaker: Worley Parsons
Learning objectives:
• Identify ways to overcome the challenges associated with implementing new technology in a turnaround.
• Identify where the CAROL technology might add benefit to catalyst handling operations at their sites
• Identify general information on the process involved in commercialization of a new product in the oil and gas industry

Avoiding Issues with Non-Decomposed Mercaptans During Sulfiding
Invited Speaker: Reactor Resources LLC
Learning objectives:
• Become familiar with non-decomposed mercaptans that cause SOx emissions
• Identify reactor temperatures critical to avoid this issue
• Examine online analyzer systems available to measure non-decomposed mercaptans in the gas stream in realtime.
Using Step-Out Catalyst Technology to Drive Refinery Efficiency

Invited Speakers:
- ExxonMobil Chemical Company
- Albemarle Corporation

Learning objectives
- Examine development in bulk metal catalysts showing an activity advantage up to three times that of conventional supported catalysts
- Gain insight into the GalexiaTM Alliance between ExxonMobil and Albemarle to refiners in the middle east. Alliance leverages the technical experience, refinery operating know-how and successful track record of both companies
- Learn how users are given access to state-of-the-art hydrotreating catalysts and the vast experience in catalyst load optimization
- Learn how distillate hydrotreaters and LCO/VGO hydrocrackers’ catalyst yields exceptional returns
Maximization of High-Value Transportation Fuels and Petrochemicals with Refinery Conversion Processes

Facilitator: TBD
Invited Speakers:
• CBI
• Chevron Lummus Global LLC

Learning objectives
• Recognize high conversion residue hydrocracking (RHC) is desired (is this word supposed to be designed instead of desired?) to meet the future transportation fuel and petrochemical requirements
• Conclude that the key to the successful application of RHC is the effective utilization of its products in processes
• Gain insight on how RHC can be successfully integrated within a complex.

Abstract# 68  Maximization of High-Value Transportation Fuels and Petrochemicals with Refinery Conversion Processes
Abstract # 5 K-SAAT™: Next-Generation Solid Acid Alkylation Technology

Globally, the demand for cleaner burning gasoline blend components is increasing and overall demand for gasoline is forecasted to rise gradually to 2050. The increase in demand for cleaner burning gasoline is driven primarily by environmental mandates and high-performance engines. Alkylate, isomerate, ethanol and ethers represent the cleaner burning gasoline blend components.

Among these, alkylate is the ideal clean fuel component because it has a high octane rating, exhibits low vapor pressure, low sulfur levels, and contains no aromatics or olefins. Currently, alkylate is being produced using either concentrated sulfuric or hydrofluoric acid as the catalyst that have high maintenance costs and require appropriate HSE controls due to the corrosive nature of the acids.

Solid acid catalysts have for many years promised simpler and cleaner alkylation processes. Short alkylation cycles of most solid acid catalysts, brought on by rapid oligomer formation, have resulted in

Abstract #8 BenzOut™ Technology: A cost effective process for octane increase, not just benzene compliance

Speaker(s) – Terry Helton, Exxon Mobil Corporation