The 65th Annual Laurance Reid Gas Conditioning Conference

February 22-25, 2015

National Center for Employee Development

Norman, Oklahoma
LRGCC Conference Sponsors

The 65th annual Laurence Reid Gas Conditioning Conference Committee would like to thank the 2015 conference sponsors. Their substantial donations help to make the LRGCC a recurrent success, and support the continual growth of the conference.

Shell Global Solutions, Inc.

As the sole platinum sponsor, Shell Global Solutions, Inc. generously hosts the annual Monday night LRGCC reception. The 2015 event will be held at the Sam Noble Museum of Natural History. The reception provides an opportunity for industry professionals to network, as well as the chance for the poster authors to have an additional venue to display their work.

Ortloff Engineers, LTD.

As a gold sponsor, Ortloff Engineers, LTD. generously provided chartered transportation for the Monday night reception held at the Sam Noble Museum of Natural History. Additionally, they provided both the morning and afternoon continuous break service on Tuesday.

BCCK Engineering, Inc.

As a silver sponsor, BCCK Engineering, Inc. generously provided the Monday breakout session catered luncheon. Their generosity provided for separate service, exclusive to conference participants, as well as upgraded menu offerings for 2015.

BASF Corporation

As a bronze sponsor, BASF Corporation generously provided the Monday morning continuous break service for all conference attendees.
LRGCC Hospitality Suites

The 65th annual Laurence Reid Gas Conditioning Conference is proud to recognize the 2015 hospitality suite sponsors. Their participation helps to make the LRGCC a continual success, and aids to the growth and participation of the conference overall.

CLARIANT
Salon O
Monday Night

COASTAL CHEMICAL CO., LLC
Salon N
Monday and Tuesday Nights

Dow
Salon G
Monday and Tuesday Nights

energy recovery
Salon J
Monday and Tuesday Nights

HUNTSMAN
Salon I
Monday and Tuesday Nights

Campbell & Co.
Salon Q
Monday and Tuesday Nights

MERICHEM COMPANY
Salon P
Monday and Tuesday Nights

OptimizedGasTreating Inc.
Billiard Room – Monday Night
Salon K – Tuesday Night

UOP
Salon H
Monday and Tuesday Nights

VMG
Salon L
Tuesday Night
LRGCC Program Schedule of Events

Sunday, 22 February 2015

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<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>12:00 p.m. – 2:00 p.m.</td>
<td>Registration</td>
<td>Business Center/Resource Room</td>
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<tr>
<td>2:00 p.m. – 2:30 p.m.</td>
<td>Conference Welcome</td>
<td>Main Ballroom</td>
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<td>Dick Wissbaum – AECOM</td>
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<td></td>
<td>LRGCC Conference Chair</td>
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<tr>
<td>2:30 p.m. – 5:30 p.m.</td>
<td>Fundamentals of Sulfur Recovery</td>
<td>Main Ballroom</td>
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<td>For plant engineers and operators new to Claus SRU/TGCU facilities:</td>
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<td></td>
<td>processes, chemistry, equipment, controls, and guidelines for proper</td>
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<td></td>
<td>care and feeding of a sulfur plant.</td>
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<td>Al Keller, Phillips 66; Susan Grigson, Kelley LaRue, and</td>
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<td>Daryl Jensen, Ortloff Engineers, Ltd.</td>
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**Poster Sessions**

The poster session remains an integral aspect of the Laurence Reid Gas Conditioning Conference. The full poster session papers are included in the LRGCC proceedings, while the display sessions showcase key text and supporting illustrations. Authors are present during the poster sessions to discuss their research and answer questions. Poster sessions are available on Monday and Tuesday during morning and afternoon breaks, as noted in the program agenda.

**New Approach to Reduce Hydrocarbons Contaminants in the Sour Water Stripper System**

In the Haradh Gas Plant, the sour water at the slug catchers has high hydrocarbon and solids content, leading to problems in operations of the sour water stripper, and loss of revenue due to the non-recovered hydrocarbons lost with the sour water. Detailed investigations were performed and the results of these investigations were increased revenue from higher hydrocarbon recovery, improved filter performance with reduction in operation costs, and greater SWS reliability. The investigations and the improved results are described in the paper.

*Nasser A. Al-Qahtani - Saudi Aramco*

**Highly Efficient Membrane Materials for Enhanced Natural Gas Sweetening**

The use of room-temperature ionic liquids in combination with polymeric membranes for CO₂ separation leads to an enhanced membrane performance.

*Dr. Angela Lennert, Wiebke Breit - Merck*
### Monday, 23 February 2015

<table>
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<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
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<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td><strong>Registration</strong></td>
<td>Business Center/Resource Room</td>
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| 8:00 a.m. – 8:30 a.m. | **Conference Welcome**  
Dr. Shad Satterthwaite, Assistant Vice President for University Outreach, Continuing Education Academic Programs, The University of Oklahoma  
Dick Wissbaum, LRGCC Conference Chair | Main Ballroom |
| 8:30 a.m. – 10:00 a.m. | **Moderator**  
Ken McIntush, Trimeric Corporation  
**The Challenges of Monetizing Low Heating Value and Sour Gas Fields**  
Assessment of various processing options to develop low heating value and highly sour gas fields to meet Saudi Arabia's future energy demand and stringent emission targets. Studies of two gas fields being developed by Saudi Aramco will discuss critical aspects of process selection.  
Megat A. Rithauddeen, John O'Connell, Ismail A. Alami - Saudi Aramco | Main Ballroom |
| 10:00 a.m. – 10:30 a.m. | **Morning Session Break and Poster Session** | Meeting Area Lobby |
| 10:30 a.m. – 12:15 p.m. | **Triazine-Based H2S Scavengers - The Facts to Date**  
We know that triazine based scavengers have a propensity to form solids, but the exact cause of the formation has not been obvious. Much has been learned about the chemical composition and properties of these scavengers. | Main Ballroom |
solids, allowing for the development of methods to prevent, minimize, or at least mitigate any impact on production associated with these by-products. The paper describes the chemical nature of the solids and the methods to date that have been economically successful in removing the solids.

_Bud Warren, Tre Bertrand- Coastal Chemical_

**Moving Targets: How Ever Changing Air Quality Regulations are Driving Process Decisions**

Constantly evolving State and Federal air quality regulations and permitting requirements are now an integral part of facility planning, design, and operation.

_Luke Addington, Darin Kennard - Bryan Research & Engineering_

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**12:15 p.m. – 1:30 p.m. Break Out Session Luncheon**

**Filtration**

Topics relevant to gas processing, including but not limited to liquid and gas filtration, coalescers, best operating and design practices and new technology.

_Bob Veroba, Hunstman Corp. Canada, Inc. and David Engel, Filtration Experts_

**Chemicals in Your Plant**

What do you add to your amine system? How and why?

_Al Keller, Phillips 66 Company_

**Open seating for additional networking opportunities**

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**1:30 p.m. – 3:00 p.m. Moderator**

_Greg Hanlon, Treating & Sulfur Solutions, Inc._

**Predicting and Mitigating Corrosion in Amine Units**

Every EPC firm and most process plant engineering offices have access to at least one, and occasionally several, software packages for simulating a variety of processes and unit operations. This paper addresses two questions: Is the simulator you are using matched to your needs and expectations? How reliable are the simulation results? Engineers often use a tool that is either too powerful or expensive for the intended use or, more often, they use one that is woefully inadequate. And they almost invariably struggle with uncertainty about whether their tools are even giving them the right answers. All sorts of methods and approaches, many incorrect, are used to establish and validate the trustworthiness of a given tool.
Clayton E. Jones, Nathan A. Hatcher, Simon A. Weiland, and Ralph H. Weiland - Optimized Gas Treating

The Impacts of Trace Components on Design and Operation of Gas Treating and Processing Plants
Distribution of and designing to handle troublesome trace contaminants (mercury, mercaptans, carbonyl sulfide, aromatics and other hydrocarbons) within various gas and recovered liquids treating systems.
Johnny Johnson, Jeff Matthews, Jane Nichols - URS

3:00 p.m. – 3:30 p.m.  Afternoon Session Break and Poster Session  Meeting Area Lobby

3:30 p.m. – 5:00 p.m.  Studies on the Mechanism of Amine Degradation in the Presence of O2 and H2S/O2 at Contactor - Regenerator Conditions
This paper describes the degradation mechanism for alkanolamines after O2 ingress, based on experimental investigations under contactor and regenerator conditions. The catalytic role played by rust in such reactions is explored.
Melerin Madekufamba, P.D. Clark, and N.I. Dowling - ASRL, University of Calgary

Taming the Beast - A Systematic Approach
Established a Pragmatic Overpressure Protection Scheme at Wellsite Field Facilities
A systematic approach for identifying the pressure relief requirements for typical gas conditioning systems found in the field shows that relief system analysis does not have to be burdensome when similar or standard design features pervade and common sense is applied.
Jeffrey Heil, P.E. - Inglenook Engineering, and Brian Pack, P.E. - BP

5:30 p.m. – 8:30 p.m.  Laurance Reid Gas Conditioning Conference Reception  Sam Noble Museum of Natural History

Tuesday, 24 February 2015

8:00 a.m. – 10:00 a.m.  Moderator
Pierre Crevier - Crevier Process Consulting

Designing for Low Partial Pressure Acid Gas Removal
Treating gas containing low partial pressure acid gas using amines can result in high temperatures near the absorber top. This is a known behavior in natural gas and CO2 capture applications. This paper traces the evolution of thinking about this behavior from mass ratio based rules of thumb to heat capacity based procedures to rate based
On the Fate of Hydraulic Fracturing Fluid Additives in Dry Hot Shale Reservoirs

The combination of hydraulic fracturing and horizontal drilling has provided means of access to large volumes of unconventional shale gas resources. It is a common misconception that dry shale gas is sweet and often does not require further treatments for hydrogen sulfide (H₂S); however, there have been post-fracturing observations of low-level H₂S in hot (T > 100 °C) shale reservoirs such as the Horn River, Haynesville and Barnett plays, which required treatment.

Payman Prizadeh, Rob Marriott - University of Calgary

Mysteries of Temperature Measurement of the Claus Furnace

This paper addresses the problems and discrepancies that often appear between operating temperatures reported by Thermocouples vs. Infrared pyrometers in the Claus Reaction Furnace.

Steve Croom - Delta Controls
Expectations from Simulation
Every EPC firm and most process plant engineering offices have access to at least one, and occasionally several, software packages for simulating a variety of processes and unit operations. However, engineers almost invariably struggle with uncertainty about whether their tools are giving them the right answers. All sorts of methods and approaches are used to establish and validate in some sense, the trustworthiness of a given tool.

R. Scott Alvis, Nathan A. Hatcher and Ralph H. Weiland - Optimized Gas Treating

Dealing with Depleting Gas Reserves in Alberta
Case studies of options available to gas plant operators to deal with their sulfur recovery units due to declining sour gas reserves while minimizing capital spending.

Marco Van Son, Shashank Gujale – Jacobs Canada

3:00 p.m. – 3:30 p.m.  Afternoon Session Break and Poster Session
Meeting Area Lobby

3:30 p.m. – 5:00 p.m.  Designing A Robust Waste Heat Boiler
Understanding Waste Heat Boiler (WHB) failures provides the basis for establishing design and operating parameters necessary for a robust WHB design suitable for reliable operation.

Dennis H. Martens - Porter McGuffie

A case study quantifying hydrocarbon loss to the amine system at an NGL fractionation facility. Technology solutions, project implementation and operational outcomes.

Carl W. Hahn, Ph.D., Yanxiao Yuan, Ph.D. – Pentair; Ritesh K. Shah, Jonathan Loubiere - Enterprise Products

Wednesday, 25 February 2015

8:00 a.m. – 12:15 p.m.  LRGCC Roundtable
William I. (Bill) Echt - Merichem Company
Main Ballroom

12:15 p.m.  The 65th Annual LRGCC adjourns
NCED
2016 Laurance Reid Gas Conditioning Conference!

February 21-24, 2016
National Center for Employee Development
Norman, OK

Call for papers for the 2016 Laurance Reid Gas Conditioning Conference.
Plant supervisors, engineers and operation personnel associated with dehydration, tail gas cleanup,
sulphur recovery, sweetening, unique treating requirements or NGL production related to gas conditioning.
Submit a 250-word abstract by June 5, 2015, including all contact information.
Consideration will begin June 12, with final selections to be made Sept. 8.
Send abstracts to: Tamara Sutteer, 405-325-3891 or tsutteer@ou.edu
lrgcc.org

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KBR

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