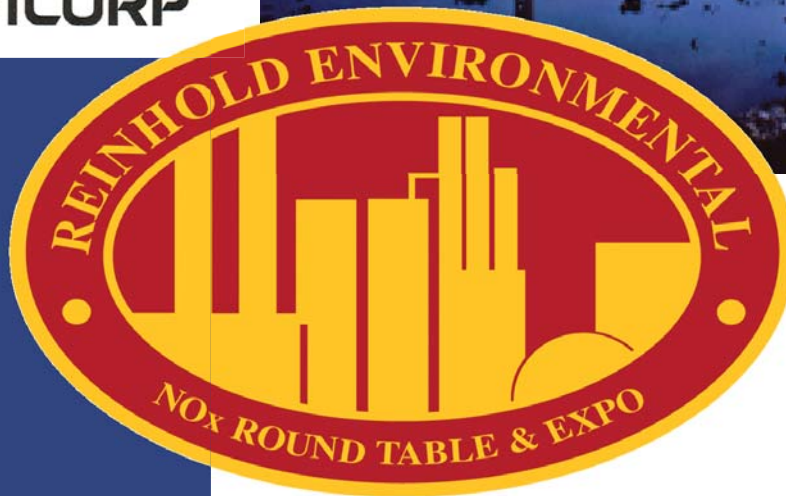


Presented by
Reinhold Environmental



Hosted by



Conference Sponsors

CERAM
CoaLogix
Cormetech
Kiewit



12th Annual

NO_x-Combustion Round Table

**NO_x Emissions, Combustion O&M,
Mercury, SO₃, Acid Gases**

*2013
Show Guide*



CORMETECH

CLEANER AIR THROUGH INNOVATION



CORMETECH
COMET™

Mercury Testing Reactor

- Fully Operational Testing Reactor
- Detailed Assessments of Current Catalyst
- Modeling of Reactor Layer Interactions

MATS Compliance

- COMET™ Catalyst - Part of Robust Solution
- Ensure 2016 Regulation Compliance
- Indicative NO_x and Hg Oxidation Conformity

COMET™ Performance

- Up to 95% Mercury Oxidation Performance
- Higher DeNO_x vs. Standard SO₂ Conversion
or
- Lower SO₂ Conversion vs. Standard Activity

CORMETECH, Inc.
5000 International Drive
Durham, North Carolina 27712

www.cormetech.com





2013 NO_x-Combustion/PCUG Conference



The 12th Annual NO_x-Combustion/PCUG Conference is presented by Reinhold Environmental (www.reinholdenvironmental.com)

Hosted by PacifiCorp

Special thanks to the Conference Sponsors and Utility Host



2013 PCUG Steering Committee



American Electric Power
Darren Hanby, Senior Engineer
Doug Ritzenthaler, Lead Engineer
Marisa LaPalomente, Engineer

FirstEnergy Corp
Doug Hartman, Mgr, Environ. Field Op.



Ameren
Jim Chaney, Env. Controls Specialist
Tom Callahan, Managing Supervisor
Roger Ferguson, Env. Controls Specialist

Gulf Power Company
Dwain Waters, Special Proj. & Envir. Assets
April Freeman Sibley, Senior Engineer



Arizona Public Service
Bruce Salisbury, Engineering Supervisor

Minnesota Power
Rick Fannin, Operations Supt.



DTE
Dan Fahrner, Dir. - Environmental, Fossil
Jason Brown, Project Manager

PacifiCorp
Greg Betenson, Principal Engineer



Dominion Energy
George Valentine, Technical Consultant

PPL / LGE-KU
Carla Piening, Senior Scientist



Duke Energy
Scott Williams, Senior Engineer
John Walker, Senior Engineer
Mike O'Connor, SCR SME
Tom Weir, SCR Engineering
Ron Laws, Consulting Engineer
John Berley, Technical Manager
Mark McIntire, APC Engineer

Salt River Project
Paul Ostapuk, Manager

Southern Company
Ed Healy, Conceptual Design Manager
Gerry Klemm, Tech. Service
Brandon Looney, Env. Controls R&D Mgr.
Mike Nelson, Mgr. Air & Gas Systems
Darryl Wall, Mgr. of Process Engineering
Michael Hale, Senior Engineer



Dynegy
Randy Fields, Plant Engineering Mgr.

Steag GmbH
Kai Braekler, Plant Manager



Entergy
Joseph Hantz, Mgr Environmental Services

TVA
Melissa Allen, FGD System Engineer
Sandra Koss, HAPS Program Manager



2013 NOx-Combustion Round Table

February 18, 2013 - Monday - NOx-Combustion Round Table

Registration - Continental Breakfast & Breaks in expo from 7:00 to 5:30 (Grand Ballroom)		O&M Training Classes 8:30-11:45	
8:00-9:30	Training Class 1 (Grand Ballroom D) Mercury Removal - Coal Pile to Stack by Sharon Sjostrom, ADA-ES	Training Class 2 (Grand Ballroom A-B) SCR Catalyst Regeneration by Mike Mattes & Nick Pollack, CoalLogix and Kathleen Payette, FirstEnergy	Training Class 3 (Deer Valley I-III) Fuel Effects (Part I) by Tony Wideman, RE Consulting
9:30-10:15	Training Class 5 (Grand Ballroom D) Electric Utility Planning in an Uncertain World by Rick Collins, RE Consulting	Training Class 6 (Grand Ballroom A-B) SO₂ Formation and Control by Russ Ridgeway, SHEL-B EE Consulting	Training Class 7 (Deer Valley I-III) Fuel Effects (Part II) by Tony Wideman, RE Consulting
10:15-11:45	Training Class 4 (Grand Ballroom C) Low NOx Burner O&M by Alan Paschedag, Siemens	Training Class 8 (Grand Ballroom C) Boiler Load Cycling and NOx Emissions: Issues and Strategies by Don Ryan, B&W	Training Class 9 (Grand Ballroom C) Boiler Load Cycling and NOx Emissions: Issues and Strategies by Don Ryan, B&W
11:45-1:00	Lunch in Exhibition Hall (Grand Ballroom E-1)		
1:00 - 2:30	General Session (Grand Ballroom A-D) Welcome/Presentation of Round Table Award by Susan Reinhold.....Keynote Speech: "Sustainability of Coal Combustion for Power Generation" , by Kevin Davis, REI		
2:45-3:45	Panel I - NOx in Context. What Works, and What Are the Consequences? Chairman: Bruce Salisbury, APS / Panelists: Chris Wedig, Shaw Group; Tony Favale, Hitachi; Bob Crynaek, FMC; Ken Jeffers, Johnson Matthey; Mike Mattes, CoalLogix	Workshop 1 (Deer Valley I) Tools for Optimizing Gas Turbine SCR Performance by Larry Muzio, FERCo	Workshop 2 (Deer Valley I-III) Make-Up Water Production and Wastewater Treatment: Critical Issues for Power Plant Operation by Brad Buecker, Kievit
3:45-4:30	Break in Exhibition Hall (Grand Ballroom E-1)		
4:30-5:30	Panel II - SCR Effects on Downstream Hg Control / Chairman: Connie Senior, ADA-ES Panelists: Tony Favale, Hitachi; Joe Wong, ADA-CS; Scot Pritchard, Comnetech; Rob Nebergall, Norit; Mark Thomas, Consultant; Michael O'Connor, Duke Energy; Chethan Acharya, Southern Company	Workshop 4 (Deer Valley I-III) Predicting Impact of Furnace Ash Deposits on Furnace Temp, NOx and CO Emissions by Kevin Davis, REI	Workshop 5 (Deer Valley I-III) Multi Pollution Control Using Combustion Additives by Mandar Gadgil, B&W
5:30-6:30	Reception in Exhibition Hall		

February 19, 2013 - Tuesday - NOx-Combustion Round Table

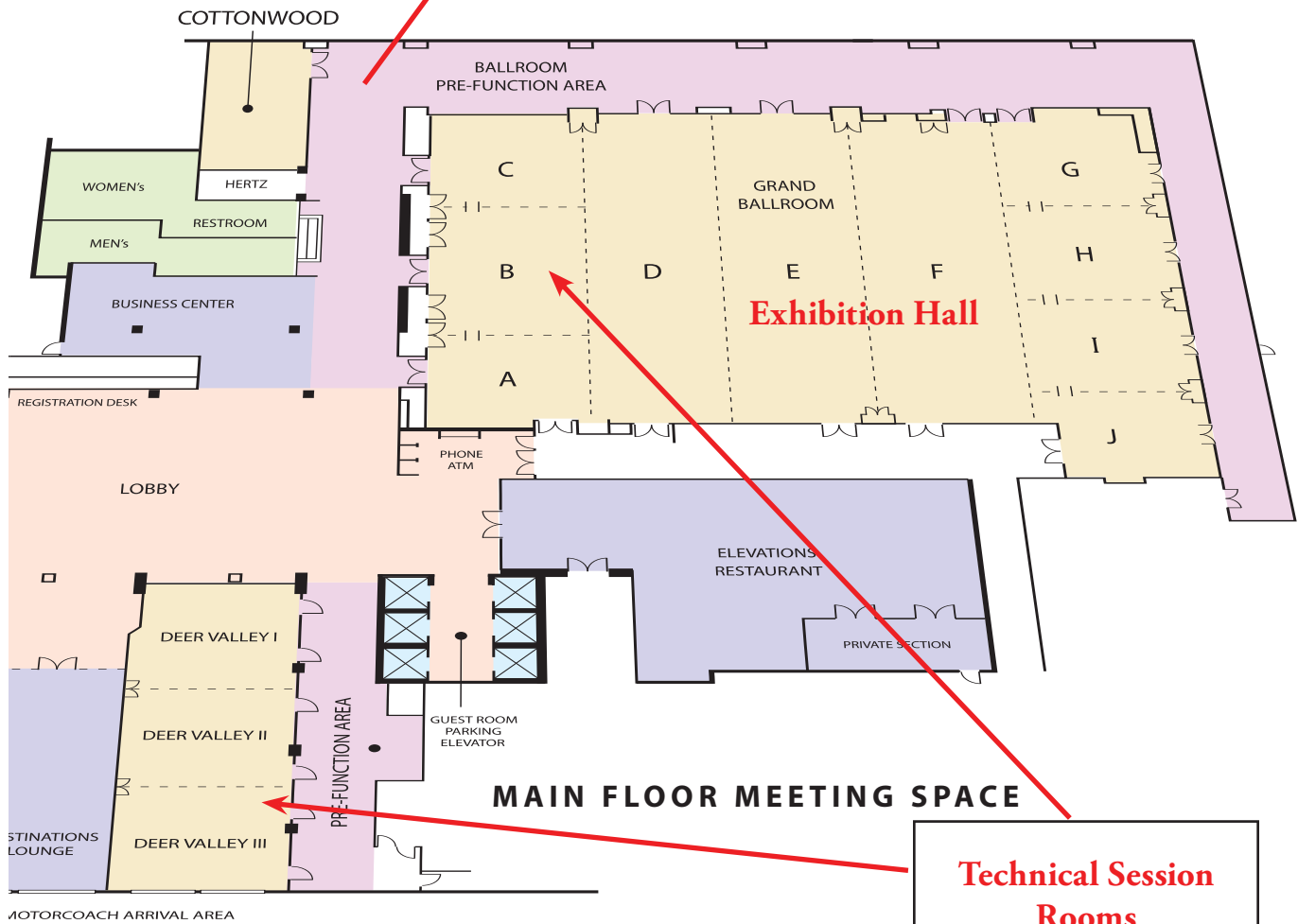
Registration & Continental Breakfast (Grand Ballroom)		Workshop 6 (Grand Ballroom A-B) Ammonium Bisulphate Inhibition of SCR Catalysts by Wayne Jones, Halldor Topsoe	
7:00 - 8:30	Workshop 9 (Grand Ballroom D) Fixed-structure Sorbent Hg Control by Blake Stapper, URS and Jeff Kolde, W.L. Gore	Workshop 10 (Grand Ballroom A-B) SCR Catalyst Management into the 2020's by David Repp, Johnson Matthey	Workshop 11 (Grand Ballroom C) CO Catalyst by Bill Hinz, BASF
8:30 - 9:30	Workshop 5 (Grand Ballroom D) Mercury Oxidation Potential vs Catalyst Condition by Scot Pritchard, Comnetech	Workshop 7 (Grand Ballroom C) Simple Cycle SCR Design Issues by Bill Gretta, ENERACTIVE Solutions	Workshop 8 (Deer Valley I-III) Multi Pollution Control Using Combustion Additives by Mandar Gadgil, B&W
9:30 - 10:30	Workshop 9 (Grand Ballroom D) Fixed-structure Sorbent Hg Control by Blake Stapper, URS and Jeff Kolde, W.L. Gore	Workshop 10 (Grand Ballroom A-B) SCR Catalyst Management into the 2020's by David Repp, Johnson Matthey	Workshop 12 (Deer Valley I-III) Boiler Performance Influence on SCR Efficiency and Longevity by Edmundo Vasquez, Clyde Bergemann, Arnaud Thabot, Clyde Bergemann
10:30 - 11:30	Workshop 13 (Grand Ballroom D) Mercury Oxidation Across the Air Heater by John Guffre, Paragon	Workshop 14 (Grand Ballroom A-B) SCR Catalyst Deactivation Mechanism for PRB (phosphorous contamination) by Chris Bertole, Comnetech	Workshop 15 (Grand Ballroom C) Oxygen-Enhanced Combustion with Natural Gas Retrofit by Brad Adams, REI
1:00-2:00	Workshop 17 (Grand Ballroom D) Balancing Ammonia Slip and Mercury Oxidation by John Cochran and Megan Winter, CERAM	Workshop 18 (Grand Ballroom A-B) Flow Modeling and Ash Deposits by Rob Mundry, Airflow Sciences	Workshop 16 (Deer Valley I-III) Evaluation of Balance of Plant Effects of Bromide-based Hg Controls by Katherine Dombrowski, URS
2:15-3:15	Workshop 17 (Grand Ballroom D) Balancing Ammonia Slip and Mercury Oxidation by John Cochran and Megan Winter, CERAM	Workshop 18 (Grand Ballroom A-B) Flow Modeling and Ash Deposits by Rob Mundry, Airflow Sciences	Workshop 19 (Grand Ballroom C) Keeping your SCR Clean by Jeff Shelton, Martin Engineering Jake Shelton, CoalLogix
3:15-4:15	Break in Exhibition Hall (Grand Ballroom E-1) - drawing Treasure Hunt Winners		
4:15 - 5:15	Workshop 21 (Grand Ballroom A-B) The Trials and Tribulations of SCR O&M by Greg Holscher and Noel Roshia, CERAM	Workshop 22 (Grand Ballroom C) Anhydrous Ammonia Tank Evacuations and Inspections by Mike Vukmir, Environmental Equipment Services	Workshop 23 (Deer Valley I-III) Experience Injecting DSI Upstream of the Airheater by Jim Dickerman, Lhoist
6:00 - 10:00	Conference Event "In Cahoots"dinner and performance free to all attendees and their families		

Conference Floor Plan

Marriott Salt Lake City Downtown Hotel Grand Ballroom and Deer Valley I-III

Registration Desk

Sunday: 1:00 to 5:00 pm
Monday: 7:00 am to 5:30 pm
Tuesday: 7:00 am to 5:30 pm



Technical Session Rooms

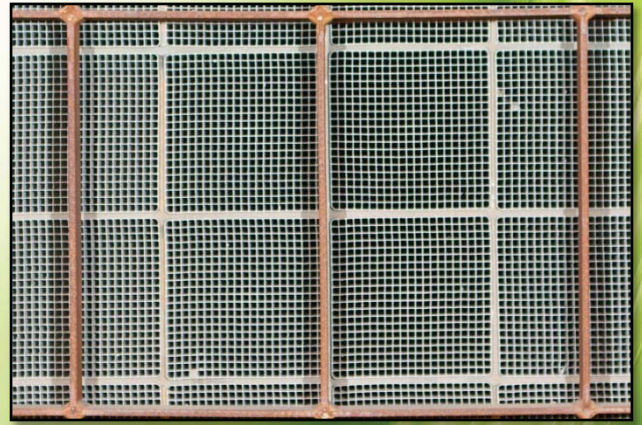
CoaLogix®



The Worldwide Leader in Catalyst Regeneration and SCR Reactor Management



Before Regeneration



After Regeneration



CoaLogix now offers a full line of Acoustic Cleaners & Catalyst Sweepers for solving ash piling problems...



For more info visit: www.CoaLogix.com or

Visit us @ Booth 22/23

Workshops and Panels

Monday: February 18, 2013

8:00 to 9:30 am

Training Class 1: “Mercury Removal – Coal Pile to Stack” by Sharon Sjostrom, ADA-ES (Grand Ballroom D)

During this training class, you will learn about the key plant processes and operating parameters that affect mercury capture. This includes coal characteristics and treatment options, how combustion can affect capture, and the influences of various air pollution control configurations. We will also discuss seasonal variations that may affect mercury control.

Training Class 2: “SCR Catalyst Regeneration” by Mike Mattes and Nick Pollack, CoaLogix and Kathleen Payette, FirstEnergy (Grand Ballroom A-B)

This training course regarding regeneration of SCR catalyst will describe how regeneration works, what to expect from regeneration, how different catalyst responds to regeneration, and recent advancements in regeneration. FirstEnergy will discuss their experience with regenerated catalyst.

Training Class 3: “Fuel Effects – Part I” by Tony Widenman, RE Consulting (Deer Valley I-III)

Part I of this two part training class will give the attendee a basic understand of the origin of coal and how to read a comprehensive coal analysis.

Training Class 4: “Low NOx Burner O&M” by Alan Paschedag, Siemens (Grand Ballroom C)

Low NOx burners, just like the high performance carburetors on a 28 cylinder engine only work well when properly tuned and synchronized. Low NOx burners are required to produce low NOx BUT also low CO, UBC, slagging, corrosion, etc. The complexity required to accomplish all of this is akin to all of the sensors that tune your automobile engine to produce low emissions. Thus, closer attention must be paid to tuning the burners and associated systems and components. This training class will discuss how all of these elements affect the results of combustion.

10:15 to 11:45 am

Training Class 5: “Electric Utility Planning in an Uncertain World” by Rick Collins, RE Consulting (Grand Ballroom D)

The ever changing environmental regulations, increasing control technology costs, and major shifts in coal and natural gas prices significantly complicate major utility decision making. Wrong decisions can lead to the loss of millions of dollars for utilities and/or their rate payers. This training class will discuss various aspects which need to be addressed to avoid future regrets from those decisions. Included will be an environmental legislative and regulatory update, a look at current environmental technologies, an update of natural gas prices and price forecasts, and methods for addressing uncertainties.

Training Class 6: “SO₃ Formation and Control” by Russ Ridgeway, Shel-B Consulting (Grand Ballroom A-B)

This training class covers the evolution of SO₃ formation, and its effect on the unit. SO₃ control is a critical aspect of your compliance strategy both for visible emissions and MACT compliance. What will you need to consider?

Training Class 7: “Fuel Effects – Part II” by Tony Widenman, RE Consulting (Deer Valley I-III)

Part II of this training class will demonstrate how to interpret a coal analysis and give case studies applying what was learned today.

Training Class 8: “Boiler Load Cycling and NOx Emissions: Issues and Strategies” by Don Ryan, Babcock & Wilcox (Ballroom C)

Today’s economics are forcing coal fired power plants away from base load operation and into load cycling modes. Meanwhile the regulatory environment requires emissions compliance across the load range. This training class will discuss some of the issues associated with this mode of operation along with some strategies to overcome these problems.

2013 Coal to Gas/ PCUG Conference

Chattanooga Marriott Hotel, Chattanooga, TN / October 29-30, 2013

Hosted by TVA and Southern Company

Workshops and Panels

Monday: February 18, 2013

LUNCH in Exhibition Hall (11:45 to 1:00 pm)

1:00 to 2:30 pm

Welcome: “Presentation of Round Table Lifetime Achievement Awards” by *Susan Reinhold, Reinhold Environmental* (Grand Ballroom A-D) The Round Table Awards will be given to Gerry Klemm, Southern Company and Hans Hartenstein, STEAG Energy Services.

Keynote Speech: “Sustainability of Coal Combustion for Power Generation” by *Kevin Davis, Reaction Engineering International* (Grand Ballroom A-D)

2:45 to 3:45 pm

Panel I: “NO_x in Context – What Works, and What are the Consequences?” *Panel Chairman: Bruce Salisbury, APS / Panelists: Chris Wedig, Shaw Group; Tony Favale, Hitachi; Bob Crynack, FMC; Ken Jeffers, Johnson Matthey, Mike Mattes, CoaLogix* (Grand Ballroom A-D)

A panel discussion about the present state of BART, what sort of NO_x reduction strategies exist, how do those strategies interact with each other, and how do they help, or harm, other pollution control strategies in a coal-fired boiler.

Workshop 1: “Tools for Optimizing Gas Turbine SCR Performance” by *Larry Muzio, FERCo* (Deer Valley I)

Gas turbine SCR systems pose unique design and performance challenges compared to their coal-fired counterparts. These issues include AIG design and tuning, flue gas bypassing the catalyst, and catalyst deactivation and remaining life predictions. This workshop discusses some tools and techniques utilized to solve gas turbine SCR performance problems.

Workshop 2: “Make-up Water Production and Wastewater Treatment: Critical Issues for Power Plant Operation” by *Brad Buecker, Kiewit* (Deer Valley II-III)

While the focus of this conference is air pollution control, many plants are facing issues related to fresh water conservation and wastewater reuse. This workshop will review state-of-the-art makeup water technologies and how many of these processes are also being utilized to recover wastewater. Attendees can take this information back to their plants for use in future planning.

4:30 to 5:30 pm

Panel II: “SCR Effects on Downstream Hg Control” *Panel Chairman: Connie Senior, ADA-ES / Panelists: Tony Favale, Hitachi; Joe Wong, ADA-CS; Scot Pritchard, Cormetech; Rob Nebergall, Norit; Mark Thomas, Mark Thomas and Associates Consulting; Michael O’Connor, Duke Energy; Chethan Acharya, Southern Company* (Grand Ballroom A-D)

SCRs affect more than NO_x emissions. In many coal-fired boilers seeking to comply with state laws and/or MATS, mercury emissions will be controlled by one or more different processes. These mercury control processes can be affected by the presence of an SCR. Some of the ways that SCR affect mercury control will be discussed, including:

- Optimizing SCR catalysts for increased mercury oxidation by halogens
- Halogen addition and SCR: getting the most out of bromine
- SO₃ production in SCR and its effect on activated carbon performance
- Reduction of SO₃ production in SCR via DSI injection upstream of SCR
- New developments in SO₃-tolerant activated carbon sorbents

Workshop 4: “Predicting Impact of Furnace Ash Deposits on Furnace Temperature, NO_x and CO Emissions” by *Kevin Davis, REI* (Deer Valley II-III)

During this workshop the approach used to simulate behavior of ash deposits in a coal-fired utility boiler will be reviewed, including integrated CFD and ash chemistry modeling. Predicted impacts of different coal and biomass ash deposits on boiler FEGT, NO_x and CO emissions will also be reviewed.

****** RECEPTION in Exhibition Hall (5:30pm to 6:30 pm) ******

Workshops and Panels

Tuesday: February 19, 2013

8:30 to 9:30 am

Workshop 5: “Mercury Oxidation Potential vs Catalyst Condition” by *Scot Pritchard, Cormetech* (Grand Ballroom D)

The co-benefit of oxidized Hg capture by desulfurization systems is an effective and economical method to achieve compliance with mercury emission limits. As is the case for maintaining required DeNO_x emission requirements, catalyst additions and replacements (actions) will be managed to achieve and maintain Hg oxidation levels. Fresh and used catalyst Hg oxidation test results and modeling indicate annual testing may be used analogously to manage SCR Hg oxidation performance. Information including performance and durability testing results are reviewed along with catalyst management case studies. Under more challenging conditions such as low Chlorine in flue gas, catalyst actions may include advanced catalysts which have been designed to significantly improve Hg oxidation.

Workshop 6: “Ammonium Bisulphate Inhibition of SCR Catalysts” by *Wayne Jones, Haldor Topsoe* (Grand Ballroom A-B)

This Workshop will first focus on the principles that effect the formation of ammonium bisulphate and the subsequent condensing of this compound into the micro pores of SCR catalyst. Secondly, the workshop will explore the later evaporation of condensed ABS and the hysteresis effect seen during regeneration of the catalyst at higher gas temperatures. Lastly actual field experience will be reviewed focusing on the real limitations on low load unit operation.

Workshop 7: “Simple Cycle SCR Design Issues” by *Bill Gretta, Eneractive Solutions* (Grand Ballroom C)

During this workshop SCR systems on simple cycle gas turbine systems are discussed, with emphasis on common performance issues associated with flow distribution, ammonia distribution and gas bypass. Operating and maintenance issues associated with mechanical integrity and thermal growth are also discussed.

Workshop 8: “Multi Pollution Control Using Combustion Additives” by *Mandar Gadgil, B&W* (Deer Valley I-III)

This workshop will discuss the performance of the additive for achieving Hg emission compliance by Hg oxidation without worrying about selenium in particular for units with wet scrubbers. Also covered will be the economic benefits of SCR catalyst performance improvement.

10:30 to 11:30 am

Workshop 9: “Fixed-structure Sorbent Hg Control” by *Blake Stapper, URS and Jeff Kolde, W.L. Gore* (Grand Ballroom D)

This workshop will be a progress report on the development of a fixed bed sorbent technology for mercury control. It will provide a description of the technology, along with case studies showing anticipated performance, cost, and schedule for a full-scale installation. It will also present the results of pilot testing that has been conducted in a wet scrubber for a lignite-fired application.

Workshop 10: “SCR Catalyst Management into the 2020’s” by *David Repp, Johnson Matthey* (Grand Ballroom A-B)

Traditional SCR catalyst management can be simply described as a schedule for adding or replacing catalyst layers as ammonia slip reaches a defined limit and making provisions for regenerating and storing reserve layers. This workshop will explore modernized approaches to SCR catalyst management with the added goal of maximizing co-benefits such as mercury oxidation. Economic considerations such as balancing the costs of ammonia slip and supplemental activated carbon injection with catalyst changeout frequency will be discussed.

Workshop 11: “CO Catalyst” by *Bill Hizny, BASF* (Grand Ballroom C)

This workshop reviews certain fundamentals of oxidation catalysts and discusses how they drive performance considerations for CO, VOC, and NO_x emissions abatement strategies, with specific examples focused on utility class boilers considering a coal-to-natural gas conversion or a gas turbine installation.

Workshop 12: “Boiler Performance Influence on SCR Efficiency and Longevity” by *Edmundo Vasquez and Arnaud Thabot, Clyde Bergemann* (Deer Valley I-III)

It is a common industry challenge to prioritize the impact and urgency of various factors on optimum SCR operation and catalyst life. This workshop explains the effect of combustion, fuel chemistry, boiler efficiency, and catalyst cleanliness on SCR operation and illustrates the importance of each factor along with the best available technologies to improve them. Supporting analysis will be provided from recent case studies.

Workshops and Panels

Tuesday: February 19, 2013

LUNCH in Exhibition Hall (11:30 to 1:00 pm)

1:00 to 2:00 pm

Workshop 13: “Mercury Oxidation across the Airheater” by *John Guffre, Paragon Air Heater Technologies* (Grand Ballroom D)

New developments in air heater operation and design can achieve enough mercury oxidation to comply with MACT and eliminate or minimize the need for halide addition. These changes can also be used to increase the amount of SO_3 removal that occurs in the air heater, allowing lower exit gas temperatures and improved boiler heat rate. An additional benefit is a significant improvement in the ability to remove air heater ABS deposits resulting from SCR or SNCR ammonia slip.

Workshop 14: “SCR Catalyst Deactivation Mechanism for PRB (Phosphorous Contamination)” by *Chris Bertole, Cormetech* (Grand Ballroom A-B)

SCR catalyst deactivation rates from calcium, phosphorus, and alkali compounds found in PRB coal are not consistent from unit to unit. This workshop will provide experiential data that reinforces the idea that deactivation behavior of PRB on SCR catalyst needs to be considered on a case by case basis. The workshop will include boiler impact as well.

Workshop 15: “Oxygen-Enhanced Combustion with Natural Gas Retrofit” by *Brad Adams, REI* (Grand Ballroom C)

Over the last year and a half, there has been a shift in the electric power generation portfolio in the U.S. from coal to natural gas. This shift has been perpetuated by the combination of regulation and inexpensive natural gas. This trend is expected to continue over the next decade with replacement of coal-fired capacity by natural gas combined cycle (NGCC) and retrofitting of coal-fired boilers to natural gas-firing. Retrofitting presents several challenges including: firing system design and radiative and convective heat transfer profiles. This workshop will review these challenges and offer some strategies for management of the issues.

Workshop 16: “Evaluation of Balance of Plant Effects of Bromide-based Hg Controls” by *Katherine Dombrowski, URS* (Deer Valley I-III)

Findings from EPRI’s survey of coal-fired power plants employing bromine-based technologies for mercury controls will be presented in this workshop. The survey participants included over 50 coal-fired units that operate furnace calcium bromide addition systems to either (1) achieve mercury air emissions limits set by local regulations and/or (2) qualify for Section 45 federal tax credit for re-refined coal. The focus of this workshop will be on the potential for corrosion in the coal and flue gas handling equipment of the plant. Other balance of plant issues will be discussed, such as mercury oxidation and removal, emissions of other trace metals, and opacity.

2:15 to 3:15 pm

Workshop 17: “Balancing Ammonia Slip and Mercury Oxidation” by *John Cochran and Megan Winter, CERAM* (Grand Ballroom D)

Upcoming regulations will dictate that SCR catalyst be managed for NO_x reduction and mercury oxidation. This will affect the timing and cost of catalyst replacements. This workshop will discuss catalyst testing, management approaches, and relative economics considering simultaneous ammonia slip and mercury oxidation control. Additionally, the variables affecting mercury oxidation will also be discussed based on the results of a 5 year industry test program

Workshop 18: “Flow Modeling and Ash Deposits” by *Rob Mudry, Airflow Sciences* (Grand Ballroom A-B)

SCR performance is closely tied to the flow characteristics. Velocity patterns, particulate behavior, ammonia/ NO_x mixing, and pressure drop are key elements of SCR optimization. This workshop will discuss the primary design techniques for SCR flow modeling, with an in-depth review of both CFD and physical flow modeling. Included will be a comparison of these methods, along with tips/tricks/traps to pay attention to when using them. The typical flow-related objectives of velocity distribution, ammonia and NO_x mixing, and pressure drop will be covered, but special attention and discussion will be placed on ash deposition. This includes pluggage of LPA screens, deposition in ducts, and pluggage of the catalysts.

Workshops and Panels

Tuesday: February 19, 2013

2:15 to 3:15 pm cont.

Workshop 19: “Keeping Your SCR Clean” by Jeff Shelton, Martin Engineering & Jake Shelton, CoaLogix (Grand Ballroom C)
This workshop will discuss both existing and new technologies for catalyst cleaning. First we will cover sootblowers and sonic horns and their application in SCR reactors. Then we will discuss catalyst sweepers and their experience in SCR reactors.

Workshop 20: “Balancing LNB vs SCR Catalyst Layers” by Bill Medeiros, Babcock Power and Scot Pritchard, Cormetech (Deer Valley I-III)

Ten to fifteen years ago decisions were being made about how to meet NO_x regulations. At the time, the primary technologies considered were, LNB, LNB + SNCR, SCR, or some combination thereof. Today, while the same basic technologies to achieve compliance are available, new demands and operational complexities must also be contemplated. This workshop explores the influence of the technologies, from a capital and operating cost viewpoint, to meet the basic goal of NO_x emissions compliance while addressing new considerations such as, peak load dispatching, SO₃ emissions, startup capability, Hg emissions, and fuel flexibility.

4:15 to 5:15 pm

Workshop 21: “The Trials and Tribulations of SCR O&M” by Noel Roshia and Greg Holscher, CERAM (Grand Ballroom A-B)
The primary goal of SCR operations and maintenance is to maximize performance while limiting costs. This balance is often complicated by various factors that were not considered with the original SCR design, that have lead to premature and unforeseen SCR O&M costs and outages. This workshop will discuss catalyst and SCR system management approaches taken to properly forecast and account for unforeseen circumstances, such as problematic SCR reactor designs, increased catalyst deactivation, changing performance goals, and changes in plant operations.

Workshop 22: “Anhydrous Ammonia Tank Evacuations and Inspections” by Mike Vukmir, Environmental Equipment Services (Grand Ballroom C)

This workshop will discuss reasons for ammonia tank inspections and items that should be addressed during the inspections. Also covered will be examples and methods of inspections and safety concerns.

Workshop 23: “Experience Injecting DSI Upstream of the Airheater” by Jim Dickerman, Lhoist North America (Deer Valley I-III)

It is well known that SO₃ in the flue gas impacts the performance of Activated Carbon Injection (ACI) mercury control systems, and therefore the SO₃ should be reduced to very low levels to improve the ACI performance and reduce the overall operational costs. As a result several facilities that will be adding ACI systems have either added or relocated their SO₃ DSI injection location to upstream of their airheater to reduce their levels of SO₃ before the activated carbon is injected. This workshop will briefly review data showing the impact of SO₃ on ACI performance and will discuss the experiences of several DSI systems that are now injecting hydrated lime upstream of their airheaters.

6:00 to 10:00 pm

Conference Event: “In Cahoots” in the conference hotel

Free to all attendees and their families

Drinks begin at 6:00pm and dinner at 6:30pm with entertainment during dinner

2014 NO_x-Combustion/ PCUG Conference

Renaissance Charlotte Suites, Charlotte, NC / February 10-13, 2014

Hosted by Duke Energy

Conference Event on 2/19/13

**Come
and have
some fun!!**

*Tuesday night
dinner and an evening of
cowboy tunes and tall tales
with In Cahoots*



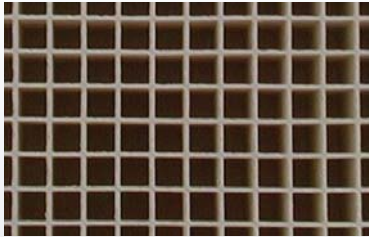
**Lannie 'The Marshal' Scopes and Craig 'Creek' Johnson and
cowboy poet Jeff Carson!**

CERAM

IBIDEN

Honeycomb and Plate Catalysts

Quality-Experience-Success



- High DeNO_x and Mercury Oxidation Activity
- Low SO₂ to SO₃ Conversion
- Catalyst Selection and Design to Site Specifics
- Proven to Allow 5 Regenerations and >120,000 Operating Hours for Coal High Dust
- SCR Experience Since 1986 Including Coal, PRB, Biomass, Oil, MSW/RDF, Gas



Catalyst Management Services

Increase Performance – Decrease O&M Cost



- Catalyst Management Modeling (Integrated NO_x + NH₃ + SO₃ + Hg)
- Ammonia Injection Grid Tuning
- Reactor Inspections
- Catalyst Testing/Analysis
- Operating Data Analysis
- Regeneration Procurement



IBIDEN CERAM Environmental, Inc.
7304 W. 130th Street, Suite 140
Overland Park, KS 66213

913-239-9896
www.frauenthal.net

2013 NO_x-Combustion Exhibitors



Exhibition Hall
in
Grand Ballroom

All food is in the Expo

Hours
Monday: 7:00am to 6:30pm
Tuesday: 7:00am to 5:15pm

Treasure Hunt Visa Cards
picked in Expo on Tuesday at 3:45pm

Conference Event
in Ballroom on Tuesday at 6:00pm

Kiewit/TIC.....	1 & 2	AirTek.....	29
Babcock & Wilcox.....	3	Southern Research Institute.....	30
Hitachi Power Systems America.....	4	GE Energy.....	31
FMC.....	5	Integrated Global Services.....	32
URS.....	6	STEAG Energy Services.....	33-34
Enertechnix.....	7	SOLVAir Solutions.....	35
Kirk Key Interlock.....	8	Babcock Power.....	36
Nalco Air Protection Technologies.....	9	Wahlco Inc.....	37
Air Monitor Power.....	10	Foster Wheeler North America.....	38
RE Consulting.....	11	Sealeze.....	39
Krishnan & Associates.....	12	M&C Tech Group.....	40
HTT.....	13	Johnson Matthey.....	41
Alstom Power.....	17	Paragon Airheater.....	42
Breen Energy. Solutions.....	18-19	SAS Global Corporation.....	43
BASF.....	20	MET.....	44
Haldor Topsoe.....	21	IBIDEN CERAM.....	45-46
CoaLogix.....	22-23	Fuel Tech.....	47
Airflow Sciences.....	24	Mitsubishi Power. Systems America.....	48
FERCo.....	25	REI.....	49
Cemtek Environmental.....	26	CORMETECH.....	50-51
Nol-Tec Systems.....	27	ENERACTIVE Solutions.....	52
Lhoist North America.....	28	Control Analytics.....	53

2013 NO_x-Combustion Exhibitors

Airflow Sciences Corporation.....24

12190 Hubbard
Livonia, MI 48150
Robert G. Mudry, P.E., President
rmudry@airflowsciences.com
Business: 734-525-0300
www.airflowsciences.com



Experts in CFD, physical flow modeling, and field testing since 1975. Our modeling provides cost-effective designs for ducts, pulverizers, windboxes, SCR's, ESP's, baghouses, scrubbers, and stacks. Custom field test equipment ensures accurate and efficient measurement of flow, temperature, chemical species, and particulate. The combination of modeling, testing, and engineering expertise makes ASC the one-stop shop for all your flow-related needs.

AirTek.....29

P.O. Box 388, 700 Hudson St.
Troy, AL 36081
John Roberts, President
jr@airtek-troy.com
Business: 334-566-7400
www.airtek-troy.com



Since 1988, AirTek has been a leading provider of services to air pollution control equipment users. These services include field service engineering, consulting services, construction management, maintenance, outage and repair services, new construction, major rebuilds, and the supply of spare parts. We are an experienced provider of catalyst change out, catalyst cleaning, and general maintenance services to users of NO_x removal systems having completed projects totaling approximately 5000 MW to date. Let us put our experience to work for YOU!

Alstom Power.....17

9737 Cogdill Road, Suite 101 .
Knoxville, TN 37932
Tapan Mukherjee, Director of Bus. Dev.
tapan.mukherjee@power.alstom.com
Business: 678-318-1252
www.environment.power.alstom.com



Alstom Power manufactures, erects, commissions and services pollution control systems for utility, IPP and process industry plants. This includes SCR systems for NO_x control, FGD systems, ESPs, fabric filter systems and monitoring, and mercury control. Alstom's capabilities comprise new equipment, retrofit projects, replacement and upgrade components, inventory and rebuild programs, performance enhancement, technical and field service support, construction and commissioning.

Air Monitor Power.....10

1050 Hopper Avenue
Santa Rosa, CA 95403
Dave Earley, Sales Manager
amcsales@airmonitor.com
Business: 707-544-2706
www.airmonitor.com



Air Monitor Power provides coal mass flow and airflow measurement solutions for combustion optimization and boiler diagnostics. Air Monitor Power offers high accuracy systems and field testing services for all PA, SA, OFA, individual burner and individual coal pipe mass flows. Our proven solutions for all coal-fired boiler types help improve overall plant performance while reducing NO_x and CO emissions.

Babcock Power.....36

5 Neponset Street
Worcester, MA 01606
Jennifer Pasquariello
Director Marketing & Communications
jpasquariello@babcockpower.com
Business: 860-607-3033
www.babcockpower.com



Through its various subsidiaries, Babcock Power, Inc. is a leading worldwide supplier of technology, equipment, and aftermarket services for heat exchangers, HRSGs, steam generators, and environmental products for the power generation, industrial, biomass, solar, petrochemical, refining and waste-to-energy markets.

The Babcock & Wilcox Company.....3

20 S. Van Buren Avenue
Barberton, OH 44203
Amy C. Rossi,
Sales Development
acrossi@babcock.com
Business: 330-860-1004
www.babcock.com



B&W is an international leader in the design, manufacture, service and construction of steam generating and environmental equipment. Technologies include SCR systems, low NO_x burners, FGD systems, fabric filters, electrostatic precipitators, and mercury control and carbon capture solutions. B&W also provides environmental equipment upgrades, replacement parts, and emissions monitoring systems and service.

BASF Corporation.....20

Catalysts Headquarters
25 Middlesex/Essex Turnpike
Iselin, New Jersey, 08830
Stan Mack,
Business Manager, Clean Air
stan.mack@basf.com
Business: 732-205-6174
www.catalysts.basf.com



BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuel Is that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

Breen Energy Solutions.....18-19

104 Broadway Street
Carnegie, PA 15106
Chetan Chothani, COO
ChetanChothani@BreenES.com
Business: 412-431-4499
www.BreenES.com



Breen Energy Solutions (BES) provides products & services associated with Sorbent Systems for Acid Gas Management. Our technology-independent approach allows us to demonstrate and optimize plant-unique solutions for control of acid gas emissions, air heater fouling and tube slagging. Products/services include: wet/dry sorbent demonstrations (SO₂, SO₃, HCl & FLGR), Instruments (SO₃, HCl, Sorbent flow) and SO₃, SCR Tuning and control. Our sorbent demonstration group is experienced in Trona and Hydrated Lime injection for SO₂, SO₃ and HCl control. Our services include monitoring and mitigating changes in superheat/reheat slag patterns associated with migration to higher sulfur coal. Breen is an industry leader in deployment of permanent Fuel Lean Gas Reburn (FLGR) systems for multi-pollutant control of both NO_x and SO₂. This natural gas-based technology is particularly effective in helping units meet the imminent requirements of CSAPR.

Cemtek Environmental Inc.26

3041 S. Orange Avenue
Santa Ana, CA 92707
Joanne Randall
CEMS Specialist
Business: 714-437-7100
joanne@cemteks.com
www.cemteks.com



CEMTEK Environmental provides a single source for reliable, accurate, and cost effective Continuous Emissions Monitoring Systems (CEMS). We specialize in CEMS and process instrumentation design, integration, field services and spare parts. CEMTEK's experience includes all Source and Ambient sections of 40 CFR Part 50, 51, 60, 63 and 75 monitoring and reporting requirements as well as Particulate Monitoring (PM), Mercury and HCL CEMS. Process Monitoring includes SCR inlet & outlet NO_x probe model 8000, inlet scrubber SO₂ & NH₃ slip model 7000. Please contact us at 800-400-0200 for a quote on CEMS Equipment, CEMS field service or CEMS spare parts.

2013 NO_x-Combustion Exhibitors

CoaLogix.....22-23

11707 Steele Creek Road.
Charlotte, NC 28273
James Martin,
Chief Commercial Officer
jkm@coalogix.com
Business: 704-414-4641 / www.CoaLogix.com



SCR-Tech, a CoaLogix company, is the leading provider of SCR Reactor Management services and regeneration technologies for selective catalytic reduction (SCR) systems used by coal-fired power plants. SCR Tech offers a wide variety of services including AIG tuning, acoustic cleaners (sonic horns), DeNO_x & SO₂/SO₃ catalyst testing services, Ash Sweepers for solving ash piling problems, reactor inspection services, and catalyst module supply. CoaLogix has regenerated more cubic meters (m³) of catalyst than anyone in the world and can swiftly supply honeycomb, plate, and corrugated from its inventory of over 5,000 modules. CoaLogix is owned by Energy Capital Partners, a \$7 billion dollar private equity firm, focused on the power generating sector.

Control Analytics, Inc.....53

6017 Enterprise Drive
Export, PA 15632
Greg Banchiere, President
sales@controlanalytics.com
Business: 724-387-2367 / www.controlanalytics.com



CONTROL ANALYTICS, INC. provides experienced sales, service, and systems integration expertise for analytical instruments and systems. Our capabilities include the integration, maintenance and troubleshooting of process gas, flue gas, ambient air, pure water and wastewater monitoring systems as well as Mercury CEMS applications. Calibration and contract service agreements are offered through our experienced service department.

CORMETECH.....50-51

5000 International Drive
Durham, NC 27712
Nancy Stephenson,
Commercial Director
Stephensonnd@cormetech.com
Business: 919-595-8706 / www.cormetech.com



Cormetech manufactures and tests engineered catalyst used to reduce emissions from coal and gas-fired power generation, chemical process industries, petroleum refineries, and diesel engines. We are the industry's leading technology solution provider, developing and applying highly reliable and cost effective Selective Catalytic Reduction (SCR) performance with unparalleled customer service. Every day, all over the world, we deliver cleaner air through innovation.

ENERACTIVE Solutions.....52

700 Mattison Ave., Suite A
Asbury Park, NJ 07712
William J. Gretta, P.E., VP, Power Plant Solutions
bgretta@eneractivesolutions.com
Business: 732-988-8850 / www.eneractivesolutions.com



ENERACTIVE Solutions is an independent, full service energy consulting, engineering, and project development company specializing in the analysis, design, development, and installation of energy efficiency and system optimization projects. ENERACTIVE Solutions, Power Plant Solutions Division provides SCR system optimization services including catalyst management, AIG tuning, field testing, flow modeling, inspection and consulting services.

Enertechnix.....7

PO Box 469
Maple Valley, WA 98038-0469
Dave Suplicki, Director, Sales & Marketing
sales@enertechnix.com
Business: 425-432-1589
www.enertechnix.com



Enertechnix's line of high-performance infrared imaging cameras and gas temperature measurement tools enables performance engineers and operations managers to maximize combustion efficiency and minimize unplanned boiler and furnace outages, thereby improving heat rate and reducing carbon footprints.

FMC Corporation PerNOxide5

1735 Market Street
Philadelphia, PA 19103
Bob Crynack, Manager, APC
robert.crynack@fmc.com
Business: 412-551-0925 / www.environmental.fmc.com



FMC Environmental Solutions Division provides proprietary and specialty solutions that prevent or remediate contamination of air, soil and water. FMC offers the power and manufacturing industries solutions for SO_x and NO_x abatement. PerNOxideSM provides a simple, low-cost way to reduce NO_x up to 70%. FMC's patented technology uses hydrogen peroxide to oxidize nitrogen oxide (NO) and elemental mercury (Hg⁰) in flue gas to forms that can be captured by existing flue-gas desulfurization (FGD) systems. PerNOxide allows industrial and utility boilers to achieve significant levels of NO_x reduction without the large capital investment or ongoing maintenance costs associated with selective catalytic reduction (SCR).

Fossil Energy Research Corporation.....25

23342-C South Pointe
Laguna Hills, CA 92653
Richard Thompson, President
rthompson@ferco.com
Business: 949-859-4466 / www.ferco.com



FERCo is an engineering services and R&D company specializing in combustion and emission control. FERCo has over 25 years of experience in combustion, SCR and SNCR optimization in the utility industry. SCR optimization tools developed for coal-fired systems are now being applied to gas turbine SCR systems. FERCo also specializes in the development of advanced measurement systems for the utility industry, such as CatalysTrak[®], a system to measure and monitor catalyst activity in situ (e.g., without requiring an outage to remove catalyst samples).

Foster Wheeler North America.....38

53 Frontage Road
Clinton, NJ 08809
Robert Giglio, Director of Global Marketing
robert_giglio@fwc.com
Business: 908-713-2561 / www.fwc.com



Foster Wheeler offers a full range of steam generator equipment, aftermarket products and services to the power, industrial, and waste-to-energy sectors. Our global manufacturing and engineering network can deliver cutting-edge products and expertise, quickly and cost competitively with best-in-class quality. Established in 1891, our experience comes from over a century of designing, servicing, and continually improving steam generating equipment.

Fuel Tech, Inc.....47

27601 Bella Vista Parkway
Warrenville, IL 60555
Kevin Dougherty,
VP Business Development & Marketing
info@ftek.com
Business: 630-845-4500 / www.ftek.com



Fuel Tech, Inc. provides multi-pollutant emission control and advanced combustion technologies. This includes: optimization services, low NO_x burners and Over-Fire Air systems, chemical injection programs designed to improve boiler efficiency, and modeling services to provide solutions for power plant systems. Products include: NO_xOUT[®] and HERT[™] SNCR systems, ASCR[™] Advanced SCR systems, ULTRA[™] process used to generate on-site ammonia for SCR, sorbent injection systems to control SO₂, flue gas conditioning systems, and TIFI[®] Targeted in Furnace Injection programs to reduce slagging, SO₃ and CO₂ emissions, while improving boiler performance.

GE Energy.....31

8800 E. 63rd St.
Kansas City, MO 64133
Timothy Stark, Senior Application Engineer
Timothy.Stark@ge.com
Business: 800-821-2222 / www.ge-energy.com/filtration



GE Energy's Filtration team serves utility plants with integrated and flexible emissions control technology and services for fabric filtration systems. GE evaluates your entire process and applies the right filtration solution to help improve the performance of your

2013 NO_x-Combustion Exhibitors

existing equipment and minimize O&M costs. In addition to filtration solutions for dust collection systems, our portfolio also include the Powerwave® line of acoustic cleaning systems for baghouses, ESPs, boiler tubes, heat transfer surfaces, SCR, and material handling. The ecomagination certified Powerwave®+ impulse cleaning system can potentially improve flow rate, increase heat rate and reduce emissions and can replace traditional cleaning methods such as sootblowers.

Haldor Topsoe, Inc21
 17629 El Camino Real, Suite 300
 Houston, TX 77058
 Nate White, Director,
 Business Development Air Pollution Control Catalyst & Technology
 tnw@topsoe.com
 Business: 803-835-0571 / www.topsoe.com



Haldor Topsoe is the market leader in the development and supply of heterogeneous air pollution control catalyst and technology with over 1,000 stationary SCR references ranging from large boilers firing Lignite, PRB and high arsenic coals to bio-mass and natural gas sources operating at 300°F. Topsoe's diverse gas turbine experience covers IGCC and combined cycle sources to simple cycle gas turbine applications operating up to 1,100°F. Topsoe has proven, over our 70 plus years, to be the supplier of choice when it comes to advanced products for both industrial and environmental catalytic systems.

Hitachi Power Systems America, Ltd.....4
 645 Martinsville Road
 Basking Ridge, NJ 07920
 Tony Favale,
 Director Environmental Products
 anthony.favale@hal.hitachi.com
 Business: 908-605-2758 / www.hitachipowersystems.us



Hitachi, original co-developer of DeNO_x catalyst, has supplied NO_x removal catalyst for over 30 years to over 800 plants including over 350 SCR systems worldwide and the only catalyst manufacturer who offers SCR Systems for coal-fired units in the U.S. Our experience and knowledge led to the development of arsenic and phosphorous resistant blends, low SO₂ conversion catalyst and now longer lasting catalyst (CM) which can exceed the longevity of present day catalyst capabilities. Hitachi's Mercury Oxidation Catalyst (TRAC® "Triple Action"), for bituminous and PRB fuels reduces NO_x, maximizes mercury oxidation, and minimizes the conversion of SO₂ to SO₃. Because of our experience and knowledge, we can test and inspect catalyst and optimize AIG.

High Temperature Technologies.....13
 2175 Dunavant Street
 Charlotte, NC 28203
 Patrick Fitzgerald,
 Air In-Leakage Reduction Manager
 patrick@isomembrane.com
 Business: 704-375-2111 / www.isomembrane.com



High Temperature Technologies (HTT) introduced the ISOMEMBRANE® sealing system to North America in 1993. After 20 years, and over 1000 installations around the world, ISOMEMBRANE® has a proven track-record in solving air in-leakage issues - from the boiler to the stack: most notably in areas that have direct impact on safety, efficiency and emissions; in dead air spaces, at penetrations, expansion joints, soot blower ports, etc. Given the MATS rules, eliminating air in-leakage is critical as it has a significant impact on APC equipment performance and particulate matter collection. ISOMEMBRANE® is one of the most cost-effective, and fastest, way to seal up the flue gas path. ISOMEMBRANE® is extremely effective as a function of its multi-layer design of proprietary components, which combine to optimize sealing through: continuous flexibility, impermeability and robustness. Additionally, the ISOMEMBRANE® system allows for fast deployment and extremely fast fabrication on-site (no prefabrication is required). This also makes the ISOMEMBRANE® solution very economical.

IBIDEN CERAM Environmental, Inc..... 45-46
 7304 W. 130th St., Suite 140
 Overland Park, KS 66213
 John Cochran, President
 info@ceram-usa.com
 Business: 913-239-9896 / www.frauenthal.net



CERAM manufacturers honeycomb and plate type SCR catalysts optimized for high NO_x removal, low SO₂ to SO₃ conversion, high mercury oxidation, and repeated regen-

erations. Since 1985 our experience base comprises more than 900 DeNO_x catalyst applications at facilities burning coal, biomass, and nearly every other imaginable fuel type. CERAM also provides comprehensive services including AIG tuning, reactor inspection, catalyst testing, SCR operations evaluation, and catalyst management planning. Our catalyst management planning tools are the most advanced in the industry providing accurate and timely prediction of catalyst additions as well as comprehensive NPV evaluation of regenerated and new catalyst. To date, we have assisted our clients with the regeneration or rejuvenation of 35 catalyst layers.

Integrated Global Services.....32
 2725 Oak Lake Blvd.
 Midlothian, VA 23112
 Iain Hall, Chief Technical Officer
 iainhall@integratedglobal.com
 Business: 804-639-2600 / www.integratedglobal.com



NoNO_x Components offers the leading high temperature erosion resistant LPA/Popcorn Ash filtration system for protection against catalyst plugging. NoNO_x supports utilities and OEM's in the design and manufacture of components for effective filtration over long service intervals, while minimizing system pressure drop. The NoNO_x patent-pending screens have been successfully installed in over 50 SCR's across the US.

Johnson Matthey Stationary Emission Control LLC.....41
 1121 Alderman Drive, Suite 204
 Alpharetta, GA 30005
 Cindy Khalaf, President
 cindy.khalaf@jmusa.com
 Business: 678-341-7520 / www.jmcatlysts.com



Johnson Matthey manufactures plate and honeycomb SCR catalyst and CO catalyst for many applications including coal fired power plants and gas turbines. We have extensive world-wide experience including over 50 coal-fired utility boiler installations in the U.S. alone. Johnson Matthey has installed over 50,000 m³ of plate-type SCR catalyst in U.S. coal-fired applications. Plate catalyst is recognized for its resistance to fly ash plugging, low SO₂/SO₃ conversion, low pressure loss and mechanical robustness. Johnson Matthey is a 200-year old specialty chemicals company focused on its core skills in catalysts, precious metals, fine chemicals and process technologies. Our \$15 billion company has been providing catalytic solutions for air quality problems for more than 30 years.

Kiewit/TIC.....1-2
 9401 Renner Blvd.
 Lenexa, KS 66219
 Michael Ross,
 President, Kiewit Power Engineers
 Michael.ross@kiewit.com
 Business: 913-928-7000 / www.kiewit.com



As a subsidiary of Kiewit Corporation, Kiewit Power offers our clients a fully integrated delivery model for engineering, procurement, construction and startup services for your power needs. Our experience and capabilities span the spectrum of today's complex power market and include: Gas, Coal, Air Quality Control Services (AQCS), Power Delivery, Renewable and Nuclear. With the acquisition of TIC - The Industrial Company (TIC) in 2008, Kiewit has advanced its cutting edge capabilities to better serve the power industry. As one of the leading and most respected industrial contractors, TIC is a perfect addition to expand our reach and broaden our scope.

Kirk Key Interlock Co.....8
 211 Wetmore Ave S.E.
 Massillon, OH 44646
 William Trautmann, Vice President of Sales & Marketing
 wtrautmann@kirkkey.com
 Business: 330-833-8223 www.kirkkey.com



Kirk Key Interlock Company has proven to be the leading U.S. manufacturer of trapped key interlocks since 1932. The Heavy Duty and Medium Duty Series are the ideal choice for ESP and Baghouse applications. Both interlock series use a robust style key with a dowel pin design that makes Kirk Key the most reliable Interlocks available. Please contact us for a complete on-site review of your existing interlock system.

2013 NO_x-Combustion Exhibitors

Krishnan & Associates, Inc./Enstreet.com.....12

1516 Bedford Street
Stamford, CT 06905
Ravi Krishnan,
Managing Director
ravi@krishnaninc.com

Business: 203-921-1800 / www.krishnaninc.com



Krishnan & Associates is a technical consulting firm providing marketing & communication, market research, executive & engineering recruitment, and M&A services focused on the global power and energy industry. Our clients include OEMs, Engineering firms, IPPs and Utilities. Our associates combine their management and engineering expertise to provide our clients with innovative actionable solutions. Headquartered in Stamford, Connecticut with a satellite office in India, K&A has also been initiating business development activities for suppliers, service providers, utilities and investors seeking market expansion in India. K&A also operates a web portal, www.enstreet.com, providing the latest in energy news and job opportunities.

Lhoist North America.....28

3700 Hulen Street
Fort Worth, Texas 76107
Howard B. Fitzgerald,

New Business Development Manager, FGT Solutions
howard.fitzgerald@lhoist.com

Business: 1-817-732-8164 / www.lhoist.com



Lhoist North America (Lhoist NA) was formed with the merger of two premier calcium product companies: Chemical Lime Company with the production of high quality quicklime and hydrated lime and Franklin Industrial Minerals with its production of milled chemical grade limestone. Lhoist NA operates 15 lime production facilities across the US with 33 kilns, 34 distribution terminals, and 7 limestone processing facilities with annual production capacity of over 6 million tons of lime and 4.5 million tons of limestone. Lhoist Group (LNA's parent) is the worldwide leader in Calcium products - operating in 17 countries on 5 continents. Lhoist is known as the leader in acid gas control with its line of Sorbacal® Optimized Hydrated Lime products. Please contact Lhoist's FGT Solutions Group to discuss how Sorbacal® can benefit you.

M&C TechGroup40

6019 Olivias Park Drive, Suite G
Ventura, CA 93003
Cliff Gordon, President and CEO
cgordon@mac-products.com

Business: 805-654-6970 / www.mc-techgroup.com



M&C TechGroup is the leading manufacturer of Paramagnetic Oxygen Sensors and Sample Conditioning Equipment. We have the experience and the equipment to ensure you get a representative sample to your analyzer of choice as well as to make your system more reliable and trouble free. From Probe to Filter, we are your single solution for a monitoring system. We manufacture, Straight Extractive and Dilution Probes, Heated and Non-Heated Stingers, Gas and Liquid Coolers, Refrigerant and Pellet Chillers, Diaphragm and Peristaltic Pumps, Particulate Filters, Sample Lines, Gas Conditioners, Flow Drawers, Optical and Alarm Sensors, Electronic Controllers, Flow Meters, Valves, Hose and Tube Fittings, Gas Converters, and Paramagnetic Oxygen Analyzers. NEW Products to our sampling solutions are a PM Continuous Sampler, Hg Sorbent Trap System, and SMART sample systems. Discuss your sampling problems with us and we will help you find the solution to a more dependable sampling system.

MET-Marsulex Environmental Technologies.....44

200 North Seventh Street
Lebanon, PA 17046
Barry Stolzman,
Sr. Vice President
bstolzman@met.net

Business: 908-238-5125 / www.met.net



A full service Air Quality Control company since 1934, MET provides the highest quality of traditional and advanced technologies to meet rigid emission requirements for utility and industrial markets. Proudly teamed with Termokimik Corporation of Italy, we offer demonstrated SCR solutions with optimized Ammonia to Nitrogen Oxide distribution and optimum SCR design. Contact us today to learn how our innovative technologies can solve your NO_x needs.

Mitsubishi Power Systems Americas Inc.....48

100 Bayview Circle, Suite 6000
Newport Beach, CA 92660
Bob McGinty,

Sr. Manager, Business Development
SCR NO_x Control Systems

Robert.McGinty@mpshq.com

Business: 949- 856-8419 / www.mpsqh.com



Mitsubishi is a provider of Engineered Selective Catalytic Reduction NO_x Emission Control Systems. Over 40 years of experience with more than 600 systems in commercial operations around the world, Mitsubishi stands as an original pioneer of DeNO_x catalyst and optimized emission control systems for Power & Industrial Process plant applications, providing validated ISO 9001 Accredited SCR Technology for the Americas.

Nalco Air Protection Technologies.....9

1601 W. Diehl Road
Naperville, IL 60563

Kathy A. Schillinger
Comm. Specialist, WPS Communications
kschillinger@nalco.com

Business: 630-305-1239 / www.Nalco.com



Nalco Air Protection Technologies (APT) and the Nalco Research & Development team provide proven and patented technologies for complete MATS compliance. The Nalco suite of products includes MerControl 7895, a mercury oxidant, MerControl 8034 for mercury re-emission control and MerControl 6012 for mercury control in dry scrubbers. APT's focus is to minimize capital intensive solutions while maximizing mercury capture in air and water for coal fired EGU's.

Nol-Tec Systems, Inc.....27

425 Apollo Drive
Lino Lakes, MN 55014

Jerry C. VanDerWerff, Regional Sales Mgr.

JerryVanDerWerff@nol-tec.com

Business: 651-780-8600 / www.nol-tec.com



Nol-Tec Systems offers Sorb-N-Ject® Technology, a proven dry bulk sorbent injection system to mitigate Hg, HCl, SO₂, SO₃, and HF emissions effectively and efficiently. We are a global single-source supplier of custom-engineered bulk material handling, pneumatic conveying, and integrated control systems – including limestone and fly ash handling systems. Nol-Tec balances sound technical expertise with innovative thinking, partnering with our forward-thinking customers to exceed their expectations and deliver success.

Paragon Airheater.....42

23143 Temescal Canyon Road, Ste B
Corona, CA 92883

Mark Dornoff

MDornoff@paragonairheater.com

Business: 951-277-8035 / www.paragonairheater.com



Paragon Airheater specializes in the service and manufacturing of high-performance seals and replacement parts for rotary, regenerative air heaters. Whether you need to reduce leakage, combat ABS formation, replace baskets or improve overall efficiency, Paragon has the products and solutions. High performance seals, innovative technology, superior field service, inspections and exceptional engineering combined with world class customer service make Paragon the choice for your air heater needs.

RE Consulting.....11

3850 Bordeaux Drive
Northbrook, IL 60062

Gary D. Reinhold, President

gary.reinhold@reconsulting.info

Business: 847-477-8540 / www.reconsulting.info



RE Consulting is a division of Reinhold Environmental Ltd., a corporation which continues to provide numerous O&M services to the coal-burning utility industry since 1993. Using its team of industry experts, RE Consulting's current focus is to provide engineering studies, on-site training, and O&M based troubleshooting and consulting. In addition, RE Consulting provides training via its state-of-the-art, on-line training manuals as well as customization support for specific plant configurations.

2013 NO_x-Combustion Exhibitors

Reaction Engineering International.....49

77 West 200 South Suite 210
Salt Lake City, Utah 84101
Bradley R Adams, PhD, President
adams@reaction-eng.com
Business: 801- 364-6925 x18 / www.reaction-eng.com



REI provides modeling and proof-of-concept testing services for combustion and emissions applications. This includes support of the power generation industry for optimizing process production; evaluating equipment and fuel changes; co-firing coal with opportunity fuels (biomass, wastes); minimizing air pollutants such as NO_x, SO₂/SO₃ and Hg; and assessing new combustion technologies such as gasification and oxy-coal combustion.

SAS Global Corp.....43

21601 Mullin Avenue
Warren, MI 48089
Thomas Mahfet, V.P. Of Sales and Marketing.
tmahfet@sasglobalcorp.com
Business: 248-414-4470 / www.sasglobalcorp.com



SAS patented pulverizer/burner technology is the first step in a boiler optimization program. Balance fuel pipes, reduce NO_x, lower LOL, reduce slagging, and lower SCR costs. 100% guaranteed.

Sealeze, a unit of Jason Inc.....39

8000 Whitepine Road
Richmond, Va 23237
Mary Harvey, Trade Show Coordinator
mharvey@sealeze.com
Business: 804-316-5992 / www.sealeze.com/ind/xtrasealht.html



XtraSeal HT™ is a patent-pending, adaptive brush sealing system specifically engineered for Rotary Air Preheaters and the constant variations in gap sizes inherent in their operation that strip seals can't accommodate. Air Preheaters, properly sealed with XtraSeal HT, provide measurable reductions in fuel consumption, fan power usage and CO₂ emissions, ensuring consistent conditions for optimal air pollution control equipment function.

SOLVAir Solutions.....35

3333 Richmond Avenue
Houston, TX 77098
Michael Wood, Senior Business Manager
Mike.Wood@Solvay.com
Business: 800.765.8292 www.solvair.us



SOLVAir Solutions, the market leader in providing sodium sorbents for DSI, helps customers address such air pollution concerns as cost-effective product implementation, regulations compliance, and SO_x, HCl, and other stack emissions from power plants and industrial boilers. Rely on SOLVAir Solutions for real-world experience in the maze of emissions control and regulations compliance options. Access www.solvair.us to view all our products and services.

Southern Research Institute.....30

2000 Ninth Avenue South
Birmingham, AL 35255-5305
Kenneth Cushing,
Manager, Environmental Services Group
cushing@southernresearch.org
Business: 205-581-2381
www.southernresearch.org



Southern Research Institute provides standard testing of de-NO_x SCR catalysts in both bench-scale and micro-reactor test facilities, air-pollution-control technology evaluation, and testing and laboratory services for utility, industry, and government clients. Our areas of expertise include: vapor-phase mercury monitoring; carbon-trap mercury measurements; SCR catalyst activity and reactivity testing; XRF, XRD, ICP-MS, and morphological analyses; coal combustion research; and, flue gas analysis for SO₂, Hg, halides, HCl, HF, and other gas species. We also provide analysis of FGD scrubber liquids and slurries, and water treatment technologies.

STEAG Energy Services33-34

304 Linwood Road, P.O. Box 1727
Kings Mountain, NC 28086
Dorothee Seidel, Marketing Manager
dorothee.seidel@steag.us
Business: 704-734-0688
www.steag.us



STEAG Energy Services provides a full scope of environmental engineering and consulting service to the North American energy industry including SCR and SNCR system design and review, SCR catalyst management services including catalyst data interpretation, catalyst exchange strategies, catalyst cleaning, rejuvenation and regeneration, STEAG's patented/ pleated large particle ash screens, AIG tuning, combustion optimization services, complete in-house SCR catalyst bench scale testing and XRF testing services, complete SCR on-site installation / removal services, STEAG's patented mercury capture / sequester system and SCR and FGD Training / O&M services.

URS Corporation.....6

1600 Perimeter Park
Morrisville, NC 27560
Gunseli Shareef, PhD,
Vice President Power Sector
gunseli.shareef@urs.com
Business: 919.461.1454
www.urscorp.com



A global leader in engineering, design, construction, and program management, URS Corporation provides a complete life cycle of services to clients in the power industry - emissions control (NO_x, SO₂, SO₃, mercury/toxics, PM), generation (fossil, nuclear, hydro, renewable, combined cycle), coal combustion residuals, and transmission/distribution.

Wahlco, Inc.....37

2722 South Fairview Street.
Santa Ana, CA 92704
Barry Southam
Vice President of Sales & Marketing
bsoutham@wahlco.com
Business: 714-979-7300
www.wahlco.com



Wahlco serves the power, refinery and chemical industries through the manufacture and supply of SO₂ and NH₃ flue gas conditioning (FGC) systems, small NO_x reduction (SCR and SNCR) systems, ammonia systems for SCR plus patented urea-to-ammonia "U2A®" systems for DeNO_x and industrial applications.

Treasure Hunt Sponsors

CoaLogix
Kirk Key Interlock
Babcock & Wilcox
Johnson Matthey
Cormetech
URS
FMC
Babcock Power
GE Energy
CERAM
Kiewit/TIC

11 VISA Gift Cards
will be awarded

1@ \$500
2@ \$300
3@ \$200
5@ \$100



Treasure Hunt Drawing to be held
Tuesday at 3:45 pm
in the Expo Hall

Must be present to win



Kiewit

Jobs Done Well.

Kiewit's commitment to the power industry is stronger than ever.

Outstanding client and partner relationships and a full scope of services have led to our extensive experience in the coal-fired, gas-fired, nuclear, air quality control systems, power delivery and renewable energy markets. We're committed to our clients, continuously working to exceed their expectations in new, competitive ways. Our talented people, in-depth market knowledge and state-of-the-art equipment show how the Kiewit way continues to lead today's power industry. **Kiewit Power.** Our name says it all.

kiewit.com

