

Houston, Texas

2010 NPRA Cat Cracker Seminar

InterContinental Hotel
Houston, Texas
August 24-25, 2010




$$1 + 1 = \#1$$

In a single process step, BASF combines a new, advanced FCC catalyst matrix with our proven zeolite technology, in an ultra-low sodium, intimately dispersed, proximal structure. The sum ... **Prox-SMZ (Proximal Stable Matrix and Zeolite)** a proprietary technology platform providing:

- Leading hydrothermal stability
- Deep bottoms conversion and best bottoms to coke ratio
- Low dry gas and coke production
- Suitable for all FCC feedstocks including highly contaminated resids

Prox-SMZ

HDXtra, the first catalyst derived from the innovative Prox-SMZ technology platform, optimizes the zeolite-to-matrix ratio to maximize bottoms-to-LCO conversion to meet growing diesel demand.

Stamina combines selective cracking with proven metals tolerance features for resid feeds.

When the right reaction matters, trust BASF for bottoms upgrading and distillate maximization.

For more information, please visit
www.catalysts.basf.com/prox-smz

 **BASF**
The Chemical Company

Schedule of Events

Tuesday, August 24, 2010

8:00 am – 6:00 pm	Registration	Legends Ballroom Prefunction
11:00 am – 12:30 pm	Lunch / Tabletop Exhibition	Legends Ballroom
12:30 pm – 2:30 pm	Q & A Session	Panel I: Operations / Technology Discovery A & B
2:30 pm – 2:45 pm	Break	Legends Ballroom Prefunction
2:45 pm – 4:30 pm	Q & A Session	Panel II: Reliability / Mechanical / Turnaround Discovery A & B
4:30 pm – 6:00 pm	Reception / Tabletop Exhibition	Legends Ballroom

Wednesday, August 25, 2010

7:30 am – 2:00 pm	Registration	Legends Ballroom Prefunction	
7:30 am – 8:00 am	Early Bird Coffee & Rolls	Legends Ballroom Prefunction	
Concurrent Workshops	Track I: Rotating Equipment Founders Ballroom I, II, III Improving Operational Confidence and Efficiency with Turbomachinery Control Systems – <i>Jim Roegiers</i> Compressor Controls Corp. CAT-10-102	Track II: Process / Operations Discovery A FCC Catalyst Loss Troubleshooting – <i>Jeff Koebel</i> WR Grace CAT-10-105	Track III: Mechanical Discovery B Metallurgy – General Applications – <i>Clay White</i> ConocoPhillips CAT-10-104
8:00 am – 9:30 am			
9:30 am – 9:45 am	Break	Legends Ballroom Prefunction	
9:45 am – 10:45 am	FCC Expander On-Line Monitoring and Preventive Maintenance for Reliability – <i>Donald Shafer</i> Dresser-Rand CAT-10-107	Catalyst Circulation/ Standpipe Issues – <i>Bill Wilson</i> BP CAT-10-106	Analyzing Hot Spots for Stress and Strain using Finite Element Analysis – <i>Ken Fewel</i> Shaw CAT-10-103
10:45 am – 11:00 am	Break	Legends Ballroom Prefunction	
11:00 am – 12:00 pm	Critical Inventory Optimization for Turnarounds – <i>Sandy Hunter</i> Hunter Hawk – <i>Rob Sperry</i> Tesoro CAT-10-109	Avoidable Operational Errors – <i>Pat Walker</i> UOP CAT-10-108	Maintenance Practices for Slide Valve Hydraulics – <i>Manuel Cachutt</i> Shell CAT-10-101
12:00 pm – 1:30 pm	Lunch / Tabletop Exhibition	Legends Ballroom	
1:30 pm – 3:00 pm	Wet Gas Scrubbers Performance and Reliability – <i>Nick Confuorto</i> Belco Technologies – <i>Pui-Nang Lin</i> Flint Hills Resources CAT-10-112	Capitalizing on Excess FCC Capacity with Opportunity Operating Modes – <i>Steve Gim</i> Shaw – <i>Ken Peccatiello</i> Peccatiello Engineering CAT-10-111	FCC Cyclone Life Cycle and Inspections – <i>Doug McAulay</i> BP – <i>Mike Maholland</i> Chevron CAT-10-110

2010 Cat Cracker Seminar Program Committee

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Shell Global Solutions U.S.
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Sea Girt, NJ

Gary Stephens
Manager Regional Services -
Technical Service Department
UOP LLC
Houston, TX

Patrick Walker
Sr. FCC Associate
UOP LLC
Des Plaines, IL

Sponsors

Tuesday Afternoon Coffee Break
Refractory Construction Services

Conference Bag
Grace Davison

Final Program
BASF Corporation, Catalyst Division

Session Audio/Visual Services
Hason Steel - Mechanical Track

Upcoming Meetings

NPRA Q&A and Technology Forum & Exhibition

2010

October 10-13 Marriott Baltimore
Waterfront
Baltimore, MD

2011

October 9-12 JW Marriott Hill Country
Resort & Spa
San Antonio, TX

NPRA Reliability & Maintenance Conference & Exhibition

2011

May 24-27 Convention Center
Denver, CO

2012

May 22-25 Convention Center
San Antonio, TX

NPRA Cat Cracker Seminar

2012

August 21-22 InterContinental Hotel
Houston, TX

2010 NPRA Cat Cracker Seminar

The biennial NPRA Cat Cracker Seminar and Exhibition will be held August 24-25, 2010 at the InterContinental Hotel in Houston, TX. The program of 12 workshops is organized in three topic tracks which enable attendees to focus on a particular aspect of FCC operation or to attend workshops that cover a broader range of interests. Whether you are in Operations, Technical Service, Maintenance, Reliability, or Process Engineering, you will find a comprehensive program that meets your needs for improving your FCC's operation and reliability.

The topic tracks for 2010 are:

- **Mechanical** – workshop topics include: Metallurgical Applications; Stress and Strain Due to Hot Spots; Maintenance for Slide Valve Hydraulics; and Cyclone Inspection and Repair.
- **Process/Operations** – workshop topics include: Catalyst Loss Troubleshooting; Catalyst Circulation; Avoidable Operational Errors; Operational Issues for Opportunity Feedstocks; and Wet Gas Scrubber Performance and Reliability.
- **Rotating Equipment** – workshop topics include: Compressor Control Systems; On-line Expander Maintenance; and Parts Inventory Optimization for Turnarounds.

The 2010 Seminar will also have a Question & Answer session with industry experts who will address 26 questions on safety, process technology, rotating equipment, refractory, emissions controls, maintenance work processes, turnarounds, inspections, technology choices, and operations. In addition to the planned questions, the panelists will be prepared to respond to comments and additional questions from the attendees.

The Exhibition will showcase the latest technological advances in FCC equipment, catalysts, refractory, diagnostics, and reliability services from 61 companies that specialize in FCC equipment and technology. Lunch will be served in the Exhibition Hall on August 24 and 25 and the Exhibition will be open after the Q&A session on August 24 from 4:30 pm to 6:00 pm.



12:30 pm – 4:30 pm
Discovery A & B

Q & A Panel

A panel of six industry experts from NPRA member companies will respond to questions that were received in response to an industry-wide call for questions. One or more of the panel members will respond to each question and then time will be allowed for follow-up questions from the attendees who may also offer their comments and

advice after the panel has responded. A transcript of the session will be distributed to all meeting attendees at a later date.

The questions are divided into the following categories:

1. Operations / Technology
2. Reliability / Mechanical / Turnaround

Scott Barton is FCC Operations Engineer for ConocoPhillips at the Wood River, IL refinery. His responsibilities include providing technical leadership to both FCCs including daily operations, project development and execution, and turnarounds. As the location FCC expert, he is also responsible for directing the long-term strategy of the FCCs at the refinery. As a senior engineer at Wood River, Scott is often asked to lead or participate in refinery issues such as root cause investigations, regulatory compliance, refinery procedure development, and business initiatives. He also mentors new engineers and interns. With over 18 years of refinery experience, he has been involved with almost every process at the refinery including crude distillation, alkylation, hydrotreating, and refinery planning. With over 10 years of FCC experience, Scott has been involved with FCC catalyst testing and selection, FCC modeling, technology revamps, regulatory compliance, and has been the process engineer for seven FCC turnarounds.



Scott holds a BSChE from Iowa State University and is a Six Sigma blackbelt.

Jeff Bull is the Process Simulation Model Manager for Valero Energy Corporation in San Antonio, TX. He is responsible for all of the kinetic models across Valero's fifteen refineries which includes tuning, calibrating and maintenance of the FCC kinetic models and the support of their use for process studies, catalyst evaluations, and LP vector generation. He was Valero's representative to the US EPA Consent Decree FCC Team and provides internal support on FCC additives and emissions control technologies.



He previously worked for UOP in a variety of FCC assignments ranging from research and development to unit start-up and troubleshooting.

Jeff holds a BSChE from Case Western Reserve University.

Neal Cammy is a Senior Technology Specialist, specializing in Fluid Catalytic Cracking with UOP's FCC, Alkylation and Treating Technology Services group.



Neal has been in this role for over five years. In his 30 years with UOP, mostly in FCC technology, Neal has worked on new unit startups, refinery troubleshooting, unit reliability, and development of new process control and safety-instrumented system strategies. Neal has co-authored several papers in the area of safety system design, and holds two U.S. patents for FCC control strategy.

Neal holds a BSChE from the Polytechnic Institute of NYU.

Adam Kasle is Principal Process Engineer for BP North America where he is responsible for BP's FCC catalyst evaluation program and provides technical support to the BP refineries regarding all FCC catalyst related issues. He began his career at UOP where he worked for 12 years as a Process Development Engineer, Field Service Engineer, and FCC Operating Technical Service Engineer. From UOP, Adam moved to Grace Davison where he held the role of FCC Technical Sales Manager in the US Gulf Coast and Virgin Islands.



Adam holds a BSChE from Northwestern University.

Lloyd Nelson is Reliability Engineer at Flint Hills Resources' Pine Bend, MN refinery. He has worked primarily on turnaround projects including several FCCU revamps and repair work as well as on new construction projects as a Project Engineer and Project Manager. He began his career as a Project Engineer at Gulf Oil in Montreal, Quebec.



Lloyd holds BSME from the University of Saskatchewan in Saskatoon, Saskatchewan.

Mart Nieskens is the Global Technology Manager for Cat Cracking at Shell Global Solutions (US) Inc. in Houston, TX. He has 32 years experience in the refining industry. He started his career in R&D at the Shell Research Center in Amsterdam, The Netherlands and, subsequently, became senior process development engineer for cat cracking at Shell's Manufacturing Division in The Hague, The Netherlands. After that, he held technical and operations management positions at refineries in Singapore, the US, India and Malaysia. At Shell Global Solutions in Amsterdam, Mart held the position of Global Manager, Light Ends Conversion; he had the same position for Cat Cracking at Shell Global Solutions (US) Inc.



Mart holds a MSChE from the Technical University Eindhoven in The Netherlands.

Operations / Technology

1. Some FCCUs have "try lines" on the main fractionator that can be used to verify the bottoms level. In what circumstances do you use the try lines to verify the level? What safety measures and operating procedures do you recommend given the presence of hydrogen sulfide in the vapor phase?
2. How do you train new operators for abnormal situations? How do you keep experienced operators sharp and ready to handle FCCU upsets and emergencies? Do you use simulators to help with the training and retraining? Does greater reliance on advanced process controls in normal operation make preparation for abnormal situations more challenging?
3. Do you use a training simulator tailored specifically to your particular unit's behavior and instrumentation rather than a generic FCC simulator?
4. For FCC units producing high levels of propylene, the operating conditions and catalyst properties promote side reactions which produce different or excessive product contaminants relative to typical FCC units optimized for gasoline production. Has this impacted the operation of your gasoline or LPG treating units? Have you identified specific contaminants which are higher for the propylene mode of operation? Have you noticed an impact on amine foaming, color, or consumption? If you have experienced problems in your treating unit, what actions have you taken to mitigate or prevent the problem?
5. If your flue gas boiler does not have sootblower capability, what measures do you take to maintain or improve heat transfer? Is walnut shell injection an option?
6. Describe your continuous catalyst withdrawal system. Is the hopper under vacuum or is the hopper at atmospheric pressure? How is the flow regulated? What metallurgy do you specify for the spent catalyst lines? How do you capture dust from the hopper? How do you cool down the catalyst so that it can be loaded into trucks?
7. How do you ensure proper operation of secondary cyclone diplegs during start-up and shutdown?
8. How do you choose FCC catalysts? Describe how you use the following methodologies to make catalyst selections:
 - Testing (in-house or external)
 - Paper bids
 - Unit trials
 - OtherDo you conduct a post-audit to evaluate your catalyst selections? What methodologies do you use?
9. Have you improved catalyst stripper performance by changing from baffled "trays" to packing? What criteria did you use to evaluate the performance of the new packing?
10. Have you fed used lubricating oils to a FCC unit? Describe what effect the lube oil additives (metals) have had on the FCC catalyst.
11. What design guidelines do you recommend for flue gas quench systems that control flue gas expander inlet temperature? What is the best location for a quench system (e.g. inside the regenerator plenum or outside in the duct work)? What types of atomization nozzles do you recommend? What water source do you recommend? If you use boiler feed water, what specifications should be monitored to reduce risk of flue gas expander fouling?
12. Does air injected into the FCC standpipes or entrained from the regenerator react to form compounds such as phenols, CO₂, or other unwanted reaction products?
13. How do you minimize plugging of reactor pressure taps? Do you use a purge gas such as air, nitrogen, natural gas, refinery fuel gas, or something else? Do you think that air is an acceptable purge gas given the relative amount of entrained air due to catalyst circulation?
14. Describe your experience with measuring stack flow (for analyzer outputs). What method do you use for flow measurement and how does it compare to a material balance method or to the measurements of the stack analyzer testers.
15. Under what conditions do you see ammonia in the regenerator flue gas and how is ammonia affected by:
 - oxidation promoters
 - SO_x and/or NO_x reduction additives
 - conditions such as full-burn or partial burn
 - type of regenerator?
16. How does wet gas scrubber (WGS) pH affect SO_x reduction? How does pH affect corrosion rates and hard water deposit formation? Are there other negative effects in the WGS?

Reliability / Mechanical / Turnaround

17. Describe your experience(s) with reactor vapor line isolation valves. How did you justify the cost of the valve (e.g. safety, reduced start-up/shutdown times, etc.)? How did you incorporate the valve into start-up, shutdown and emergency procedures? Have you had any maintenance problems with the valve?
18. Have you experienced any aging issues with the following metallurgies for FCC reactors or other components? What testing do you recommend for older components and what criteria do you use for rejecting components?
- 1¼ Cr/½ Mo steel (A387 gr 11)
 - 2¼ Cr/1 Mo steel (A387 gr 22)
 - 5 Cr steel
 - stainless steel (hot wall flue gas components)
19. Have you experienced any lining failures in vibration-cast cold wall riser lines other than those caused by erosion? What failure modes have you identified for this type of lining and what material properties do you recommend for minimizing these failures?
20. Have you experienced regenerator cyclone refractory hex steel failure due to oxidation/corrosion? Have you observed a relationship between these failures and feed sulfur content or refractory type?
21. Have you experienced flue gas slide valve or butterfly valve issues that have been attributed to catalyst agglomeration on the disc? If so, how have you resolved the issue?
22. What preventive maintenance do you perform on wet gas compressors (WGC) and main air blowers (MAB)? What methodologies or strategies do you employ to define the scope of work for these items' turnaround activities?
23. What preventive maintenance do you do on slide valves? What methodologies or strategies do you employ to define the scope of work for slide valve turnaround activities?
24. How do you monitor the health of expansion joints? What methodologies or strategies do you employ to define the scope of work for expansion joint turnaround activities?
25. Describe how you prepare the FCCU for a hurricane passing over your refinery? What do you do differently if you are preparing for longer shutdowns?
- 7 days
 - 21 days
 - Longer
- Comment on issues such as when to deinventory the catalyst, when to isolate the regenerator from the atmospheric stack, when to put the reactor/regenerator under nitrogen pressure, etc.
26. Describe your procedures for decontaminating the FCCU in preparation for turnaround activities. How long does it usually take to decontaminate and prepare equipment for entry? What typical problems have you encountered? What practices do you recommend to improve the decontamination process?

Notes

Track I**Rotating Equipment**

Founders Ballroom I, II, III

8:00 am – 9:30 am

Improving Operational Confidence and Efficiency with Turbomachinery Control Systems*Jim Roegiers, Compressor Controls Corporation*

Effective and capable control strategies can increase confidence and efficiency in the operation of your turbomachinery. Control system basics, advanced strategies, and design considerations will be discussed. Dynamic simulations and application examples will be used to demonstrate problems and solutions.

Track II**Process/Operations**

Discovery A

8:00 am – 9:30 am

FCC Catalyst Loss Troubleshooting*Jeff Koebel, WR Grace*

This workshop will go through a practical process for diagnosing and troubleshooting FCC catalyst loss problems. Topics covered will include: defining “excessive” catalyst losses, calculating an FCC catalyst balance to determine the catalyst loss rate, collecting the data necessary to troubleshoot the problem, and understanding how the data can point to a cause. Mechanical solutions to improve cyclone reliability will also be reviewed.

Track III**Mechanical**

Discovery B

8:00 am – 9:30 am

Metallurgy – General Applications*Clay White, ConocoPhillips***Track I****Rotating Equipment**

Founders Ballroom I, II, III

9:45 am – 10:45 am

FCC Expander On-Line Monitoring and Preventive Maintenance for Reliability*Donald Shafer, Dresser-Rand*

This presentation will include a discussion on the effects of the FCC environment on power recovery expanders. This will include on-line equipment health monitoring methods and preventive maintenance techniques used to increase FCC expander reliability.

Track II**Process/Operations**

Discovery A

9:45 am – 10:45 am

Catalyst Circulation / Standpipe Issues*Bill Wilson, BP*

Catalyst circulation and fluidization issues can result in operational upsets or suboptimal performance. This presentation will cover the basics of fluidization and catalyst flow as they relate to the operation of catalyst standpipes.

Track III**Mechanical**

Discovery B

9:45 am – 10:45 am

Analyzing Hot Spots for Stress and Strain using Finite Element Analysis*Ken Fewel, Shaw Energy & Chemicals*

Finite element analysis (FEA) is an accurate, state-of-the-art method to compute stress and strain in your vessel, piping and refractory lined systems using solid 3-D computer models. Specific hot spots and other abnormal loads for a variety of conditions, including shutdown and start-up, can be included in these models to determine the unit's safety. FEA can be used to determine how close the unit is to the ASME safety limits for a specific hot spot condition. With this information the refiner can decide if it is necessary to shut down to make repairs or to continue running until the normally scheduled turnaround. An example of an actual application of FEA to analyze a hot spot on an FCC unit will be explained.

Track I**Rotating Equipment**

Founders Ballroom I, II, III

11:00 am – 12:00 pm

Critical Inventory Optimization for Turnarounds*Sandy Hunter, Hunter Hawk
Rob Sperry, Tesoro Corporation*

Turnarounds require planning and execution on a tight schedule which means critical equipment parts must be on site and available in a timely manner. Extended unit downtime means lost profit opportunities (LPO) and headaches for maintenance and reliability teams. Kit Box Systems save time, money and expensive resources by improving the efficiency of the maintenance workforce during the turnaround.

Track II**Process/Operations**

Discovery A

11:00 am – 12:00 pm

Avoidable Operational Errors*Pat Walker, UOP*

In this workshop we will discuss avoidable operational errors using several case studies. These will demonstrate that most errors are not limited to pure operator error but rather extend to deficiencies in procedures, design or maintenance. Several of the most common errors along with some less frequent errors will be discussed.

Track III**Mechanical**

Discovery B

11:00 am – 12:00 pm

Maintenance Practices for Slide Valve Hydraulics*Manuel Cachutt, Shell Projects & Engineering*

This presentation reviews hydraulic power units supporting slide valve systems in FCC units, their typical operational/maintenance conditions, specific maintenance requirements and recommended proactive maintenance practices for failure prevention.

Track I**Rotating Equipment**

Founders Ballroom I, II, III

1:30 pm – 3:00 pm

Wet Gas Scrubbers Performance and Reliability*Nick Confuorto, Belco Technologies
Pui-Nang Lin, Flint Hills Resources*

This presentation will review fundamentals and troubleshooting for FCC flue gas scrubbers with a focus on key monitoring parameters for maximum SO₂ reduction and related equipment reliability issues. Attendees will have an opportunity to share best practices and exchange ideas to improve unit performance and reliability.

Track II**Process/Operations**

Discovery A

1:30 pm – 3:00 pm

Capitalizing on Excess FCC Capacity with Opportunity Operating Modes*Steve Gim, Shaw Energy & Chemicals
Ken Peccatiello, Peccatiello Engineering*

This presentation will cover changes in feedstocks, such as opportunity crudes, and adjustments to operating modes, such as increasing resid content/increasing severity, to take advantage of the current excess FCC capacity and overproduction of gasoline. Panelists will discuss the change in operating modes and associated yield shifts to utilize this excess capacity. The impact on mechanical design and the anticipated maintenance concerns when making these changes will also be discussed. These will include issues such as corrosion and hydrogen/cyanide blistering, to name a few.

Track III**Mechanical**

Discovery B

1:30 pm – 3:00 pm

FCC Cyclone Life Cycle and Inspections*Doug McAulay, BP Products North America
Mike Maholland, Chevron*

This presentation will review failure mechanisms for regenerator cyclones with discussion of cases of accelerated corrosion of stainless steel hex mesh which anchors the erosion resistant lining.

List of Exhibitors

Exhibition Floor Plan and Tabletop Exhibitors

Legends Ballroom

Tuesday, August 24

11:00 am – 12:30 pm

Lunch / Tabletop Exhibition Open

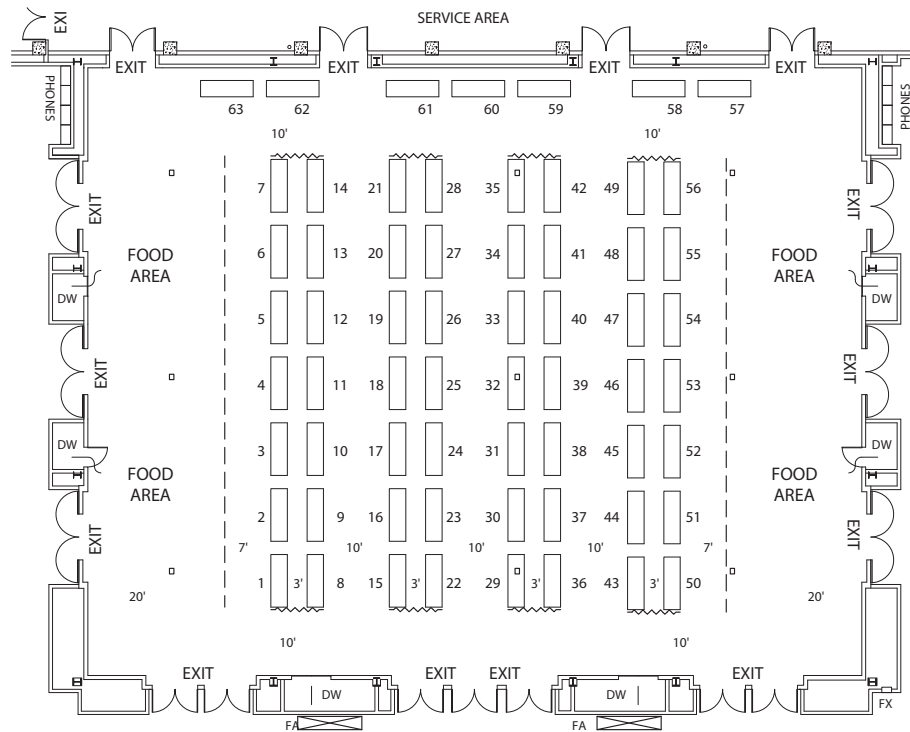
4:30 pm – 6:00 pm

Reception / Tabletop Exhibition Open

Wednesday, August 25

12:00 pm – 1:30 pm

Lunch / Tabletop Exhibition Open



Exhibitors Listed Alphabetically By Company

Company	Table #	Company	Table #	Company	Table #
A Box 4 U	58	Haldor Topsoe, Inc. SCR Group	54	Safway Services, LLC	48
Aggreko	5	Harbison-Walker Refractories Co.	47	Senior Flexonics Pathway	32
Albemarle Corporation	25	Hi-Tech Industrial Services, Inc.	43	Sentinel Integrity Solutions	62
All Tech Inspection	37	Hotwork-USA	61	Shaw	41
AltairStrickland	8	Industrial Gunite, Inc.	6	Stress Engineering Services	31
BASF Corporation	9/10	InServ	12	Structural Preservation Systems (SPS)	38
Belco Technologies Corporation	36	INTERCAT	51	Sulzer Chemtech USA, Inc.	52
BLAC INC.	60	JV Industrial Companies	24	Superheat FGH Services	57
Brand Energy and Infrastructure Services	18	KBR	45	TapcoEnpro	50
Brock Group	49	KE-Burgmann EJS	46	Team Industrial Services	22
Buell Division of Fisher Klosterman Inc.	4	Matrix Service Company	34	Thermal Ceramics	59
CAR-BER Testing Services	56	MEA INC	40	Thermbond Refractories / Stellar Materials Inc.	26
Continental Fabricators, Inc.	7	MECS, Inc.	23	TRACERCO	16
Contract Fabricators, Inc.	35	MOGAS Industries, Inc.	44	Training & Development Systems, Inc.	21
Daily Thermetrics Corp.	63	Nooter Construction Company	53	Turner Industries Group	27
Deloro Stellite	11	Plant Performance Services LLC (P2S)	19	United Laboratories International LLC	2
Diamond Refractory Services	1	Praxair Inc.	13	UOP LLC	42
Everlasting Valve	33	Refinery Technology, Inc.	39	U.S. Bellows, Inc.	20
Foster Wheeler USA Corporation	17	REMOSA - UNITED VALVE	15	Wyatt Field Service Company	55
Grace Davison	29/30	Resco Products, Inc.	14	Zimmermann & Jansen, Inc.	3
		RSC Equipment Rental	28		

A Box 4 U (58)

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Wichita, KS 67217
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Greg Lange
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<http://www.abox4u.net>

A BOX 4 U has manufactured and engineered the Blast Resistant Modules keeping your workforce safety and productivity in mind. Our BRM's meet or exceeds API's 753 guidelines. Every BRM is engineered keeping workplace safety first. Your workforce will appreciate the ease and convenience of having offices, break rooms, tools and parts in their blast zone workplace.

Aggreko (5)

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Albemarle Corporation (25)

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Jack Wilcox
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<http://www.albemarle.com>

Boost yields and profit from your FCC unit and reduce SOx/NOx emissions with Albemarle, the world leader in FCC catalysts, additives and technical service.

All Tech Inspection (37)

2209 Market Street
Baytown, TX 77520
281-422-7585

Leo Poirier
lpoirier@alltechinspection.com
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Mechanical Integrity, Refractory Inspection & Testing, Run & Maintain, Turnaround Inspection & Specialty NDT Services.

AltairStrickland (8)

1605 S. Battleground Road
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Whitney Strickland
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AltairStrickland is a Mechanical Contractor that specializes in FCCU Revamps. AltairStrickland plans, manages and executes the entire revamp utilizing their knowledge and expertise to save schedule and budget.

BASF Corporation (9/10)

1111 Bagby Street, Suite 2600
Houston, TX 77002
732-205-5000

Fabian Florez
<http://www.basf.com>

BASF delivers value resulting in more of the products you want. Products include FCC Catalysts based on the renowned DMS and new Prox-SMZ platform technology, Additives, Co-Catalysts, Solutions and Services.

Belco Technologies Corporation (36)

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973-515-8903

Nicholas Confuorto
confuorto@belcotech.com
<http://www.belcotech.com>

A global leader in the licensing, design and supply of systems for reduction of refinery air pollutants including Particulate, SO₂, SO₃ and NO_x. Reduction of emissions from FCCU regenerator, Heaters, Boilers and SRU. Also global supplier of Shell Global Solution Third and Fourth Stage Separators (TSS-FSS) for FCCU.

BLAC INC. (60)

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Elmhurst, IL 60126
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Philip Black
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<http://www.blacinc.com>

BLAC INC designs and constructs electro-hydraulic linear and quarter turn valve actuators and damper actuators. BLAC INC. specializes in FCCU slide, plug and butterfly actuators.

Brand Energy and Infrastructure Services (18)

5730 FM 646 East
Dickinson, TX 77539
832-226-5094

Myron Smalley
jake.smalley@indspec.com
<http://www.beis.com>

Specializing in FCCU, SRU and furnace retrofits. Brand offers refractory, scaffolding, insulation, coatings, fireproofing and abatement services to the refining and petrochemical industries. 52 FCCU T/A's in the past 5 1/2 years.

Brock Group (49)

10343 Sam Houston Park Dr., Suite 200
Houston, TX 77064
281-807-8200

Merlie Fuselier
bbrossart@brockgroup.com
<http://www.brockgroup.com>

The Brock Group is the leader in specialty services driven by process driven reliability programs with proven expertise in consolidation and multi-craft & multi-site strategic alliances. Core services offered are scaffolding, specialized shoring, painting, insulation, lead & asbestos abatement, metal fabrication, electrical & heat tracing services, janitorial & grounds maintenance.

Buell Division of Fisher Klosterman Inc. (4)

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meo@fkinc.com

<http://www.buellrefinery.com/>
Buell Refinery Cyclones Division has a long history of application engineering practical experience including numerous patents for cyclone separation technology. The cyclone products are used worldwide in fluid catalytic cracking units for all processors. The refinery division produces third stage systems (TSS), recovery cyclones, 4th stage cyclone systems and critical orifice valves and cyclones for the petrochemical industry.

Tabletop Exhibitors: Exhibitor List with Descriptions

CAR-BER Testing Services (56)

911 Michingan Ave
Point Edward, ON N7V 1H2
800-592-8378
James Phillips
info@carbtesting.com
<http://www.carbtesting.com>
CAR-BER TESTING SERVICES provides specialty isolation and hydrotesting services to the pressure piping industry on a 24/7 basis. CAR-BER TESTING SERVICES – The Company with a “Safety First Attitude.”

Continental Fabricators, Inc. (7)

5601 West Park Avenue
St. Louis, MO 63110
314-781-6300
Alan Storm
Fabricators of FCC unit air grids, riser lines, overhead and flue gas lines, steam rings, reactors, regenerators, stripper sections. Vessel fabricators, (heavy wall, clad, alloy, towers, drums). SRU vessels and components.

Contract Fabricators, Inc. (35)

105 Roling Road, P.O. Box 758
Holly Springs, MS 38635
662-252-6330
Mike Clarkson
mike.clarkson@contractfab.com
<http://www.contractfab.com>
Custom steel & alloy fabrication.
Refractory installation and dry out.
Rammed cast & gunned. Regeneration & reactor vessels, components & internals.
FCCU cyclones, air rings, grids distributors, risers and overhead lines, pressure vessels & heat exchangers.

Daily Thermetrics Corp. (63)

5700 Hartsdale Dr.
Houston, TX 77036
713-780-8600
Walter Tijmes
sales@dailyinst.com
<http://www.dailyinst.com>
Daily Thermetrics is a leading provider of the critical temperature instrumentation assemblies required for FCC Units. Offerings include temperature measurement assemblies for highly abrasive applications.

Deloro Stellite (11)

471 Dundas Street East
Belleville, ON K8N 1G2
613-968-3481
Louw De Jong
ldejong@stellite.com
<http://www.stellite.com>
Deloro Stellite develops solutions to your wear and corrosion problems in refinery and FCCU applications. Stellite solutions offer longer life, reduced unplanned down-time, and reduced maintenance costs.

Diamond Refractory Services (1)

8412 Mosley
Houston, TX 77075
713-378-9200
David Gregory
dgregory@diamondrefractory.com
<http://www.diamondrefractory.com>
National FCCU Turnaround Specialist Contractor. In-Situ Vibration Casting of Riser & Feed Sections. Complete vessel of segments pump. Casting. Planning/Scheduling/Cost System. Diamond “Safety Certified” Staff Craftsmen Human Resource Data Base. “Safety Rules!” Safety Program.

Everlasting Valve (33)

108 Somogyi Court
South Plainfield, NJ 07080
908-769-0700
David Jenkins
djenkins@everlastingvalveusa.com
<http://www.everlastingvalveusa.com>
Everlasting Valve Company self lapping Flat Rotating Disc metal seated abrasive dry solids and slurry valves to 1500F and 10,000 psig for Fluid Catalytic Crackers and Continuous Cat Reformers.

Foster Wheeler USA Corporation (17)

585 N. Dairy Ashford Road
Houston, TX 77079
713-929-5000
Richard Gaona
Richard_Gaona@fwhou.fwc.com
<http://www.fwc.com>
Foster Wheeler is a global engineering, procurement and construction company with over 115 years experience. We design, engineer and construct leading-edge processing facilities and related infrastructure for offshore and onshore upstream oil & gas, LNG and midstream, refining, chemicals & petrochemicals, pharmaceuticals, biotechnology & health-care, environmental and power industries.

Grace Davison (29/30)

7500 Grace Drive, Bldg. 25, 2nd Floor
Columbia, MD 21044
410-531-8260
Elizabeth Mettee
<http://www.gracedavison.com>
Grace Davison is the global leader for FCC catalysts and additives, offering solutions-oriented approaches backed by a broad, highly differentiated portfolio, industry-leading technical service and a flexible manufacturing system.

Haldor Topsoe, Inc. SCR Group (54)

17629 El Camino Real, Suite 300
Houston, TX 77058
281-228-5000
Dennis Salbilla
denox@topsoe.com
<http://www.topsoe.com>
Haldor Topsoe is a market leader in the development and supply of SCR catalyst and technology, with over 600 references operating worldwide.

Harbison-Walker Refractories Company (47)

400 Fairway Drive
Moon Township, PA 15108
412-375-6729
Tom Gencarelli
<http://www.hwr.com>
Global leader in development and manufacture of high quality Refractory Ceramics for FCCU, SRU, Reformer, Heater and Boiler applications.

CAR-BER Testing Services – MEA INC

Hi-Tech Industrial Services, Inc. (43)

1310 Underwood
Deer Park, TX 77536
281-930-1460
Ken Shepherd
ken.shepherd@hi-techindustrial.com
<http://www.hi-techindustrial.com>
Specializing in all types of refractory installations including maintenance, turnarounds and capital projects; shop and field installations. New services include weld overlay, scaffolding erection, external insulation and abatement (A.P.I. 936 certified)

Hotwork-USA (61)

223 Gold Rush Road
Lexington, KY 40503
859-276-1570
Dan Devera
hotwork@hotwork.com
<http://www.hotwork.com>
Refractory Dryout Services

Industrial Gunite, Inc. (6)

2000 Magnolia Street
Pasadena, TX 77503
713-477-0331 ext.230
Bob Ferguson
bobferguson@gunite.net
<http://www.industrialgunite.com>
Contractor performing refractory, fireproofing, acid proofing, corrosion protection and support services on a new construction, turnaround, and run & maintain basis.

InServ (12)

1900 N. 161st E. Avenue
Tulsa, OK 74116
918-234-4150
Gordon Hampton
ghampton@inservusa.com
<http://www.inservusa.com>
The highest quality maintenance, turnaround and project services available to refiners today including Construction Services, Unit Revamps, Heater Design, Manufacturing, Safety Services, Tank Services and EPC Services.

INTERCAT (51)

2399 Hwy 34 South, Unit C1
Manasquan, NJ 08736
303-887-8196
Guido Aru
garu@intercatinc.com
<http://www.intercatinc.com>
INTERCAT is the leading supplier of FCC additives and related technologies worldwide.

JV Industrial Companies (24)

4040 Red Bluff Road
Pasadena, TX 77053
281-842-9353
Christina Cruz
<http://www.jvic.com>
JVIC has evolved to become your turn key turnaround company by providing services in specialty welding, bolt torqueing, pipe fabrication, FCCU turnarounds, towers, exchangers, scaffolding, and engineering and procurement.

KBR (45)

601 Jefferson St.
Houston, TX 77002
713-753-5770
Richard Heo
Richard.Heo@kbr.com
<http://www.kbr.com>
KBR is a global engineering, construction and services company supporting the energy, hydrocarbon, government services and civil infrastructure sectors. The company offers a wide range of services through its Downstream, Government and Infrastructure, Services, Technology, Upstream and Ventures business segments.

KE-Burgmann EJS (46)

10035 Prospect Avenue, Suite 202
Santee, CA 92071
619-562-6083
Kathy Tyson
info@keb-ejs.com
<http://www.keb-ejs.com>
Formerly Expansion Joint Systems, KE-Burgmann EJS is a world leader in expansion joint engineering and manufacturing; specializing in CCR, FCCU, petrochemical, and refining processes. Our services include engineering and piping analysis, onsite inspections and installation for scheduled turnarounds and immediate assistance in emergency situations. ASME/PED certified, a member of EJMA and UOP recommended.

Matrix Service Company (34)

5100 E. Skelly Drive, Ste 700
Tulsa, OK 74135
918-838-8822
Ken Pearson
dstarcher@matrixservice.com
<http://www.matrixservice.com>
Full service contractor specializing in construction, repair, maintenance, and fabrication services for the refining and petrochemical industries. Services include turnarounds, industrial cleaning, plant maintenance, ASME repairs and modifications, electrical, instrumentation, fabrication and construction.

MEA INC (40)

2600 American Ln.
Elk Grove Village, IL 60007
847-766-9040
Townes Comer
tcomer@meaincorporated.com
<http://www.meaincorporated.com>
MEA INC manufactures Redundant Digitally controlled actuators for FCCU slide and plug valves. MEA INC also provides field service and maintenance on FCCUs worldwide.

Tabletop Exhibitors: Exhibitor List with Descriptions

MECS, Inc. (23)

14522 S. Outer Forty Road
Chesterfield, MO 63017
314-275-5700
Andrea Trapet
andrea.c.trapet@mecsglobal.com
<http://www.dynawavescrubber.com>
MECS supplies the DynaWave Wet Gas Scrubber, which has been used by multiple refineries for high efficiency removal of SO₂, SO₃, and particulate from various flue gas streams (including FCCs).

MOGAS Industries, Inc. (44)

14330 E. Hardy Street
Houston, TX 77039
281-449-0291
Wes Barrett
mogas@mogas.com
<http://www.mogas.com>
MOGAS severe service, metal-seated ball valves range in size from 1/2 - 36 inches and are available in ASME 150 - 4500 Pressure Classes. Unique material requirements available.

Nooter Construction Company (53)

1500 South 2nd Street
St. Louis, MO 63104
314-421-7600
Alan Yarosh
ahyarosh@nooter.com
<http://www.nooterconstruction.com>
Nooter Construction is an FCC Turnaround/Revamp expert. In addition Nooter services include refinery turnarounds, new equipment erection and capital project construction. Our subsidiary Delta Nooter provides exchanger services We are known for customer satisfaction, safety performance and quality workmanship.

Plant Performance Services

LLC (P2S) (19)

One Fluor Daniel Drive
Sugar Land, TX 77478
281-263-6960
Brian Petzold
erin.brau@p2sworld.com
<http://www.p2sworld.com>
P2S is a leading provider of specialty services including turnarounds, heat exchanger cleaning, fabrication, maintenance, boiler repair, construction and many others.

Praxair Inc. (13)

39 Old Ridgebury Road
Danbury, CT 06810
1-800-PRAXAIR
Jeffrey Ward
info@praxair.com
<http://www.praxair.com>
Praxair is one of the largest industrial gas providers in the world and the largest in both North and South America. We operate in 30 countries worldwide, and service one million customers and a wide range of industries. With a 50-year track record of serving the refining industry, Praxair can help you to get more from your refinery.

Refinery Technology, Inc. (39)

P.O. Box 680569
Houston, TX 77268
281-580-3773
Paul Klumpp
ptk@refinerytech.com
<http://www.refinerytech.com>
FCC Unit Systems: Design, Troubleshooting, Reliability Audits, Spring Support and Expansion Joint Audits.
Expander Piping Systems: Design, Troubleshooting, Reliability Audits, Catalyst Monitoring (Real Time).

REMOSA - UNITED VALVE (15)

10010 Gulf Freeway
Houston, TX 77034
713-947-4526
William Cathriner
wcat20@swbell.net
<http://www.remosa-valves.com>
New FCC valves, Repair FCCU slide, butterfly, diverter valves & internal parts. Supervise field repair & installation. Repair gate, globe and butterfly valves for refineries and petrochemical plants.

Resco Products, Inc. (14)

2 Penn Center West, Suite 430
Pittsburgh, PA 15276
812-631-4945
Eric Nedreberg
eric.nedreberg@rescoproducts.com
<http://www.rescoproducts.com>
Resco Products manufactures Rescobond AA-22S and other extreme services refractory products as well as a full line of insulating castable refractories for use in the FCC process.

RSC Equipment Rental (28)

8787 Highway 225
LaPorte, TX 77571
800-222-7777
Katrell McNeil
Rent@RSCrental.com
<http://www.rscrental.com>
RSC Equipment Rental serves as a vital and trusted partner in providing rental equipment and services for industrial maintenance and reliability projects across the United States and Canada. RSC's Tool Management, Pump and Power Solutions, and Total Control® with new GPS capabilities provide our customers with timely rentals that make it easier for them to do their job more efficiently and profitably.

Safway Services, LLC (48)

N19 W24200 Riverwood Dr.
Waukesha, WI 53189
262-523-6525
Steve Wilson
marketing@safway.com
<http://www.safway.com>
With more than 80 North American locations, Safway Services has been a leader in scaffold services since 1936, offering scaffold rental, sales, labor, engineering, training and project management assistance.

Senior Flexonics Pathway (32)

2400 Longhorn Industrial Dr.
New Braunfels, TX 78130
830-629-8080 ext.632
David Peterson
dpeterson@sfpipeline.com
<http://www.sfpipeline.com>
Engineered metal expansion joints for process piping applications, fabric expansion joints for flue gas ducting, damper products for control and isolation of flue gas and On-Site-Services for field servicing of expansion joint and damper products.

**MECS, Inc. –
Thermal Ceramics**

Sentinel Integrity Solutions (62)

66006 Miller Road 2
Houston, TX 77049
361-877-2755
Mike Shaw
mike.shaw@sentinel-is.net
<http://www.sentinelintegrity.com>
Full service inspection company providing support to the petroleum, chemical, power, and pipeline industries. Turnaround inspection, AIM®, RBI, Corrosion Engineering, Fitness for Services, pre-emptive OSHA.

Shaw (41)

1430 Enclave Parkway
Houston, TX 77077
281-368-4000
Gary Jackson
energy@shawgrp.com
<http://www.shawgrp.com>
The Shaw Group Inc. (NYSE:SHAW) is a leading global provider of engineering, construction, technology, fabrication, remediation and support services for clients in the energy, chemicals, environmental, infrastructure and emergency response industries. For more information, please visit Shaw's website at www.shawgrp.com.

Stress Engineering Services (31)

13800 Westfair East Drive
Houston, TX 77041
281-955-2900
Bobby Wright
shelley.christian@stress.com
<http://www.stress.com>
Stress Engineering Services, Inc. is an engineering consulting company founded in 1972. A full service, multi-discipline engineering firm committed to providing technical excellence to the upstream and downstream industries.

**Structural Preservation
Systems (SPS) (38)**

7455 New Ridge Road, Ste. T
Hanover, MD 21076
410-850-7000
Amy Sager
info@structural.net
<http://www.spsindustrial.net>
Structural Preservation Systems (SPS) is the nation's largest specialty contractor dedicated to structural repair, protection and strengthening solutions for industrial facilities. Since 1976, SPS has completed more than 14,000 repair and strengthening projects.

Sulzer Chemtech USA, Inc. (52)

One Sulzer Way
Tulsa, OK 74131
918-446-6672
William Kennard
<http://www.sulzerchemtech.com>
Sulzer Chemtech is the world wide leader in the design and supply of mass transfer equipment for the refining, chemical, petrochemical, and gas processing industries. We offer a complete line of products, including column packing, trays, internals, and mist eliminators. Our services include process design and evaluation, and complete installation services.

Superheat FGH Services (57)

1424 Sens Road
La Porte, TX 77571
888-508-3226
Gerry McWeeney
sales@superheatfgh.com
<http://www.superheatfgh.com>
Superheat FGH specializes in successful execution of large plant turnarounds, new plant construction, fabrication, and advanced nuclear "mega-projects". Superheat's advanced wireless technology provides superior Safety, Security, Performance and the most comprehensive Quality control package available in the industry.

TapcoEnpro (50)

16315 Market Street
Channelview, TX 77530
281-247-8230
Mark Taylor
tapcoenpro@curtisswright.com
<http://www.tapcoenpro.com>
Design and Manufacture FCCU Slide & Butterfly Valves, ASME Vessels, Hydrotreaters, Reactors, Electro-Hydraulic Actuators, Vapor Isolations Valves and FCCU Equipment.

Team Industrial Services (22)

200 Hermann Drive
Alvin, TX 77511
800-662-8326
Kurt Hand
kurt.hand@teamin.com
<http://www.teamindustrialservices.com>
Team provides on-stream leak sealing, hot uapping and line stopping, line freezing, field machining, mobile machine shops, field heat treating services and equipment, technical bolting, valve insertion, valve repairs, emissions control (LDAR), NDE/NDT/Inspection programs, plus turnaround services.

Thermal Ceramics (59)

2102 Old Savannah Road, PO Box 623
Augusta, GA 30906
706-796-4313
Wendy Evans
northamerica@thermalceramics.com
<http://www.thermalceramics.com>
Thermal Ceramics is a worldwide leader in refractory and insulation technology. We can provide the Global Petrochemical market engineered product solutions for reducing energy and maintenance costs.

**Thermbond Refractories/Stellar
Materials Inc. (26)**

7777 Glades Road, Suite 200
Boca Raton, FL 33434
561-330-9300
Ted Hagberg
info@thermbond.com
<http://www.thermbond.com>
Thermbond® Refractories are manufactured and distributed internationally by Stellar Materials Incorporated. Thermbond delivers unique bonding properties, including the ability to bind to existing substrates, fast dry-out, rapid heat up, and abrasion resistance insuring the strongest repairs and the fastest turn-arounds.

TRACERCO (16)

4106 New West Dr.
Pasadena, TX 77507
281-291-7769
Dave Ferguson
tracercoco@tracercoco.com
<http://www.tracercoco.com>
Tracerco, a global organization, provides process diagnostics and specialty measurement instrumentation for the process industry to optimize production, troubleshoot operations and minimize shutdown periods to reduce your operating costs and maximize your profits.

**Training & Development
Systems, Inc. (21)**

16902 El Camino Real Suite 2B
Houston, TX 77058
281-488-1128
Michael Huddleston
<http://www.tdshou.com>
TDS is a workforce learning and development firm serving the operations sector of the refining and petrochemical industry since 1993. TDS provides human performance improvement solutions including process specific job qualification training and operating procedures.

Turner Industries Group (27)

8687 United Plaza Blvd.
Baton Rouge, LA 70809
225-214-2472
Lewis Paxton
tcraig@turner-industries.com
<http://www.turner-industries.com>
Turner Industries Group has provided a single vendor solution in maintenance, turnarounds, construction and industrial services for 50 years. Turner is ranked as one of the nation's top refinery contractors.

United Laboratories International LLC (2)

1200 N. Featherwood, Suite 330
Houston, TX 77034
832-775-1600
Susan Moore
susan.moore@zymeflow.com
<http://www.zymeflow.com>
Worldwide leaders in providing innovative and proven solutions in the areas of process unit decontamination with our patented Zyme- Flow® Process. Eliminates benzene, H2S, LEL, and reduces the chances of pyrophoric iron sulfide.

UOP LLC (42)

25 East Algonquin Road
Des Plaines, IL 60017
847-391-2653
Kimberly Diercks
<http://www.uop.com>
A leading international supplier and licensor of process technology, catalysts, adsorbents, process plants, and consulting services to the petroleum refining, petrochemical, and gas processing industries. UOP, a Honeywell company, will be showcasing the new UOP Training Simulator for FCC. These models are a cost effective way to get operator training and address key skills gaps.

U.S. Bellows, Inc. (20)

3701 Holmes Road
Houston, TX 77051
713-731-0030
Rakesh Agrawal
sales@usbellows.com
<http://www.usbellows.com>
Manufacturer of metal, refractory-lined and fabric expansion joints since the 1960's. We specialize in quick delivery, emergency repairs during outages, and FCC units in refineries and petrochemical plants.

Wyatt Field Service Company (55)

10810 West Little York Rd, #130-A
Houston, TX 77041
713-570-2000
Kenny Goodgame
sales@wyattfieldservice.com
<http://www.wyattfieldservice.com>
Wyatt provides complete turnaround services and project management for the refinery and petrochemical industry specializing in all aspects from planning to engineering and execution. A leader in FCCU's, cokers and other associated processing units, revamps and modifications.

Zimmermann & Jansen, Inc. (3)

620 North Houston Ave.
Humble, TX 77347
281-446-8000
Karen Frericks
K.Frericks@zjinc.com
<http://www.zjinc.com>
Engineering, Manufacturing & Field Service for high temperature, large diameter, sever service FCCU Slide, Isolation, Butterfly & Diverter Valves; Coker Top & Bottom Deheading Valves, Ethylene and other special valves. ISO 9001:2000 & ASME Code Certified.

Notes

Final program compliments of
BASF Corporation, Catalyst Division.



The Chemical Company



NPRA

National Petrochemical & Refiners Association

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Suite 700
Washington, D.C.
20006

202.457.0480
www.npra.org

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