

National Petrochemical & Refiners Association

# NPRA Annual Meeting 2008

March 9-11, 2008  
San Diego, California, USA

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

**ISBN: 978-1-60560-360-5**

**Some format issues inherent in the e-media version may also appear in this print version.**

# **DISCLAIMER**

The papers in this book have been reproduced for the author or authors as a courtesy by the National Petrochemical & Refiners Association.

Publication of this paper does not signify that the contents necessarily reflect the opinions of the NPRA, its officers, directors, members, or staff.

Requests for authorization to quote or use the contents should be addressed directly to the author(s).

National Petrochemical & Refiners Association

NPRA Annual Meeting  
2008

## TABLE OF CONTENTS

<b>AM-08-10 Options for Reducing Benzene in the Refinery Gasoline Pool</b> .....	1
<i>R.E. Palmer, R. Shipman, S-H. Kao</i>	
<b>AM-08-14 Cost Effective Solutions for Reduction of Benzene in Gasoline</b> .....	20
<i>K. Rock, A. Judzis, M. Almering</i>	
<b>AM-08-16 A New Technology for Reducing NOx Emissions from FCC Regenerators</b> .....	29
<i>Y.M. Chen, D. Brosten</i>	
<b>AM-08-17 Tesoro Upgrade Project – Salt Lake City</b> .....	38
<i>R. Sadeghbeigi, G. Postacchini Jr., H. Telidetzki</i>	
<b>AM-08-18 Regenerator Design to Minimize Catalyst Deactivation and Reduce Emissions</b> .....	56
<i>G.E. Jacobs, C. Santner, W. Letsch</i>	
<b>AM-08-20 The Impact of Bitumen-Derived Feeds on the FCC Unit</b> .....	77
<i>K. Couch, J. Glavin, A. Johnson</i>	
<b>AM-08-23 Improve Operator Situation Awareness with Effective Design of Overview Displays</b> .....	100
<i>P. Bullemer, D.V. Reising</i>	
<b>AM-08-28 Improving the Operation of Desulphurization Units Using Advanced Process Control Technology</b> .....	117
<i>A. McIntosh, C. Twana</i>	
<b>AM-08-29 Combining New and Old Technologies – Inlet Diffuser and Random Packing Dramatically Improve Reactor Performance</b> .....	141
<i>G.E. Jacobs, G. D'Angelo</i>	
<b>AM-08-30 Increased FCC Pretreatment Capability – How to Best Utilize in a Clean Fuel Facility</b> .....	155
<i>E. Roellig, K. Carlson, K. Kunz</i>	
<b>AM-08-36 Strategies for Desalting Heavy Western Canadian Feedstocks</b> .....	171
<i>L. Kremer, S. Bieber</i>	
<b>AM-08-37 Carbon and Energy Management: Innovative Approaches for a Responsible Energy Future</b> .....	184
<i>M. Tice</i>	
<b>AM-08-39 Carbon Dioxide and Refining – Trends and Challenges</b> .....	202
<i>J. Jenkins</i>	
<b>AM-08-40 Economics, CO2 Balance and Energy Efficiency of Biofuels Production</b> .....	212
<i>S. McGovern, C. Lee</i>	
<b>AM-08-42 Improve Crude Selection by Better Understanding Crude Quality</b> .....	225
<i>P. Swafford</i>	
<b>AM-08-43 Cheyenne Yield Improvement Project – Recovering Maximum Diesel from Crude Oil Fractionation Process at Frontier Oil's Cheyenne Refinery</b> .....	237
<i>T. Freeman, M. Milam, S. Reynolds</i>	

<b>AM-08-44 Diesel Recovery Options in Crude Unit Product Quality and Capacity Revamps</b> .....	251
<i>A. Sloley</i>	
<b>AM-08-48 Stoichiometric Combustion Control for Reducing CO2 Emissions</b> .....	294
<i>R. Bambeck, G. Cotton, A. Wheeler</i>	
<b>AM-08-49 Managing Marine Logistics: What you don't know CAN hurt you!</b> .....	309
<i>G. Bemberg</i>	
<b>AM-08-50 FCC Catalyst Optimization: A Dynamic Approach for Today's Changing Feedstocks &amp; Refinery Economics</b> .....	315
<i>D. Varrenkamp, M. Evans</i>	
<b>AM-08-51 Effect of Hydrocarbon Partial Pressure on Propylene Production in the FCC</b> .....	326
<i>R. Hu, G. Weatherbee, H. Ma, T. Roberie, W. Cheng</i>	
<b>AM-08-52 Pilot Plant Evaluation of FCCU Catalyst Technology and Use of Data for Commercial Catalyst Application</b> .....	342
<i>C.M. Joyal, M.J. Westby, A.A. Lappas, L.A. Vasalos</i>	
<b>AM-08-54 MILOS – Shell's Ultimate Flexible FCC Technology in Delivering Diesel/Propylene</b> .....	362
<i>M. Nieskens</i>	
<b>AM-08-57 A Fresh Look at Project Evaluation and Execution</b> .....	373
<i>J. Jones</i>	
<b>AM-08-59 Gasoline or Diesel?</b> .....	388
<i>J.Jacobs, R. Ohmes, S. Sayles</i>	
<b>AM-08-61 Rapid Excel® Modeling for the Optimization of Refinery Energy Systems</b> .....	414
<i>C. Der</i>	
<b>AM-08-64 Moving Marathon Oil to a Reliability Culture</b> .....	426
<i>L. Holmer, M. Moran</i>	
<b>AM-08-68 Monitor &amp; Control of Naphthenic Acid Corrosion to Profitably Process High Acid Opportunity Crude Oils</b> .....	439
<i>M.C. Winslow, A. Modi, M. Joshi, K. Wu</i>	
<b>AM-08-69 Managing the Challenges of Complex Operations and Workforce Changes: Are You Ready?</b> .....	464
<i>T. Ratajczak, P. Henderson</i>	
<b>AM-08-72 Where Have All the Workers Gone?</b> .....	481
<i>V. Scott, T. Huseby</i>	
<b>AM-08-75 Refinery Off Gas Treatment and Recovery – Challenges of Designing ROG Units</b> .....	486
<i>S.Y. Chuang, R. Nanda, J. Rizopoulos</i>	
<b>AM-08-77 Ethanol – Absorbing the Deluge</b> .....	501
<i>K. Waguespack, S. Jensen, G. Constein</i>	
<b>AM-08-79 Renewable Raw Materials for Fuels and Petrochemicals Production</b> .....	525
<i>A. Pinho, J.A. Ramos, K. Maeshiro, F.L. Mendes</i>	
<b>AM-08-80 New Opportunities for Co-Processing Renewable Feeds in Refinery Process</b> .....	534
<i>B. Watkins, C. Olsen, K. Sutovich, N. Pettie, J. Deady</i>	

<b>AM-08-82 It Is Not Your Grandfather’s Gasoline</b> .....	557
<i>C. Hodge</i>	
<b>AM-08-85 Rerun and Off-Spec Product Recovery: New Opportunities with Industry-Wide Benefits</b> .....	565
<i>M. Mills</i>	
<b>AM-08-86 The Dawn of a New Age in Gasoline Blend Scheduling</b> .....	581
<i>D. Trierwiler, R. Sinha</i>	
<b>AM-08-87 The Journey to Operational Excellence</b> .....	598
<i>K. Smith</i>	
<b>AM-08-88 A New Process Approach to Hydrotreating Coker Naphtha</b> .....	604
<i>R. Patel</i>	
<b>AM-08-90 Evolving Best Practices Through Simulation-Based Training</b> .....	622
<i>D. Nash, R. Smith</i>	
<b>AM-08-92 A Bold Move in Hydrocracking Catalyst Selection Resulted in a Significant Boost in Hydrocracker Margins</b> .....	637
<i>T. Swangphol, M. McCauley, M. Hu, R. Adarme</i>	
<b>2007 NPRA United States Refining and Storage Capacity Report</b> .....	653
<i>NA</i>	
<b>Author Index</b>	