

 **BLACK & VEATCH**

 **WorleyParsons**
resources & energy

 **UniverSUL Consulting**

NOTEWORTHY
WORLD-CLASS
PROJECTS

Kashagan, Kazakhstan
World's largest oil discovery in 30 years

Reliance JERP, India
First of a kind technology pairing in World's largest refinery

Sinopec Puguang, China
Asia's largest sour gas plant

Reliance J3, India
World's largest gasification complex in World's largest refinery

ADNOC Sour Gas Shah, UAE
World's largest SRU/TGTU trains

18%
CUMULATIVE INSTALLED CAPACITY,
COMPLETED SULPHUR PROJECTS
(% of Global Production)

4%

6%

12%

18%

25%

MANAGEMENT
ROLES

Project Engineer

Process Manager

Vice President
Technology Manager

Vice President
Technology Director

Owner & Managing Director

TECHNOLOGY
FOCUS

Gas Processing & LNG

Sulphur Recovery

Sulphur Recovery & Handling

Sulphur Recovery & Handling

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EXPATRIATION

UAE

UK

UAE

DEGREES
& AWARDS

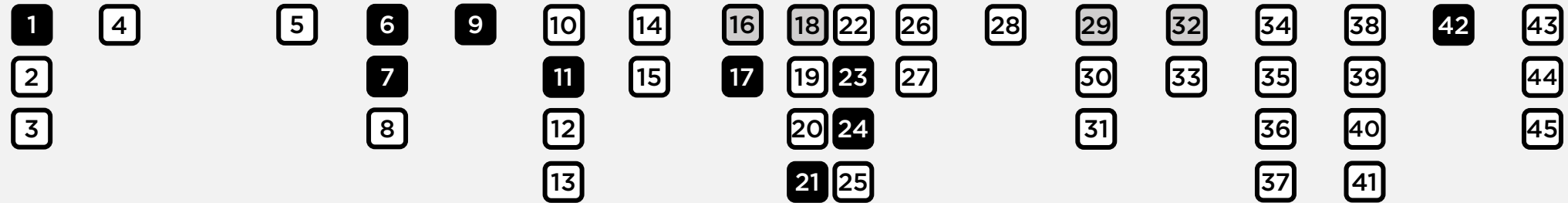
University of Kansas
BSc Chemical Engineering

Hult International Business School
EMBA

Women Who Mean Business (WWMB)
Kansas City Business Journal

Influential Women
Kansas City Business Magazine

*** PUBLICATION**
*** PRESENTATION**
*** PUBL. & PRESENT.**



MESPON Middle East Sulphur Plant Operations Network
IMAGINED, ORGANIZED, CURATED, NURTURED . . .



* See long-form CV for detailed list



UniverSUL
CONSULTING

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SUMMARY

Angie Slavens has 25 years of experience in the oil and gas business, primarily focused on sour gas and sulphur recovery technologies. During her career, Angela has served as sulphur technology manager for two of the world's leading sulphur technology licensors and has been involved in several world-class projects, including licensing and engineering for the sulphur plants at the world's largest refinery and gasification facility (Reliance Industries, Jamnagar India).

Ms. Slavens' process technology expertise includes front-end and detailed engineering experience in the areas of sour gas treating, sulphur recovery, tail gas treating and sulphur degassing. Her field experience includes construction support, operator training, pre-commissioning, commissioning, start-up, initial operations and performance testing. Slavens has a wide range of project experience in revamps and grassroots facilities, from relatively small facilities to multi-billion dollar ventures.

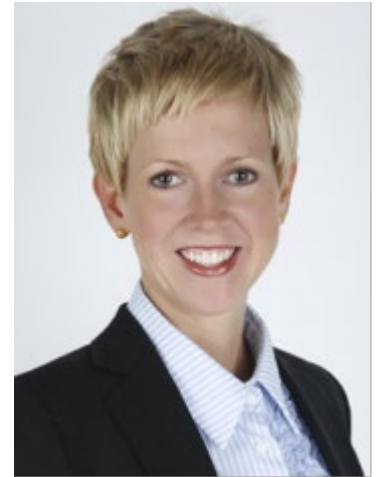
EMPLOYMENT

UniverSUL Consulting (July 2014 - present) ***Managing Director***

UniverSUL Consulting is a unique, owner's engineering firm made up of a collective of sour gas and sulphur technology experts who provide extensive specialized sour gas processing and sulphur recovery technology expertise, while remaining technology neutral. This distinctive combination of deep industry experience and know-how paired with technology impartiality allows for the development of a trusted partnership between UniverSUL and its clients because genuinely unbiased assessments of the best technologies and configurations for the particular application can be provided.

WorleyParsons (July 2012 - July 2014) ***VP & Global Director, Sulphur Technology***

Within one year of acting in a consulting role for WorleyParsons, Angela Slavens took on a full-time position as the company's Vice President & Global Director of Sulphur Technology. In this role, her primary responsibility was to create and enact WorleyParsons' growth strategy within the global sulphur market. Her duties involved overseeing the development, deployment and licensing of WorleyParsons' sulphur technology offerings, as well as establishing and implementing long-term vision for the business. Her biggest accomplishment during her tenure at WorleyParsons was securing the 4 x 1,300 TPD Reliance Gasification J3 Project sulphur plant technology license.



Ms. Angie Slavens

Education:

Bachelors, Chemical Engineering, University of Kansas, 1996

Executive MBA
Hult International Business School (Dubai), 2018

Professional Registration:

Professional Engineer - Kansas

Experience:

25 years

Language Capabilities:

English

International Experience:

25+ countries

Expatriation:

Dubai, UAE (2004-2006)
London, UK (2006-2009)
Abu Dhabi, UAE (2014-2020)



EMPLOYMENT (CONTINUED)

Slavens7 LLC (September 2011 – July 2012) ***Self-Employed Consultant***

After leaving Black & Veatch, Ms. Slavens established a consultancy aimed at providing business development and management expertise in the field of sour gas treating and sulphur recovery. During the period from September 2011 until July 2012, her consulting work took her to UK, India, China, UAE, Canada, Brazil, France and Germany.

Black & Veatch (June 1996 – August 2011) ***VP & Sulphur Technology Manager***

The Technology Manager is fully responsible for all aspects of a specific technology area from the business development stage through to start-up and successful performance test completion. Angela Slavens held the position of Sulphur Technology Manager at Black & Veatch from 2008 through 2011.

Prior to serving in the Technology Manager role, Ms. Slavens served as a Technical Director for the MEIEA (Middle East, India, Europe, North Africa) Region. In this position she relocated from Black & Veatch's headquarters in the U.S.A. to a regional B&V office in the UK, where she established an operations office to support regional B&V Oil & Gas projects and activities.

In her previous role as Lead Systems Engineer, Slavens assumed complete technical responsibility for projects, from start to finish, performing activities necessary to produce front end engineering design (FEED) documents, and subsequently remaining with the project through detailed engineering, to assure conformity to initial process goals.

MAJOR PROJECT EXPERIENCE

Al Hosn Gas – SGD-1 Expansion Project – UAE

1.5 Billion SCFD Sour Gas Treating (50% expansion)
4 x 3,750 MTPD SRU/TGTUs (25% expansion utilizing 32% O₂)

Al Hosn Gas – Hail & Ghasha Gas Development Project – UAE

1 Billion SCFD Sour Gas Treating
4 x 2,500 MTPD SRU/TGTUs

ADNOC – Bab Gas Development Project – UAE

1 Billion SCFD Sour Gas Treating
6 x 3,000 MTPD SRU/TGTUs

Reliance Industries – J3 Gasification Project – Jamnagar, India

4 x 1,300 MTPD SRU/TGTUs with O₂ Enrichment

GASCO – Habshan 5 – UAE

4 x 1,300 MTPD SRU/TGTUs

Thai Oil – Sriracha Refinery Upgrade Project – Sriracha, Thailand

ARU/SWS/SRU/TGTU Revamp Feasibility Study

ORPC – Sohar Refinery Expansion Project – Sohar, Oman

2 x 150 MTPD SRUs
1 x 300 MTPD TGTU



UniverSUL
CONSULTING

MAJOR PROJECT EXPERIENCE (CONTINUED)

PetroChina - Guangxi Refinery - Guangxi Province, China

2 x 275 MTPD SRUs
1 x 550 MTPD TGTU

SGC Energia / Vale - Baobab CTL Project - Moatize, Mozambique

30 MTPD CBA SRU

Qatar Petroleum - Mesaieed Gas Plant - Mesaieed, Qatar

1 x 300 MTPD AGEU/SRU/TGTU revamp

Petroplus - Coryton Refinery - Stanford Le Hope, UK

2 x 80 MTPD TGTUs and SRU revamp

Sinopec -Puguang Gas Plant - Sichuan Province, China

12 x 3 million Nm³/day gas treating
12 x 700 MTPD SRU/TGTU

PetroChina -Longgang Gas Plant - Sichuan Province, China

2 x 225 MTPD SRU/TGTU

PetroChina -Shihe Gas Plant - Sichuan Province, China

45 MTPD CBA SRU

PetroChina -Chongqing Gas Plant - Sichuan Province, China

2 x 35 MTPD CBA SRUs

QP - Al Shaheen Refinery Project - Mesaieed, Qatar

2 x 650 MTPD SRU/TGTU

Indian Oil Corporation Limited - Paradip, India

3 x 525 MTPD SRUs
2 x 1,050 MTPD TGUs

Reliance Industries - Jamnagar Export Refinery Project - Jamnagar, India

3 x 675 MTPD CBA SRU
1 x 2025 MTPD TGTU (*WORLD'S LARGEST REFINERY TGTU*)

AB Mazeikiu Nafta Refinery/ Power Plant - Mažeikiai, Lithuania

160 MW Power Plant CANSOLV[®] FGD
4 x 125 MTPD SRU Revamp
2 x 250 MTPD TGTU

Caspian Institute of Technology - Kazakhstan

30 MMT Long-Term Sulphur Storage
6,200 MTPD Sulphur Pipeline

OMV - Aderklaa I Upgrade Project - Aderklaa, Austria

1.9x10⁶ NM³/d Sour Gas Treating Facility Revamp Systems

Agip KCO - Kashagan Field Development Project - Kazakhstan

3 x 2,300 MTPD SRU / TGTU - Debottlenecking Study

Agip KCO - Kashagan Field Development Project - Kazakhstan

2 x 1,900 MTPD SRU / TGTU
Relocation to UAE for Project Execution with JV Partner (Petrofac Int'l Ltd.)



MAJOR PROJECT EXPERIENCE (CONTINUED)

Crescent Petroleum – Sharjah, United Arab Emirates
350 MTPD SRU

Formosa Petrochemical Corporation (FPCC) – Mailiao, Taiwan
SRU Field Advisory Services and Commissioning

BP West Coast Products, LLC – Cherry Point Refinery – Washington
112.5 LTPD CANSOLV TGU
SRU Upgrade (25 LTPD Capacity Increase)

Motiva Enterprises, LLC – Convent, Louisiana
SRU / TGU Oxygen Enrichment Revamp (80 LTPD Capacity Increase – COPE Phase I)

Shell Chemical Yabucoa, Inc. – Yabucoa, Puerto Rico
Sulphur Recovery Facility Upgrade (40 LTPD SCOT)

Puget Sound Refining Company – Anacortes, Washington
200 LTPD Claus / SCOT

Indian Oil Corporation Limited – Gujarat, India
2 x 300 MTPD SRUs and 1 x 600 MTPD TGU

Conoco – Ponca City, Oklahoma
23 MMSCFD Coker Gas Plant

Alagasco – Pinson, Alabama
Natural Gas Liquefaction Peak Shaver (12 MMscfd)

Enron International – Jose, Venezuela
Natural Gas Liquefaction Facility (2.1 MMTPA)

Marathon Ashland Petroleum LLC – Garyville, Louisiana
Polymer Grade Propylene Unit (14MBPSD)

Bridgeline Gas Distribution LLC – Paradis, Louisiana
NGL Fractionation Plant (34,000 BPD)

Bridgeline Gas Distribution LLC – La Rose, Louisiana
Cryogenic Plant – Stabilization/DPC/O&U (2 x 300 MMSCFD)

PUBLICATIONS & PRESENTATIONS

45. A.F. Slavens, et. al., “Corrosion Considerations for the Sulphur Plant Operator,” panel session at *mini-MESPON meet-up 2020*, December 2020, Virtual.
44. A.F. Slavens, et. al., “A Holistic Take on Sulphur Plant Emissions,” panel session at *mini-MESPON meet-up 2020*, November 2020, Virtual.
43. A.F. Slavens, et. al., “Sulphur Industry Past, Present, Future,” panel session at *mini-MESPON meet-up 2020*, October 2020, Virtual.



PUBLICATIONS & PRESENTATIONS (CONTINUED)

42. J. Wagenfeld, K. Al Ali, S. Almheiri, A.F. Slavens and N. Calvert, "Sustainable Applications Utilizing Sulfur, a By-product from Oil and Gas Industry: A State-of-the-Art Review," *Waste Management - International Journal of Integrated Waste Management, Science and Technology*, June 2019.
41. A. Alkasem, A.F. Slavens and H. Dhinda, "Corrosion Control in Sulphur Recovery Facilities - Tail Gas Treating," Presented at *ADIPEC 2018*, November 2018, Abu Dhabi, UAE.
40. A.F. Slavens, A. Alkasem, N. Hatcher, S. Weiland and R. Weiland, "Acid Gas Enrichment - More New Wrinkles on an Old Process," Presented at *MESPOON 2018*, October 2018, Abu Dhabi, UAE and *Sulphur 2018 Conference*, November 2018, Gothenburg, Sweden.
39. P.D. Clark and A.F. Slavens, "How Secure is Long-Term Sulfur Supply?" Presented at *MESPOON 2018*, October 2018, Abu Dhabi, UAE.
38. A.F. Slavens, A. Alkasem, H. Dhinda, N. Hatcher and S. Weiland, "Acid Gas Enrichment - New Wrinkles on an Old Process," Presented at *Middle East Sulphur 2018*, Abu Dhabi, UAE.
37. A. Alkasem, A.F. Slavens, H. Dhinda and A.S. Berrouk, "Corrosion Control in Sulphur Recovery Units," Presented at *ADIPEC 2017*, November 2017, Abu Dhabi, UAE.
36. A.F. Slavens, "Sulphur, This is Your Life," Presented at *Sulphur 2017 Conference*, November 2017, Atlanta USA.
35. A.F. Slavens, S. Khan, A. Alkasem, O. Kirpici, H. Abdulla and A. Al-Ameiry, "What Has Your Sulphur Plant Done for You Lately?" Presented at *GPA GCC 2017*, Abu Dhabi, UAE.
34. A.F. Slavens, S. Khan, S. Sajjad, and M. Mani, "Sulphur Plants Produce Valuable Energy - Use it Wisely," Presented at *CRU Middle East Sulphur 2017*, Abu Dhabi UAE.
33. A.F. Slavens and S. Khan, "Rarely Acknowledged Energy Benefits of Sulphur Recovery" Presented at *Sulphur 2016 Conference*, November 2016, London, UK and *ADIPEC 2016*, November 2016, Abu Dhabi, UAE.
32. A.F. Slavens, L. Dreitzler and S. Khan, "Balancing Energy Efficiency vs. Sulphur & Carbon Management in Middle Eastern Gas Processing Facilities," Presented at *SOGAT 2016*, Abu Dhabi, UAE. Also published in *Sulphur Magazine* - No. 364, May/June 2016.
31. A.F. Slavens, L. Dreitzler, S. Khan, K. Thiyagarajan, "Dwindling Sulphur Emissions, at What Cost?," Presented at *Sulphur 2015 Conference*, November 2015, Toronto, Canada.
30. A.F. Slavens, "Sulphur Recovery Facilities - Necessary Evil or Blessing in Disguise?," Presented at *GASCO Energy Conservation & Optimization Workshop*, November 2015, Abu Dhabi, UAE.
29. A.F. Slavens, L. Dreitzler, S. Khan, J. Sames, "SRUs Designed to Operate - Best Design and Execution Practices with Operations in Mind," Presented at *SOGAT 2015 Conference*, March 2015, Abu Dhabi, UAE. Also published in *Sulphur Magazine* - No. 362, Jan./Feb. 2016.



PUBLICATIONS & PRESENTATIONS (CONTINUED)

28. A. Racz, M. Hughes, A.F. Slavens, R. Street, S. Al Maskari (GASCO) "Update on the Start-up of the World-Class Sulphur Recovery Facilities at GASCO's Habshan 5 Integrated Gas Development (IGD)," Presented at *SOGAT 2014 Conference*, March 2014, Abu Dhabi, UAE. ****Received SOGAT 2014 "Best Paper Award,"** Also presented at *Brimstone Vienna Sulphur Symposium 2014*, May 2014, Vienna, Austria.
27. A.F. Slavens, B. Murphy, R. So, S. Pollitt, J. Gelder, "Something for Nothing - How Middle Eastern SRUs Can Benefit from Increasing SOx Emission Stringency," Presented at *SOGAT 2013 Conference*, March 2013, Abu Dhabi, UAE and *Sulphur 2013 Conference*, November 2013, Miami, Florida.
26. C. Kotze, R. Street, A.F. Slavens, S. Al Maskari (GASCO) "Start-up of World-Class Sulphur Recovery Facilities at GASCO's Habshan 5 Integrated Gas Development (IGD)," Presented at *SOGAT 2013 Conference*, March 2013, Abu Dhabi, UAE.
25. A.F. Slavens, "Can the Shale Gas Revolution Bring About the Sulphur Market of Yesteryear?," Presented at *Gas Arabia Summit 2012*, December 2012, Muscat, Oman.
24. R. Dunn, S. Baines, A.F. Slavens, "Sulphur Product Handling in a Desert Environment," *Sulphur Magazine* No. 343, Nov./Dec. 2012.
23. S. Pollitt, C. Lonsbury, A.F. Slavens, "WorleyParsons - Long History of Sour Gas and Sulphur Projects in the Middle East," *Oil & Gas Middle East*, November 2012.
22. A.F. Slavens, L. Alkhazova, B. DeWees, C. Ventham, A. Brandl, A. Jell, U. Kerestecioglu, "Linde/WorleyParsons Integrated Rectisol AGRU / SRU / TGTU Flow Scheme for Cost-Effective "Zero" Emissions," Presented at *Sulphur 2012 Conference*, October 2012, Berlin, Germany and *World CTL India Summit 2012*, December 2012, Delhi, India.
21. M. Heisel, A.F. Slavens, "Optimize Sulphur Recovery from Dilute H₂S Sources," *Hydrocarbon Processing Magazine*, October 2012.
20. B. DeWees, A.F. Slavens, S. Al Adel, V. Yih, D. Samani, "Sulphur Pit Explosion Protection by Deflagration Venting," Presented at *Brimstone Vail Sulphur Symposium 2012*, September 2012, Vail, Colorado.
19. M. Heisel, A.F. Slavens, "Sulphur Recovery From Dilute H₂S Sources SMARTSULF, an Alternative to Liquid Redox Processes," Presented at *International Petroleum and Refining Conference 2012*, June 2012, Milan, Italy.
18. A.F. Slavens, B. DeWees, S. Tebaldi, T. Aikens, L. Pillai, R. Fedich, L. Parks, "FLEXSORB SE Solvent - A Guide for Deployment in the Right Applications," Presented at *SOGAT 2012 Conference*, March 2012, Abu Dhabi, UAE. Also published in *Sulphur Magazine* - No. 340, May/June 2012.
17. A.F. Slavens, C. Jorgensen, S. Polise, "Sweet & Sour," *Hydrocarbon Engineering Magazine* - Volume 16, Number 4, April 2011



PUBLICATIONS & PRESENTATIONS (CONTINUED)

16. A.F. Slavens, J. Lamar, T. Brok, D.L. Nikolic, Ph.D, "Enhanced Sulphur Recovery from Lean Acid Gases, Reprise...the Impact of the Upstream Acid Gas Removal Unit," Presented at *Laurance Reid Gas Conditioning Conference*, February 2011, Norman Oklahoma and *SOGAT 2011 Conference*, March 2011, Abu Dhabi, UAE. Also published in *PTQ Gas 2011* and *Sulphur Magazine - Issue 333*, March / April 2011.
15. A.F. Slavens, C. Jorgensen, S. Polise, "Shale Gas....an End to the Sulphur Glut?," Presented at *Sulphur 2010 Conference*, November 2010, Prague, Czech Republic.
14. A.F. Slavens, J. Lamar, S. O'Dell, L. Francoviglia, "Enhanced Sulphur Recovery from Lean Acid Gases Containing COS and Mercaptans," Presented at *Laurance Reid Gas Conditioning Conference*, February 2010, Norman Oklahoma and *SOGAT 2010 Conference*, March 2010, Abu Dhabi, UAE.
13. A.F. Slavens, S. O'Dell, D. Cicerone, "Startup of the New Sulphur Facilities at the World's Largest Refining Complex," Presented at *Sulphur 2009 Conference*, November 2009, Vancouver, Canada.
12. A.F. Slavens, C. Jorgensen, "Teaching an Old Sulphur Recovery Unit New Tricks," Presented at *SOGAT 2009 Conference*, April 2009, Abu Dhabi, UAE.
11. A.F. Slavens, C. Jorgensen, "Weighing Up the Options," *Sulphur Magazine - Issue 320*, January / February 2009
10. A.F. Slavens, C. Jorgensen, D. Ogg, "A New Technology Aimed at Re-establishing a Global Sulphur Supply/Demand Balance," Presented at *Sulphur 2008 Conference*, November 2008, Rome, Italy and *OSHOT 2009 Conference*, July 2009, Calgary, Canada.
9. A.F. Slavens, P. Wadhwa, K. Wong "The Al Shaheen Refinery Project," *Sulphur Magazine - Issue 318*, September / October 2008
8. A.F. Slavens, K. Didriksen, D. Stevens, "A Novel Pairing of Technologies to Achieve Today's Sulphur Emission Stringency with Minimum Facility Investment," Presented at *Sulphur 2007 Conference*, October 2007, Montreal, Canada and *SOGAT 2011 Conference*, March 2011, Abu Dhabi, UAE.
7. A.F. Slavens, "To Clone or Not to Clone," *Sulphur Magazine - Issue 312*, September / October 2007
6. A.F. Slavens, "Black & Veatch Discusses Best Practices for Recovering Elemental Sulphur from Sulphur Pit Vent Gases," *Sulphur Magazine - Issue 308*, January / February 2007
5. A.F. Slavens-Hernandez, M. Bhagat, D.K. Stevens, "Sulphur Projections from an EPC Contractor's Perspective," Presented at *Sulphur 2006 Conference*, October 2006, Vienna, Austria.
4. A.F. Hernandez, "Sulphur to Energy Process (STEP) - An Overview," Presented at *Sulphur Middle East Conference*, May 2004, Manama, Bahrain.
3. Stevens, D.K. and A.F. Hernandez, "The Oil Refining Sector from the World Brimstone Market Perspective," Presented at *Sulphur 2003 Conference*, November 2003, Banff, Alberta Canada.



PUBLICATIONS & PRESENTATIONS (CONTINUED)

2. Stevens, D.K. and A.F. Hernandez, "Oxygen-Use Technology for Sulphur Recovery - Recent SRU Revamp Project," Presented at *2003 Shell Amine & Sulphur TechNet* Conference, June 2003, Las Vegas, Nevada.
1. Tonjes, M.J., A.F. Hernandez and D.K. Stevens, "Project Strategies: Realizing Sulphur Recovery Capacity Gains," *Hydrocarbon Engineering*, February 2003, pp 23-30.

PROFESSIONAL AWARDS, PROGRAMS & CERTIFICATIONS

2012 Influential Women Honoree, presented by Kansas City Business Magazine (the award recognizes Kansas City's most outstanding female civic and business leaders)
<http://aafkc.com/news/kc-business-magazine-announces-2012-influential-women-kc>

2011 Women Who Mean Business™ Honoree, presented by the Kansas City Business Journal (the program honors corporate executives, entrepreneurs and professionals who are at the top of their game) <http://www.bizjournals.com/kansascity/blog/2011/06/women-who-mean-business-2011.html>

2011 Central Exchange / Right Management Emerging Leaders Program

2011 Team Coach for Black & Veatch Leadership Discovery Program

2010 Black & Veatch Advanced EBA (Executive Business Acumen) Program

2010/2011 Emerging Leaders Program by Right Management & The Central Exchange

2005 Black & Veatch EBA (Executive Business Acumen) Program

2005 Black & Veatch Joe Lesini Quality Achievement Award

"MBA Essentials - The Manager's Advantage" Certificate, University of Kansas (2004)