



**Professional Practice and Work History, Continued:**

**Inland Steel Corporation, East Chicago, IN** 1984-1985  
Metallurgical Engineer. Worked as process development engineer and foreman in melting and casting operating groups.

**Elliott Company (Carrier Corp.) Jeannette, PA** 1979  
Co-op student. Process optimization in heat treat shop.

**Crucible Steel, Midland, PA Elliott Company (Carrier Corp.) Jeannette, PA** 1978  
Co-op student. Quality control in melting and casting process optimization

**Professional Affiliations:**

***American Society for Metals (ASM International)***

**Will be inducted as Fellow of ASM in October, 2019**

**Co-Editor**, Section 4, Metals Handbook Volume 11 (2002 Edition) and author of several articles (see publications)

**Author**, Sectioning of Metallurgical Specimens, Co-author, Physical Metallurgy in Metallography, Metals Handbook Volume 9 (2004 Edition), Metallography

**Chair**, Failure Analysis Committee, 1998 **Co-Chair** Failure Analysis Committee, 2000

**Chair**, Education Committee of the ASM International Failure Analysis Society, 2016 to 2019

**Presenter**, Dinner Presentations for the Peoria, IL and Chennai, Tamil Nadu, India, ASM Chapters on Thinking Skill Optimization.

**Presenter**, Visual Inspection for Failure Analysis, Government Engineering College, Pune, India, 2008, and IIT Madras, Chennai, India, 2017 for the student ASM Chapters

**Presenter**, "Falling in Love, Failure Analysis, Basic Science and Making Money: The Critical Thinking Toolbox," Chapter Family Night Dinner Meeting (West Michigan ASM with local SAE Section), (with Peter Ried), 2012

**Liaison**, Failure Analysis Committee to Technical Programming Committee, 2004 – 2006

**Author**, Mechanisms and Causes of Failure in Heat Treated Steel Components, Chapter in Failure Analysis of Heat Treated Steel Components, Canale, Mesquite, & Totten, published by ASM International, 2008

**Presentations or Session Chairmanships** at Materials Science & Tech Conference

Complex Failures	2016
The Flint Water Crisis: Technical and Human Factors	2016
Case Studies for Insurance Investigations in Marine Surveying	2016
Non-Destructive Testing in Failure Analysis	2013
Root Cause Analysis	2012
Fatigue and Fracture of Society	2011

Non Destructive Testing in Failure Analysis	2010
Tools for Diagnosing Forming Failures in Sheet Metal	2007
Stress Analysis in Fillet Welds (with Dr. J. Raphael)	2006
Techniques of Problem Solving in Failure Analysis	2005
Failure Analysis of Welds and Joints	2004 / 2013 / 2018
Structural Failure Analysis and Prevention	2003
Preventing Ferrous Heat Treat Related Failures	1998
Exploring the Failure Analysis Process	1996
Preventing Threaded Fastener Failures	1997

Invited Failure Analysis Expert Panel Member, Materials Week 1997, 1998, 1999

Co-Chair, Conference with Published Proceedings, May 2000, Strongsville, OH  
"Failure Prevention through Education: Getting to the Root Cause"

Member ASM Education Committee (2004 - 2006, 2017)

Failure Analysis Certification Sub-Committee Member (2003 - 2008)

Member of the Editorial Board of the Journal of Failure Analysis and Prevention  
and its predecessor, "Journal of Practical Failure Analysis" 2001 – 2006

Reviewer, "Journal of Materials Engineering and Performance" 2010- 2013

***Machinery Failure Prevention Technology Society***

- Failure Analysis Committee Member (1999 to 2012)
- Multiple presentations/publications at MFPT Society Annual Meetings, including  
The Flint Water Crisis: Technical and Human Factors (May, 2017)
- Systems Thinking / Epistemological Criteria for Failure Analysis: (April, 2012)
- Tutorials: 2008, 2010 Failure Analysis for Maintenance Engineers
- 2011 Systems Thinking in Engineering
- 2012 Critical Thinking for Engineers

***Society of Manufacturing Engineers,***

- Co-chair, Diversity in Manufacturing Action Council, 2005 - 2007
- Chair, Chapter 38 (West Michigan) - 1999
- Seminar Committee Chair of Chapter 38 1995-1998

***American Society for Nondestructive Testing***

- Tutorial at Annual Conference, 2009, Columbus, OH
- How to Participate in a Failure Analysis for NDT People

***Society of Automotive Engineers, Member***

- Program Committee Chair, West Michigan Section 2014-2019

***Root Cause Forum (Yahoo Groups) Founding Member, participating 2000-2012***

Publications:

**Metals Handbook, 10<sup>th</sup> Edition Volume 11 2002 Version:** Failure Analysis and Prevention,  
Co-Editor Section 4, Author of three articles:  
The Failure Analysis Process: An Overview

Metals Chemical Analysis in Failure Analysis  
Hydrogen Embrittlement of High Strength Steels (Section of Hydrogen Damage Article)  
Co-Compiler/ Author of Volume Glossary

**Metals Handbook, 10<sup>th</sup> Edition Volume 9 2004 Version**

Author of articles on Metallographic Sectioning and Physical Metallurgy in Metallography

**Industrial Heating Web Page- Expert Blog 2009 - Present**

<http://www.industrialheating.com/blogs/14-industrial-heating-experts-speak-blog/topic/2725-debbie-aliya-failure-analysis>

**Industrial Heating (print version):** April 2013, Analyzing Failures, pages 45 - 48  
Importance of Materials Science in Understanding Failures, January, 2017

**Failure Prevention: Getting to the Root Cause-** Conference May 22-25, 2000, Sponsored by ASM International Failure Analysis Committee - Presentation and Paper entitled "What the Design Engineer Needs to Know about Material Variations and Specifications." Also, proceedings co-editor and conference organizer.

**Failure Analysis of Heat Treated Steel Components Edited by George Totten et al**

Author Chapter 3, 2008: Overview of the Mechanisms and Causes of Failure in Heat Treated Steel Components

**Journal of Failure Analysis and Prevention\***, Published by ASM Intl., Editorial Board 2001 - 2006 \* **Previously titled Practical Failure Analysis**

Author of the following Articles:

A Method for Preparing Metal Specifications for Structural Components (April 2008)

Cracking Tendencies in Fillet Welds (April 2008, with J. Raphael)

Ethics in Engineering Investigations (June 2002)

Defining Objectives in Failure Analysis (August 2002)

Thinking Skill Optimization in Failure Analysis (December 2002)

Case Studies in Thinking Skill Optimization in Failure Analysis of Products and Processes (June 2003)

Co-author with Marc Pepi of article "Fractured Fare" (Dec. 2003)

Co-author with W.T. Becker and R. J. Shipley of article on communications and terminology in FA

**Lubrication and Fluid Power:** Journal of Machinery Monitoring, Tests and Solutions

Broken Machinery Components Analysis, May 2003

Broken Machinery Components Case Studies, August 2003

**Society for Machinery Failure Prevention Technology Conference Proceedings**

**52nd Conference** "Why Threaded Fastener Specifications Don't Prevent Failure," March, 1998.

**58th Conference** "What Failure Analysis Can Do for the Machine Designer, Operator, Diagnostician and Prognostician. April 2004 (also published in JFAP)

**61<sup>st</sup> Conference** Proceedings published 4/07) "A Method for Preparing Metal Specifications for Structural Components" and "Cracking Tendencies in Steel Fillet Welds" (also published in JFAP)

**62<sup>nd</sup> Conference CD** Proceedings, May 2008, Invited Tutorial Presentation on Failure Analysis

**2011 Conference CD** Proceedings, May, 2011, Virginia Beach, VA, Effective Systems Thinking Tutorial

**2012 Conference** Proceedings, April, 2012, Dayton, OH, Case Studies Using an

Epistemologically Derived Systems Thinking Approach

**SELECTED PRESENTATIONS**

Thinking Skill Optimization in Failure Analysis, Twin City MN ASMI Chapter (2001), Metro New York / New Jersey ASMI/ ASNT Chapters, (March 2004), Pune, India ASM Chapter (Feb. 2008), Caterpillar, Chennai, India, 2017, and Ashok Leyland, Chennai, India, 2017

Visual Inspection in Failure Analysis, Minnesota Microscopy Society (March 2006) and ASMI Student Chapter at the Government Engineering College, (Feb. 2008) Pune, India and Indian Institute of Technology- Madras, Chennai, India, 2017

Using the Eye Brain Connection to Improve Interpretation Skill in Microscopic Examination, (December, 2008), Michigan Microscopy Society Conference, Ann Arbor, MI

**Selected List of Depositions for Debbie Aliya, Materials Engineer**

Huron v Commercial Steel Treating, Circuit Court of Sanilac County, MI, 1995, Plaintiff, Settled, Heat Treating of Fasteners and Hydrogen Embrittlement

National Steel Corporation v Delta Environmental, Inc. Et al., US District Court Case No. 95-76064, Analysis of Cause of Leaking Stainless Steel Flexible Hose, 1998, Defendant

James Small v DSM Pharmaceuticals, Inc., d/b/a Wyckoff Chemical Co., a Michigan Corporation, and EarthTech, Inc., a foreign corporation, and the Austin Company, a foreign corporation, and Fabricated Steel Services, Inc., a Michigan corporation. Van Buren County, MI, Case No 02-49-965-NP-B, Defendant, Client (EarthTech) absolved of fault, 2004, Fracture Analysis of a Welded Steel Ladder

Murtco v Trumbull, US District Court for the Western District of KY  
Civil Action No, 5:03CV-247-R, Plaintiff, 2005, Settled, Conformance of Threaded Stainless Steel Fasteners to AWWA specifications

C&S Electric v Acemco, 20<sup>th</sup> Judicial Circuit, State of Michigan, Case No: 05-52436-CK, Plaintiff / Counter Defendant, 2006, Load Testing of Steel Hanger Assembly, Macro Fractography of a Threaded Rod, also testified at the trial in June of 2008.

Ace v Doncaster, ACE, USA, as Subrogee of Doncaster, USA v T&W Forge, Defendant, US District Court for the Northern District of Georgia, Gainesville Division, Case No 2:06-CV-41-WCO, 2007, Cracking of Turbine Blade in Power Generation Unit, testified as to quality of original failure analysis and interpretations of data made by manufacturers engineering staff. Case settled after opening arguments at trial.