

## Consultation Services

### James C. Fitch Curriculum Vitae

**Noria Corporation** Phone: 918-749-1400, x101

1328 E. 43rd Court Fax: 918-746-0925

Tulsa, OK 74105 [jfitch@noria.com](mailto:jfitch@noria.com)

[www.noria.com](http://www.noria.com)

## FIELDS OF SPECIALIZATION

Lubricant Analysis Gear Failure Analysis Lubrication Systems  
Contamination Analysis Tribology & Wear Filtration & Separation  
Hydraulic Fluids Oil Analysis Wear Particle Analysis  
Petroleum Analysis Compressor Lubrication Grease Analysis  
Particle Analysis Bearing Failure Analysis Motor Oils & Engine Lubrication

## EMPLOYMENT HISTORY

**Noria Corporation**, Tulsa, OK, co-founder and Chairman (1997-present), formerly Chairman and CEO (1997-2007). Global leader in technical consulting and education in the fields of lubrication, tribology, machine reliability, and oil analysis. Business offices and operations in 25 countries. Publishers of Machinery Lubrication magazine, Practicing Oil Analysis magazine, and Reliable Plant magazine. Noria educates more than 7,000 people each year in ten different languages. World's leading lubrication and oil analysis consulting organization. Noria is a vendor-neutral organization. For details on Noria Corporation go to [www.noria.com](http://www.noria.com).

**Diagnetics, Inc.**, Tulsa, OK, Founder and CEO (1982-1997). The company was sold to the Entek Division of Rockwell International, June 1997. Business highlights:

- *Developed, manufactured and marketed proprietary of lubricant analysis instruments, software and services for the maintenance technology field.*
- *Products were sold in more than 40 countries and were endorsed by Caterpillar, U.S. Department of Defense (JOAP), and numerous other major corporations.*
- *The international market research firm Frost & Sullivan, in their 200-page report on the condition monitoring industry, stated, "Diagnetics is the industry leader world-wide in oil analysis equipment for predictive maintenance."*
- *Designed and implemented a full service commercial oil analysis laboratory for industrial customers.*

**Utica Research and Development Corporation**, Tulsa, OK-- Founder and President. General Partner of an R&D limited partnership to develop a hybrid engine producing both hydraulic and mechanical power. 1983 to 1988.

**Fluid Engineering Services**, Tulsa, OK - Consulting Engineer. 1980-1981.

**Monsanto Chemical Company**, Pensacola, FL - Project Engineer. 1978-1980.

**Fluid Power Research Center**, Oklahoma State University, Stillwater , OK - Laboratory Technician. 1974 to 1977.

## **PATENTS**

- U.S. Patent No. 4,588,505, awarded May 13, 1986, “**Moisture-In-Oil Extraction Device.**” Licensed in 1987 to Polysorb Corporation.
- U.S. Patent No. 5,095,740, awarded March 17, 1992, “**System for Monitoring and Analyzing Solid Contaminants in Fluids.**”
- U.S. Patent No. 5,385,043, awarded June 13, 1994, “**In-line Contamination Measurement Device.**”
- U.S. Patent No. 5,388,447, awarded August 30, 1994, “**Viscosity Measurement Apparatus.**”
- U.S. Patent No. 5,708,198, awarded January 13, 1998, “**Ferrous Particle Counter.**”
- U.S. Patent No. 5,540,089, awarded July 30, 1996, “**Particle Collection Apparatus.**”
- U.S. Patent No. 5,563,337, awarded October, 10, 1996, “**Moisture Monitor Apparatus For A Fluid System.**”
- Patent Pending (serial number 10/835,723), “**Automated Machinery Lubrication Service and Maintenance Planning System,**” April, 2004.

## **AWARDS**

- **American Society for Business Publication Editors Editorial Award**, September, 2006
- **Outstanding Service Award**, Korea Plant Service and Engineering Association, 1997.
- **Outstanding Engineer Award for 1996**, Oklahoma Society of Professional Engineers.
- **Outstanding Engineering Achievement Award for 1995**, Oklahoma Society of Professional Engineers.
- **Society of Automotive Engineers (SAE) Literary Award** for Paper No. 861308. By Engineering Activity Board. SAE 1986 Transactions.
- **Society of Automotive Engineers (SAE) Literary Award** for Paper No. 860738. By Engineering Activity Board. SAE 1986 Transactions.

**CONSULTANCY** (Failure Investigations, Forensic Investigations, Technical Consulting, etc.)

### **CLIENT: PROJECT DESCRIPTION:**

**SPX Service Solutions** Contamination Control Product Development  
**Calpine Energy** Failure Investigation, Gas Turbine Varnish  
**Belvac Production Machinery** Lubrication Systems Consulting

**Westar Energy** Failure Investigation, Turbine-Generator Varnish  
**A2 Technology** Oil Analysis Instrument Development  
**Babcock and Wilcox** Pulverizer Gearbox, Failure Investigation  
**Arch Coal Consulting** on Lubrication of Bearings  
**Reviva Corporation** Contamination Control of Diesel Engine Remanufacturing  
**DuPont Chemical Company** Development of Corporate Lubricant Interchange Guide  
**Sikorsky Aircraft** Expert Witness – Gearbox Failure on Helicopters  
**Weyerhaeuser Company (Cedar River Paper)** Failure Investigation – Lubricant Sludge and Varnish  
**Progress Energy, Inc.** Lubrication Management Consulting for Fossil Fuel Plants  
**Translume, Inc.** Consulting Relating to Optical Oil Sensor Development  
**Fluid RX Corporation** Automotive Lubricants Service Interval Survey  
**Goodyear Tire & Rubber (Americana)** Hydraulic System Condition Monitoring Program Design  
**General Electric Co.** Gas Turbine Lubricant Varnish Project  
**Caterpillar, Inc.** Bulk Oil Handling and Storage Project  
**Westar Energy Inc.** Failure Investigation of Turbine Oil Sludge  
**Country Flame Technologies, Inc.** Expert Witness – Gearbox and Bearing Failure  
**Michelin Tire Company** Lubricant Compatibility Lab Study  
**Bryon Nuclear/MPR Associates** Lubricant Oxidation Stability Study  
**Seaspan International** Hydraulic Pump Failure Investigation  
**PANalytical, Inc.** Application Consulting on XRF Spectroscopy  
**Portugen Energia, S.A.** Gas Turbine Failure Investigation relating to Aeration of Turbine Oil  
**PacificCorp** Wind Turbine Gearbox Failure Investigation  
**Symyx Technologies, Inc.** General Consulting relating to Online Lubricant Sensors  
**AeroJet (Div. of GenCorp, Inc.)** Failure Investigation relating to Titan IV Missile Lubrication  
**Callaway Nuclear Generating** Turbine Bearing Failure Investigation  
**Progress Energy, Inc.** Combustion Turbine Failure Investigation – Varnish and Sludge Related  
**Piedmont Group** General Consulting on the Lubrication Industry  
**ISOPur Corporation** Turbine Oil Degradation Laboratory Study  
**Carleton Life Support** Vacuum Pump Lubricant Study for Aerospace Applications  
**TECH Appraiser, Inc.** Diesel Engine Lubricant Failure Investigation  
**Metropolitan Washington Airport Authority** Forensic Gearbox Failure Investigation  
**Equistar Chemical Company** Refrigeration Compressor Bearing and Turbine Oil Failure Investigation  
**Jacobs Vehicle Systems** Forensic Investigation on Diesel Engine Lubrication  
**Medtronic, Inc.** Failure Investigation Relating to Bearing Lubrication of Surgical Drills  
**MAC Steel USA (Cargill Div.)** Design and Development of Bearing Lube Oil System  
**Texas Utilities** Bowl Mill Gearbox Lubrication Study  
**Texas Utilities** Turbine Oil Technical Consulting – Several Power Plants  
**Timken Bearing Company** Technical Consulting - Wear Debris Sensor Technology  
**Lehigh Cement Company** Gear Coupling Failure Investigation – Lubrication Related

**Lone Star Industries** Gearbox Failure Investigation – Lubrication Related  
**Michelin Tire Company** Technical Consulting – Modernization of Plant Lubrication  
**Cerestar (Cargill Div.)** Compressor Failure Investigation – Lubrication Related  
**John Deere** Hydraulic Fluid Contamination Control Consulting  
**Duke Energy** Turbine Oil Performance Study  
**International Paper** Failure Investigation- Hydraulic Servo Valves  
**ExxonMobil Corporation** Expert Witness - Tractor-Trailer Wheel-End Bearings – FFE Case  
**ExxonMobil Corporation** Expert Witness - Tractor-Trailer Wheel-End Bearings – Comcar Case  
**ExxonMobil Corporation** Expert Witness - Tractor-Trailer Wheel-End Bearings – Lori Jones Case  
**U.S. Enrichment Corporation** Turbine Oil Failure Investigation for Gas Compressors  
**Measurement Analysis Corporation** Technical Consulting – Synthetic Lubricant Selection  
**PEMEX Petroquimica (Mexico)** Gas Plant Lubrication Modernization  
**Lubrizol Corporation** Technical Consulting relating to Sensor Development  
**FA Technology Ventures** Technical Consulting relating to Electrostatic Oil Reclamation  
**Warren Distribution** Expert Witness relating to Turbine Oil Failure  
**American Crystal Sugar** Bearing Failure Investigation and Lubricant Study  
**Staley Corporation** Plant Lubrication Audit for Modernization  
**Pacific Gas & Electric** Turbine lubricant failure investigation  
**Carolina Power & Light—Harris Nuclear** Failure investigation regarding reactor coolant pump  
**C.C. Jensen** Testing study for separation of carbon insolubles from lube oils  
**Sentinel Capital Partners** Expert Advisor for the acquisition of a lubrication supply company  
**Koch Petroleum** Compressor Lubricant Failure Investigation – Sludge and Varnish related  
**Exelon Corporation: LaSalle Nuclear Power Station**  
Failure Analysis of Electro Hydraulic Control (EHC)  
Synthetic Fluids – Varnish related  
**Phillips Petroleum** Lubrication Selection and Technical Advisory Services  
**Caterpillar, Inc.** Technical Report and Consulting on Diesel Engine  
Lubrication and Contamination Control  
**International Paper** General Lubrication and Oil Analysis Consulting – Site visits to 11 mills  
**Koch Industries: Corpus Plant** Failure Investigation Regarding Lubrication on Compressors  
**Koch Industries: Pine Bend Plant** Failure Investigation Regarding Sludge and Varnish Problems in Compressors  
**Entergy Corporation (Waterford 3 Nuclear Station)**  
Failure Investigation on Lubrication of a Reactor Coolant Pump  
**Trico Manufacturing** Lubrication Formulation Testing  
**American Crystal Sugar** General Lubrication and Oil Analysis Consulting  
**Columbia Gulf Corporation** Failure Investigation on Main-Line Natural Gas Engine and

Compressor Corrosion Problems  
Lubricant Selection Study  
**Cargill, Inc.** General Lubrication and Oil Analysis Consulting  
**Columbia Transmission Company** Oil Analysis Study For Gas Compressors  
Lubricant Selection Study  
**Goodyear Tire & Rubber Co.** Lubrication Procedures Development Contract  
**Exelon Corporation (Peachbottom Nuclear Generating Station)**  
Failure Investigation of a Radiologically Contaminated  
Turbine Lubricant  
**Exelon Corporation (Quad Cities Nuclear Station)** Onsite Lubrication Survey for Plant Modernization  
**Electric Power Research Institute** General Lubrication and Oil Analysis Consulting  
**ExxonMobil Corporation** Re-engineering of Oil Analysis Services Program and  
Laboratory Study  
**Cummins Engine Company** Failure Investigation Relating to Diesel Engines on a Fleet of  
Mobile Equipment  
**Louisiana Hydro Electric Co.** Failure Investigation of a Step-Up Gearbox and Laboratory  
Testing of Candidate New Lubricants  
**Louisiana Hydro Electric Co.** Lubricant Testing and Analysis Project Gear Oils  
**NASA/Lockheed Martin** Failure Investigation Relating to Space Shuttle Hydraulics  
**U.S. Steel Corporation** Failure Investigation Relating to Steel Straddle Carrier  
Hydraulics  
**3M – Hutchison Plant** Plant Lubrication Modernization and Transformation  
**Union Pacific Railroad** Development of New Contamination Control and Oil  
Analysis Programs  
**Eli Lilly** Lubricant Selection Project  
**Monsanto Chemical Company** Aircraft Lubricant Contamination Control Project  
**Detroit Edison: Fermi II Nuclear Station** Oil Analysis and Lubrication Procedure Manual  
Development  
**Zeigler Coal** General Lubrication and Oil Analysis Consulting  
**Ingram Barge** Failure Investigation on Marine Propulsion Engines and  
General Consulting  
**TigerCat Equipment Co.** Failure Investigation Relating to a Corrosion Problem on  
Tractor Hydraulics  
**Analytical Systems Laboratories** General Consulting relating to Electrostatic Separators  
**Georgia-Pacific Corporation** Plant Lubrication Modernization Consulting  
**Houston Lighting & Power (Reliant Energy)** Oil Analysis Laboratory Procedures Study  
**Asarco Mining** Mine Site Lubrication Modernization Consulting  
**Royal Purple Lubricants** Expert Witness, Failure Investigation Relating to Marine  
Lubricants  
**Ontario Power Generation (Pickering Nuclear Station)**  
Failure Investigation Relation to Nuclear Plant Refueling  
Hydraulic Systems

**Weyerhaeuser Company** Plant Lubrication Modernization Consulting  
**Duquesne Light & Power** Plant Lubrication Modernization Consulting  
**Public Service of Indiana** Plant Lubrication Modernization Consulting  
**Esco Corporation** Contamination Control Project for Hydraulic Systems  
**Ministry of Defense , NETHERLANDS** General Lubrication and Oil Analysis Consulting  
**Eaton Corporation** Advisory Services and Testing of New Dielectric Oil Analysis  
Instrumentation for Motor Oils  
**Clarcor Corporation** Contamination Control and Filtration Project  
**Northwood Pulp & Paper** Plant Lubrication Modernization Consulting  
**Champion International** Plant Lubrication Modernization Consulting  
**Rockwell Automation** General Lubrication and Oil Analysis Consulting

## **BOARD MEMBERSHIPS & PROFESSIONAL AFFILIATIONS**

**ASTM** Member of D02 SC96 committee for standards development relating to the analysis of in-service lubricants

**International Council for Machinery Lubrication (ICML)**, Director. Volunteer position. The ICML is a non-profit professional organization. Serves as ANSI (American National Standards Institute) TAG member to ISO (International Standards Organization) and is involved in international standards development, professional certifications in lubrication and oil analysis, curriculum development, annual achievement awards, & scholarship. Visit [www.lubecouncil.org](http://www.lubecouncil.org) for more information.

**International Standards Organization (ISO)**, Serve as United States Delegate on Technical Committee TC108/SC5. Convenor (2001–2005) of Working Group 4 for Tribology and Lubricant Analysis Standards. Visit [www.iso.org](http://www.iso.org) for more information.

**Journal of ASTM International (JAI)**, Member of the Editorial Board, joined 2004.

**Electric Power Research Institute (EPRI)**, Member NMAC Predictive Maintenance Technical Advisory Group (TAG), 2003.

**American Society for Testing and Materials (ASTM)**, Founding member of Inter-laboratory CrossCheck Program for In-Service Lubricants. Member of the In-Service Lubricant Testing and Condition-Monitoring, Subcommittee D02.96. Visit [www.astm.org](http://www.astm.org) for more information.

**Society for Tribologists and Lubrication Engineers (STLE)**, Oil Monitoring Analysis Certification Committee, Past Chairman Educational Programs, member of STLE since 1988. Visit [www.stle.org](http://www.stle.org) for more information.

**Appointed “Expert Referee”**, 15th International Conference on Wear of Materials, 24-28 April, 2005, San Diego, CA USA.

**Appointed “Technical Reviewer”**, for STLE Publications, Tribology Transactions and Tribology and Lubrication Technology, November, 2004.

**17th & 18th Annual Pulp & Paper Reliability and Maintenance Conference and Exhibition.** Member of the Board of Advisors.

**Society of Automotive and Aerospace Engineers ( SAE ),** Member since 1986. Member of the Filter Test Methods Subcommittee of the SAE Engine Committee (1986-1991). Past member of Committee on Diagnostics and Service Equipment (1992-1996). Past member of the Contamination and Filtration Panel, SAE A-6 Committee on Aerospace Fluid Power and Control Technologies (1986-1991). Visit [www.sae.org](http://www.sae.org) for more information.

**American Society of Mechanical Engineers (ASME),** Member, 1999-2001. Visit [www.asme.org](http://www.asme.org) for more information.

**National Fluid Power Association, Member,** Contamination Technology Committee and the Hydraulic Filter and Separation Committee (1988-1990). Visit [www.nfpa.com](http://www.nfpa.com) for more information.

**National Society for Professional Engineers,** member 1987 to 2000, Registered Professional Engineer, PE 13990. (Registration discontinued due to change in engineering/technical specialty). Visit [www.nspe.org](http://www.nspe.org) for more information.

**Editorial Board BHRA,** The Condition Monitoring Journal, British Hydromechanics Research Association. 1989-1993. Visit [www.bhrgroup.co.uk](http://www.bhrgroup.co.uk) for more information.

**Overseas Technical Advisory Committee Member,** 3rd, 4th and 5th International Condition Monitoring Conferences, through 1996.

## **PUBLICATIONS**

### **Books, Book Chapters, Training Books, etc.**

Fitch, E.C. and J.C. Fitch, *Fluid Contamination Control*, 4th Edition, Pending Publication, 2006.

Fitch, J.C. and Drew D. Troyer, with John McKetta, et al Editors, *Encyclopedia of Chemical Processing*, Chapter: "Lubrication Performance Factors for Chemical Process Plant Machinery," Marcel Dekker Encyclopedias, 2005.

Fitch, J.C. and Sabrin Gebarin, Martin Williamson and George Arbocus, with George Totten, Editor, Chapter 21: "Foodgrade and the Food Processing Industry", *STLE/ CRC Handbook of Tribology*, 2005.

Fitch, J.C. with George Totten, Editor, Chapter 32: "Conservation of Lubricants, Materials and Energy," *STLE/ CRC Handbook of Tribology*, 2005.

Fitch, J.C., Seminar Coursebook, *Effective Contamination Control*, Noria Publishing, 2005-2006.

Fitch, J.C. and Sabrin Gebarin, *Best Practices in Bulk Lubricant Storage and Handling*, Noria Publishing, 2004.

Fitch, J. C., *How to Select a Motor Oil and Filter for Your Car or Truck*, Noria Publishing, 2nd Edition, 2004.

- Fitch, J. C. and M. Barnes, et al, with George Totten as Editor, Chapter 24: "Hydrocarbon Analysis," *ASTM Fuels and Lubricants Manual*, ASTM Press, June, 2003
- Fitch, J.C. with Robert Bolt, Editor, Chapter: "Particle Counting," *Lubrication Guide*, Published by the Electric Power Research Institute (EPRI), October 2001.
- Fitch, J.C. with George Totten as Editor, Chapter: "Advancements in Fluid Analysis Technologies and Strategies for Hydraulic System Condition-Based Maintenance," *Hydraulic Failure Analysis: Fluids, Components, and System Effects*, ASTM Press, 2001
- Fitch, J.C. and G. Trujillo, D. D. Troyer, *Machinery Lubrication Coursebook*, Noria Publishing, 2001-2006, Multiple Editions.
- Fitch, J. C., *Oil Analysis I & II Coursebook*, Noria Publishing, 1998-2006, Multiple Editions.
- Fitch, J.C. with Heinz P. Bloch, Editor/Author, Chapter 19, "Lubrication Analysis for Condition Monitoring," *Practical Lubrication for Industrial Facilities*, Marcel Dekker, 2000
- Troyer, D. D. & J. C Fitch, *Oil Analysis Basics*, Noria Publishing, 2000-2006, Multiple Editions.
- Fitch, J. C. with John Mitchell as Editor, Chapter 11: "Strategies for Machinery Oil Analysis," *Operating Equipment Asset Management Handbook*, Penn State Publishing, 2000 & 2006. First & Second Editions.
- Fitch, J. C., *The Lubrication Field Test and Inspection Guide*, Noria Publishing, Booklet, 2000.
- Fitch, J. C., *Sourcebook for Used Oil Elements*, Noria Publishing, Booklet. 2000.
- Fitch, J. C. & D. Troyer, Editors, *Practicing Oil Analysis Conference Proceedings*, Noria Publishing, 1999-2002 Annual Conferences
- Fitch, J. C. & D. Troyer, Editors, *Lubrication Excellence Conference Proceedings*, Noria Publishing, 2003-2006 Annual Conferences
- Fitch, J.C., How to Develop a "Win-Win" Relationship with Your Oil Analysis Lab, *Learning Resource Booklet*, LRB.9801.1, Noria Publishing, 1998.
- Fitch, J. C. with E. Richard Booser as Editor, Chapter 75: "Elements of an Oil Analysis Program," *STLE/CRC Tribology Data Handbook*, CRC Press, 1996.
- Fitch, J. C., *Oil Analysis and Proactive Maintenance*, Seminar Course Book, Diagnostics, 1996.
- Fitch, J. C., with A.K. Mehta as Editor, Chapter 32: "A New Approach to Maintaining Industrial Equipment," *Current Trends in Industrial Tribology*, McGraw-Hill Publishing Company, 1995.
- Fitch, J. C., *The Ten Reasons Why Oil Analysis Programs Fail and the Strategies That Effectively Overcome Them*, Diagnostics, Inc., 1995 (Booklet).
- Fitch, J. C. and H. Borden, "Comparison of Particle Counts Between Eight Commercial Oil Analysis Laboratories." *Technical Application Article No.8*, Diagnostics, Inc., August, 1992 (Technical Bulletin).
- Fitch, J. C., *Handbook of Case Studies on Fluid Contamination Control*, Published by Diagnostics, Inc., 1991, Booklet.

## Published Interviews

- Interview with Prof. Peter Jost, "Interview with Luminary Professor H. Peter Jost," *Machinery Lubrication* magazine, January-February issue, 2006
- Interviewed by Mr. Krokawa, Editor of *Journal of Economic Maintenance Tribology (Japan)*, "Progress of Lubrication Education and Certification," Published in Vol. No. 475, September, 2005.

Interview with Mario Andretti, "The Greatest Racecar Driver of All Times," Practicing Oil Analysis magazine, March-April, 2003

Interviewed by Marian Hookham (Editor) "The Good Oil - Trends in Lubrication in the Mining Industry" Australia's Mining Monthly, October, 2002.

Interviewed by Kathryn Carnes (Editor), "Measure by Measure," Published in Lubricants World magazine, June, 2001.

Interviewed by Curt Bennink, (Staff Editor), "Maximize Oil Analysis ROI," Published in Equipment Today magazine, August 2000.

Interviewed by Jeff Hawk (Staff Editor), "Online Oil Analysis Speeds Equipment Managers' Response Time," Construction Magazine, October, 2000.

## **Trade Magazine Editorial Columns**

Practicing Oil Analysis magazine, Editor's Page, 1998-2006

- Diagnosing a Cloudy Oil
- The Truths About Data Trending
- Planned Cleanliness
- The Meaning of a Low Viscosity Reading
- Oil is Like an Egg
- No Contamination, No Wear, No Kidding
- The Hot Stove Effect
- Recognizing the Symptoms of Lubricant Incompatibility
- What is Your Oil's Impurity-holding Capacity (IHC)?
- What Do You Do with a High Particle Count?
- Oil Analysis for the New Millennium, [Republished in ML-Spanish, December, 2006]
- The Importance of Provenance
- Tweaking the Eyes and Ears of Oil Analysis
- Beware of What You Measure
- A Much Closer Look at Particle Contamination
- Standby Equipment – Dealing with Oil Without Legs
- What do Canaries and Ferrous Density Meters Have in Common?
- The Agony of Diesel Engine Oil Particle Counts
- The Perils of Aerated Oils
- The Hazards of Water Handles
- Copper and Your Diesel Engine Oils
- Oil Analysis Reports – What's Missing in the Comments?
- Sight Glass Oil Analysis
- Lubrication as a Professional
- Reliability's Dirty Little Secret
- Dipstick Oil Analysis
- What is the No. 1 Cause and the No. 1 Consequence of Wear?
- Silent Assumptions of Bearing Reliability
- Which Questions Does Your Oil Analysis Program Answer?
- How to Convince Your Boss to Let you Attend Lubrication Excellence 2003
- Managing Reliability in Real Time-the Risk Management Grid (RMG)

- Clean Oil Reduces Engine Fuel Consumption
- The Surface Tension Test—Is it Worth Resurrecting?
- Spot Check Your Cars Oil
- Today's Oil Detectives Have a New Bag of Tricks
- The Hidden Cost of an Untrained Workforce
- Fallacies of Sampling Consistently
- How Telephone Poles are Like Filters
- You Can't Fix a Problem You Don't Know Exists
- World Class is What This Year's Conference is About-What it is and How to Get it.
- Oil Analysis Economics-Saving and Making Money
- The Six Most Expensive Oil Analysis Tests
- Top Ten Ways to Not be World Class at Machinery Lubrication
- The Augustus H. Gill Award for Oil Analysis Excellence
- Three Important Words for Success in Lubrication and Oil Analysis
- Ten Compelling Reasons to Attend Practicing Oil Analysis 2000
- In Search of a Definition - What is Oil Analysis?
- Why Should Managers Care About Oil?
- Oil Analysis Standards - What Are We Waiting For?
- Oil Analysis and the Lean Organization
- Is Your Oil Analysis Program a Quart Low?
- Oil is Not a Fine Wine
- Adopt a New Philosophy
- Choose Your Weapon
- First an Idea - Now a Reality
- Deploying the Invisible Filter
- Surviving the Data Jungle
- Your Oil Is Talking...But Are You Listening?

[Machinery Lubrication Magazine, As I See It, Column, 2001 – 2006](#)

- Ten Things You Probably Didn't Know About Air Contamination
- The Consequences of Periodically Forgetting
- Four Lethal Diesel Engine Oil Contaminants
- Filter Flow Rate - the Silent Opportunity
- The Daily One-minute Inspection
- Tribology is a Behavioral Science
- The Enduring Grease vs. Oil Debate
- A Call for Innovators and Entrepreneurs, [Republished in ML-Japan, January, 2007]
- A Conversation with Dad - Pioneer, Educator and Mentor in Fluid Contamination Control
- [Republished in ML-Japan, November, 2006]
- In Search of a Root Cause
- 12-Step Program - For Recovering Addicts of Lubrication Neglect
- Evolution of Maintenance Man
- How to Give Your Machine a Physical
- Filter Economy - Insider Tips on Managing the Costs of Lubrication Filtration

- Receive a Contamination Control Transfusion in Three Days
- Lubricant Quality and the Chain of Custody
- Flushing and the Voice Within Your Oil
- Flushing Strategy Rationalization
- Navigating the Maze of Flushing Tactics
- When to Perform a Flush
- Lubrication Genesis
- Lubrication Excellence 2004 - It's All About Learning
- How Grease Kills
- How Your Motives Influence Motor Oil Selection - Have You Heard About the New GF-4 Motor Oils?
- Headspace Management - Are You in On This Best-Kept Secret?
- The Difference Between Good Lubrication and Good Lubricants
- Should New Lubricant Deliveries be Tested
- Ask Your OEM to Accessorize New Equipment for Lubrication Excellence
- Wanted: Lubrication Management Professionals
- Aren't Machines Supposed to Wear Out?
- New Lubrication Commandments, Conserve Energy, Protect the Environment
- Proactive Maintenance's Unruly Cousin
- Lubrication UFOs
- Demystifying Sludge and Varnish
- From Whence Dirt Comes
- The Perfect Storm . . . Are You Secretly Waiting?
- At Last, A Lubrication Magazine for Maintenance Professionals

### **Trade Magazine Technical Articles**

- Dinslage, M., J.C. Fitch, and Sabrin Gebarin, "Bulk Lubricant Storage," *Machinery Lubrication* magazine, July/Aug. 2006.
- Fitch, J.C. "Maximizing Lubrication Program Investments – Compounding Your Returns," *Machinery Lubrication* magazine, Jan.-Feb., 2005.
- Fitch, J.C. "How Grease Kills," *Reliable Plant* magazine, Jan.-Feb., 2006.
- Fitch, J.C., "The Difference Between Good Lubrication and Good Lubricants," *LUBE 2005*, Issue No. 70, Dec. 2005.
- Fitch, J.C., "New Equipment That's Built for Lube Excellence," *Reliable Plant* magazine, Nov.-Dec., 2005.
- Fitch, J.C., "Hey, Aren't Machines Supposed to Wear Out?" *Reliable Plant* magazine, Sept.-Oct., 2005.
- Fitch, J.C., "Demystifying Sludge and Varnish," *Reliable Plant* magazine, July-August, 2005.
- Fitch, J.C., "To Flush or Not to Flush," *Power Magazine*, Vol. 149, No. 5, June, 2005.
- Fitch, J.C., "Aren't Machines Suppose to Wear Out?" *Gear Product News*, April, 2005.
- Gebarin, S and J. C. Fitch, "Origin of Spherical Particles in Lubricants," *Practicing Oil Analysis*, March-April, 2005.
- Troyer, D.D. and J. C. Fitch, "Lubrication Training in the Reliability Era," *ILMA Compoundings*, February, 2005.

Dinslage, M and J.C. Fitch and S. Gebarin, "Bulk Lubricant Storage and Handling", *Machinery Lubrication Magazine*, September, 2004.

Fitch, J. C., "The Basics of Used Oil Sampling", *Practicing Oil Analysis*, Jul-Aug, 2004.

Fitch, J.C., "Implementing oil and lubrication best practices," *Plant Engineering and Maintenance*, December, 2003.

Gebarin, S. and J. C. Fitch, "Determining Proper Oil and Filter Change Intervals: Can Onboard Automotive Sensors Help?" *Practicing Oil Analysis* magazine, November-December, 2003.

Fitch, J.C., "Execute Lubrication," *Asphalt Contractor* magazine, April, 2003.

Fitch, J.C., "Deploying the Invisible Filter," *Fluid Power Journal*, September/October, 2003.

Fitch, J. C. "Effective Lube Oil Management," Pages 20-25, *Power Magazine* (Platts), October, 2003.

Fitch, J. C., "Why Lubricant Supply Contracts No Longer Go to the Lowest Bidder," *Machinery Lubrication* magazine, Jul-Aug, 2001.

Fitch, J. C., "Scoring the Condition-Based Oil Change Decision," *Machinery Lubrication* magazine, May-Jun, 2001.

Fitch, J. C., "Oil and Glycol Don't Mix," *Practicing Oil Analysis* magazine, Jul-Aug, 2001.

Fitch, J. C., "Troubleshooting Viscosity Excursions," *Practicing Oil Analysis* magazine, May-Jun, 2001.

Fitch, J. C., "Vacuum Distillation for the Removal of Water and Other Volatile Contaminants," *Practicing Oil Analysis* magazine, Mar-Apr, 2001.

Troyer, D. D. and J. C. Fitch, "Announcing the International Council for Machinery Lubrication," *Practicing Oil Analysis* magazine, Nov-Dec, 2000.

Fitch, J. C., "Tricks to Classifying Wear Metals and Other Used Oil Suspensions," *Practicing Oil Analysis* magazine, Sep-Nov, 2000.

Fitch, J. C. "The Enduring Flash Point Test," *Practicing Oil Analysis* magazine, Mar-Apr, 2000.

Fitch, J. C., "Particle Counting: The Invisible Filter," *Maintenance Technology*, March, 2000.

Fitch, J. C., "Defining and Executing Excellence in Lubrication," *Practicing Oil Analysis* magazine, Jan-Feb, 2000.

Fitch, J. C., "Sludge and Varnish: Two Puzzling Contaminants," *Hydraulics & Pneumatics* magazine, December, 2000.

Fitch, J.C., "Using Oil Analysis to Control Varnish and Sludge," *Practicing Oil Analysis* magazine, May-Jun, 1999.

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- Fitch, J.C. and S. Gebarin, "Review of Degradation Mechanisms Leading to Sludge and Varnish in Modern Turbine Oil Formulations," *Oxidation and Testing of Turbine Oils Symposium*, Norfolk, VA, Dec., 2005.
- Fitch, J.C., "Optimizing Oil Change Intervals to Reduce Oil Consumption," *2005 Lubrication Excellence Conference Proceedings*, March, 2005.
- Fitch, J.C., "Doubling Diesel Engine Rebuild Intervals," *Lubrication Excellence 2004 Conference Proceedings*, March, 2004, Nashville, Tennessee.
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- Troyer, Drew & J. C. Fitch, "Skills Standards Development and Competency Assurance for Machinery Lubrication Technicians," 2nd World Tribology Congress, Vienna Austria, September, 2001.
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- Troyer, Drew D. and J. C. Fitch, "An Introduction to Fluid Contamination Analysis," *Proceedings of the Predictive Maintenance Technology National Conference*, November, 1994.
- Fitch, J. C., "The Accuracy and Reliability of Optical Particle Counters with Industrial Oils and Hydraulic Fluids," Diagnostics, Inc., PB No. 9, 1994.
- Fitch, J. C. and Stuart Bents, "Applying Satellite Communications Technology to Condition-Based Maintenance for Mobile Equipment," *Condition Monitoring '94 Proceedings on an International Conference on Condition Monitoring*, Swansea, U.K., March, 1994.
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- Borden, H. J. and J. C. Fitch, "Proactive Maintenance - The New Technology For Cost Efficient Contamination Control of Mechanical Machinery," 47th Meeting of the Mechanical Failures Prevention Group (MFPG), April, 13, 1993.
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- Fitch, J. C. and H. Borden, "Interpreting Contaminant Analysis Trends Into a Proactive and Predictive Maintenance Strategy." *The 4th International Conference on Profitable Conditioning Monitoring*, Stratford-Upon-Avon, UK, December, 1992.
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- Borden, H. and J. C. Fitch, "Particle Contamination - Both a Cause and a Result of Mechanical Failure." *Proceedings of 16th Annual Meeting of the Vibration Institute*, June 9-11, 1992.
- Borden, H. and J. C. Fitch, "Use of Lubricant Proactive Maintenance and Contamination Control to Achieve Predictable Machine-Life Extension." 47th Annual Meeting of the Society of Tribologists and Lubrication Engineers (STLE), May, 1992.
- Borden, H. and J. C. Fitch, "Extensive Cost Saving Opportunity from Strategic Implementation of Proactive Maintenance in the Iron and Steel Industry." *Association of Iron and Steel Engineers*, Spring Conference, 1992.
- Borden, H. and J. C. Fitch, "Strategic Implementation and Cost Benefit of Contamination Control," *Proceedings of the International Fluid Power Applications Conference*, March, 1992.
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- Fitch, J. C., "Contaminant Monitoring Targets Root Causes of Machinery Problems," *P/PM Technology* magazine, Volume 4, Issue 2, March/April, 1991.
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- Blok, P. and J. C. Fitch, "Concept and Application of a Portable Contaminant Monitor for Hydraulic Systems," 9th Aachener Conference on Fluid Power, March 1990, West Germany.
- Blok, Peter, Jim C. Fitch, and Kim A. Hodgson. "Measuring Contaminant Levels in the Field (Bestimmung des Olreinheitsgrades on Ort und Stelle)." *Olhydraulik und Pneumatik*, 34. No. 5. 1990.

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- Blok, P. and J. C. Fitch, "Filter Konnen das Wasser aus Hydraulikol Entfernen," *Olhydraulik und Pneumatik*, July, 1989.
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- Fitch, J. C., "Quantifying the Contaminant Tolerance of Hydraulic Systems Using the 'Contaminant Life Index'," National Conference On Fluid Power Transactions, 1986.
- Fitch, J. C., "Theory, Design, and Performance Characteristics of a Direct-Reading Portable Solid Contaminant Analyzer," SAE Paper 860738. 1986 Earthmoving Industry Conference. Additionally, this paper was selected for and republished in the 1986 SAE TRANSACTIONS.
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- Fitch, J. C., and E. C. Fitch, "Safety Considerations in Fluid Power Products -- Design Aspects," *The BFPR Journal*, July 1979.
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- Fitch, J. C., "The Heritage of Fluid Power," *The BFPR Journal*, January, 1979.

## **INVITED LECTURESHIPS AND CONFERENCE PRESENTATIONS**

- ASIATrib Conference, Kanazawa, Japan – Keynote Address, October, 2006.
- Chevron-Texaco Sludge and Varnish Symposium, Phoenix, AZ, July, 2006.
- Lubrication Excellence 2006, Columbus, OH – Keynote Address, May, 2006.
- ASTM Lubricant Oxidation Symposium, Norfolk, VA, December, 2005.
- Water Environment Federation Conference (WEFTEC), October, 2005, Washington, D.C.
- STLE Conference, Workshop on Condition Monitoring, Las Vegas, May 15th, 2005
- 34th A&M TurboMachinery Symposium, September, 2005, Houston, Texas.
- ASTM Oxidation and Testing of Turbine Oils Symposium, D02 Meeting, Norfolk, VA, December, 2005.
- EPRI Turbine Generator Users Group Annual Meeting, St. Pete, FL, January, 2005.
- EPRI Predictive Maintenance Users Group Annual Meeting, St. Pete, FL, June, 2004.
- TAPPI Annual Conference, Atlanta, GA, May, 2004.
- Nuclear Regulatory Inspectors (NRC) Annual Meeting, Atlanta, GA, May, 2004.

- Rio Tinto Asset Management and Reliability Conference, Denver, CO, September 2003.
- EPRI/NMAC Lubrication and Bearing Workshop, Mystic, Conn., June 2003.
- IDCON, Predictive Maintenance Conference, Raleigh, NC, Oct. 2002.
- ACSIM 2002 Conference, Cairns, Australia, Keynote address, September, 2002.
- Caterpillar, SOS Dealer Conference, Peoria, IL, Sept 2002.
- EPRI, Predictive Maintenance Users Group, Myrtle Beach, SC, Apr 2002.
- FOMIS Outage Control Conference, Scientech, Clearwater, FL, Aug 2002.
- STLE Central Illinois Section Meeting, Mar 2002.
- World-Wide Contamination Control Conference—Caterpillar, Peoria, IL, Keynote speaker, Mar 2002.
- EPRI Lubrication and Bearing Workshop, Durham, NC, Jan., 2002.
- International Paper Annual Maintenance Conference, Shreveport, LA, Jul 2001.
- ExxonMobil Lubrication Conference, Atlanta, GA, FEB, 2001.
- Practicing Oil Analysis, International Conference & Exhibition, Tulsa, OK, Oct, 2000.
- CSI, Emerson Electric, Reliability Week Conference, Atlanta, GA, October, 2000.
- International Standards Organization, Plenary Presentation, TC108/SC5, Nanjing, China, Aug. 2000.
- Mobil Oil Lubrication Conference, Boston, MA, July 2000.
- International Paper Maintenance Conference, Atlanta, GA, Jun 2000.
- Institute of Nuclear Power Operations, Conference, July 2000.
- WearCheck International Annual Meeting, France, July 2000.
- Exxon Lubrication Conference, New Orleans, May 2000.
- ASTM Hydraulic Failure Symposium, Lake Tahoe, CA, Dec. 1999.
- Practicing Oil Analysis, International Conference & Exhibition, Tulsa, OK, Oct, 1999.
- EXXON Lubrication Conference, Orlando, June 1999.
- EXXON Advance Lubrication Training Symposium, Houston, June 1999.
- International Conference on Condition Monitoring, Swansea, Wales, April 1999.
- STLE Condition Monitoring Seminar, Swansea, Wales, April 1999.
- Oklahoma Predictive Maintenance Users Group, Stillwater (OSU), OK, Jan 1999.
- EXXON Lubrication Conference, Las Vegas, October 1997.
- EXXON Lubrication Conference, Lake Tahoe, June 1998.
- EXXON Lubrication Conference, New Orleans, March 1998.
- EXXON Lubrication Conference, Richmond, Virginia, October 1998.
- EXXON Lubrication Conference, Minocqua, WI September 1997.
- Technology Showcase, Joint Oil Analysis Program U.S. D.O.D., Mobile, AL, May 1998
- ENTERACT '98, Cincinnati, OH, May 1998
- Maintenance 2000, World Mining Conference, Tucson, AZ, April 1998
- Predictive and Preventive Maintenance Conference, Indianapolis, IN, November 1998.
- CSI Reliability Week, Nashville, TN, October 1998.
- Oil Analysis I and II, Predict Engineering, Johannesburg, South Africa, June 1998.
- Mobil Oil Lubrication Conference, Maine, May 1998.
- DMSI Predictive Maintenance Conference, Vancouver, B.C., May 1998.
- EXXON, Lubrication Conference, Maine, June 1997.
- DMSI Predictive Maintenance Conference, May, 1997.
- Enteract '97, Cincinnati, OH, April, 1997.

- Locomotive Maintenance Officers Association, Winter Meeting, February 1995, Orlando, FL.
- Tribology Society Of India, Principal Speaker, Bombay and New Delhi, September, 1995.
- JOAP Condition Monitoring International Conference, Pensacola, Florida, November, 1994.
- Predictive Maintenance National Conference, Atlanta, Georgia, November, 1994.
- Courses on Oil Analysis, Johannesburg, Durban, Cape Town, South Africa, October, 1994, November, 1995.
- International Conference On Condition Monitoring, Swansea, Wales, UK, March, 1994.
- Symposium On Proactive Maintenance, Riyadh, Saudi Arabia, December, 1993.
- Enteract '93, Cincinnati, Ohio, September, 1993.
- 4th International Conference On Profitable Condition Monitoring, Stratford-Upon-Avon, UK, December, 1992 (Speaker, Session Chairman, Member of Organizing Committee).
- 1992 Predictive Maintenance Indaba, Johannesburg, South Africa, September, 1992 (Keynote speaker).
- Sixteenth Annual Meeting And Conference, Vibration Institute, Williamsburg, VA, June, 1992.
- Predictive/Preventive Maintenance Technology, National Conference, Cincinnati, Ohio, September, 1989.
- International Off-Highway And Powerplant Congress And Exposition, Milwaukee, Wisconsin, September, 1989.
- Japan Automotive Parts Industry Association (Japia) Conference, Tokyo, Japan, August 1989.
- Nato/Econosto Lecture On Contamination Control Technologies, Rotterdam, Netherlands, March, 1989.
- Joint International Fluid Power Applications Conference & National Conference On Fluid Power, Chicago, Illinois, October, 1988.
- National Sae A-6 Aerospace Fluid Power And Control Technologies Conference, Destin, Florida, April, 1987.
- International Off-Highway And Power Plant Congress, Milwaukee, Wisconsin, September, 1986.
- National Congress On Fluid Power, Detroit, Michigan, May, 1986.
- National Earthmoving Industry Congress, Peoria, Illinois, April, 1986.

## **TRAINING AND SEMINARS**

**Public Courses.** Have trained thousands of people in seminars at public venues (2-4 days in length) in more than 20 countries throughout North America, Europe, Africa, and Asia.

**Private Courses.** Have given private seminars (2-4 days in length) to NASA (Langley AFB), Martin Marietta, Lockheed Martin, NorthStar Steel, Holcim Cement, CTC Analytical, Weyerhaeuser, Eli Lilly, Pacific Gas and Electric, Champion International, ALCAN, TXU (4 times), Houston Lighting and Power (7 times), Seigler Coal, Canfor, Norske, Schematic Approach, Southern California Edison, Seminole Electric, Exelon, Ontario Power Generation, ARCO, AMZOIL, Great River Energy, American Crystal Sugar, WearCheck International,

Pharmacia, International Paper (multiple locations), American Electric Power., Temple Inland, ExxonMobil, Equistar, Eaton Corporation, Columbia Transmission, Equistar Chemical, Hercules Chemical, Southern Company, West Star Energy, Tennessee Valley Authority, Deere & Co, Peabody Coal, Cargill Salt, Cargill Excel, Staley, Campbell Soup, Dynergy, Florida Power. Detroit Edison, OPG, J.R. Simplot, Clopay, EEI , ISOPur, Allegheny Power, Dupont, Electric Boat, Progress Energy, Novelis Corporation, Donaldson Corp., Toyota Motor, Cytec Corp.

## **EDUCATION**

**Georgia Institute of Technology**, BIE, Industrial and Systems Engineering, 1978.  
**University of Tulsa**, MBA, Business Administration, 1981.

## **PERSONAL**

**Born November 18, 1954**  
**Married, four children**  
**Eagle Scout**