SHORT COURSE 1
on
MACHINERY FAILURE ANALYSIS

Luiz Otávio A. Affonso is with PETROBRAS-Refinaria de Cubatão, in Cubatão, Brazil. He has been with them since graduation from college, working on machinery reliability improvements and maintenance cost reduction. Mr. Otávio has been responsible for machinery failure analysis and troubleshooting, machinery field testing, etc. He has published several papers about machinery reliability improvements, machinery testing, and reducing energy consumption, and has authored a book on machinery failure analysis.

Mr. Otávio graduated (Mechanical Engineer, 1985) from UFRJ, Rio de Janeiro.

SHORT COURSE 2
on
TURBOMACHINERY DIAGNOSTICS AND CONDITION ASSESSMENT

Steven M. Schultheis is a Consulting Engineer in the Specialty Engineering group of Lyondell Chemical Company, in Channelview, Texas. His specialty is the analysis of machinery dynamics problems, especially in the areas of vibration and pulsation. He is also a specialist in data acquisition and condition monitoring. In his current position, he is responsible for troubleshooting machinery problems, providing corporate direction for condition monitoring, plant startup assistance, shop acceptance testing, and project engineering support. His current major assignment is technical support for the engineering and construction of two grass roots chemical plants in the Netherlands.

Mr. Schultheis has a B.S. degree (Mechanical Engineering) from New Mexico State University. He is a registered Professional Engineer in the State of Texas, and is a certified Vibration Specialist Level III. He is a member of ASME and the Vibration Institute.

SHORT COURSE 3
on
ADVANCED GAS TURBINE TECHNOLOGY

Donald M. Hoffmann is the 7EA, 7FA, and 9FA Gas Turbine Product Line Manager for General Electric Company, in Schenectady, New York. He has held this position since December 2000, and has more than 18 years of power plant experience with General Electric and Lockheed Martin. This experience includes the design, construction, and testing of nuclear, fossil, and gas turbine combined cycle power plants. Prior to his current assignment, Mr. Hoffmann held positions in engineering, quality, and proposal management.

Mr. Hoffmann has a B.S. degree (Marine Engineering) from the Unites States Merchant Marine Academy, and an M.S. degree (Mechanical Engineering) from Rensselaer Polytechnic Institute. He is a Professional Engineer in the States of Virginia and New York.

Gerry McQuiggan is Manager of Product Analysis in the Gas Turbine design group of Siemens Westinghouse Power Corporation, in Orlando, Florida. He worked for eight years at Rolls-Royce Industrial and Marine Division, U.K., before joining Westinghouse Canada in 1976. He managed the design and development of the W251B12, W501D5A, W501FD, and the W501G.

Mr. McQuiggan graduated with a B.Sc. degree (1968) from Liverpool University and has a Diploma in Management Studies (1971) from Coventry University. He is a member of the Institute of Mechanical Engineers (U.K.), and a member of ASME and the Professional Engineer Association of Ontario, Canada.

SHORT COURSE 4
on
DRY GAS SEALS

William V. (Bill) Adams is Vice President of New Business Development/Corporate Marketing for Flowserve Corporation, in Kalamazoo, Michigan. During Mr. Adams' 35 years with the company, he has held assignments as Research Engineer, Assistant Manager of Engineering and Chief Design Engineer, Director of Engineering, and Vice President of Engineering, Research, and Quality Assurance and Technology.

Mr. Adams has served on the ASME B73 Chemical Pump Standards Committee. He is past Chairman of the Seals Technical Committee of STLE, Educational Committee Chairman, Vice Chairman of their Standards Committee, Chairman of the STLE Seals Technical Committee, Sealing Systems Technical Subcommittee and Work Group 3 on Emissions, and is a former member of the International Pump Users Symposium Advisory Committee. He has served as Director of STLE and was a member of the API 682 Seals Standard Committee.

Mr. Adams received a B.S. degree (Mechanical Engineering, 1967) from Western Michigan University, Kalamazoo.

Vladimir Bakalchuk is the Market Segment Manager at John Crane, in Morton Grove, Illinois. With over 20 years of experience in various fields of the oil and gas industry, he has spent the better part of 10 years specializing in dry gas seal/rotating equipment. He predicated his career in various technical capacities at Ukrainian Academy of Sciences, Mechanical Engineering Department of the University of Calgary, Brown-Root-Braun, Nova Gas Transmission, Canadian Fracmaster, and Revolve Technologies.

Mr. Bakalchuk holds a degree in Mechanical Engineering from L'viv Polytechnical Institute and is a registered Professional Engineer in the Province of Alberta.

Jeff Hiemstra is Manager of Gaspac Engineering with Flowserve Corporation, in Kalamazoo, Michigan. Since joining Flowserve (formerly Durametallic) in 1995, he has held positions as a Product Engineer, Technical Service Engineer, and Manager of Order Engineering. He previously worked in the aerospace field in product design, project management, and quality assurance functions.

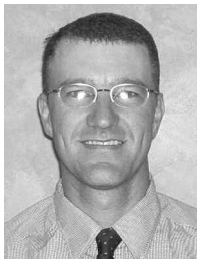
Mr. Hiemstra graduated with B.S. and M.S. degrees (Aerospace Engineering) from the University of Michigan—Ann Arbor.

Emery Johnson is a Compressor Seal Specialist for Flowserve Corporation, Flow Solutions Division, in Houston, Texas. He has more than 10 years of industry related experience. Mr. Johnson's background includes application, retrofits, commissioning, installation, and troubleshooting of compressor seals and systems. Additionally, he has been responsible for specification and support of new installations for a major OEM compressor.

Mr. Johnson received a B.S. degree from Texas A&M University (1991).

Martin J. (Marty) Klosek, is a Compressor Seal Specialist for the Flowserve Corporation, Flow Solutions Division, in Bridgeport, New Jersey. He is responsible for compressor seal sales and technical services within the northeast region of the United States. He has worked in his field since the beginning of his employment with BW/IP International, Inc., in 1994. In 1997, BW/IP International, Inc., and the Durco Corporation merged to form the Flowserve Corporation.

Mr. Klosek received a B.S. degree from Drexel University.



David P. O'Brien is a Principal Reliability Engineer with Equistar Chemicals, LP, in Clinton, Iowa. He has more than 10 years of rotating equipment experience in machinery engineering, mechanical maintenance, vibration analysis, troubleshooting, and reliability improvements. This has included primary responsibility for turbomachinery overhauls, repairs, and upgrades—specifically to process (including dry gas) seals, labyrinth (including abradable) seals, bearings, couplings, and other components. Along with his experience at Equistar, Mr. O'Brien was a Senior Engineer for Custom Bearing Corporation, in Wellsville, New York, working with abradable seals, fluid film bearings, and other rotating equipment components.

Mr. O'Brien received his M.S. degree (Mechanical Engineering) from Iowa State University, and is a registered Professional Engineer in the State of Iowa. He chairs the Equistar Rotating Equipment Best Practice Team and is a member of the Vibration Institute.

Stan Uptigrove graduated from the University of Calgary with a B.S. degree (Mechanical Engineering). He worked as a Project Engineer in the Gas Transmission Division of Nova Corporation of Alberta for eight years. For the last nine years, Mr. Uptigrove has been extensively involved in the design and installation of dry seal and magnetic bearing systems. Since the formation of Revolve Technologies Inc. in January 1993, he has been actively involved in the company's success with dry seal and magnetic bearing systems. As Director of Marketing for Revolve, he plays a key role in the company's management team and more specifically in the commercialization of these technologies. Mr. Uptigrove has also been very active as Chairman of the Revolve Conference (which highlights these technologies) in conjunction with the National Petroleum Show and the ASME, OMAE Division.

Shifeng Wu is a Research Director with A.W. Chesterton Company, in Groveland, Massachusetts, directing and performing product research, design, and analysis. Prior to joining A.W. Chesterton Co. in 1996, he was employed by John Crane Inc. in the capacities of Development Engineer, Consulting Engineer, and Senior Consulting Engineer for about five years. Dr. Wu has authored over a dozen technical publications and presentations and was the co-recipient of ASME Tribology Best Paper Award in 1990. He also has seven patents relating to mechanical seals.

Dr. Wu holds an M.S. degree (1986) and a Ph.D. degree (1990) both in Mechanical Engineering from Northwestern University. He holds membership in both ASME and STLE. Currently he serves as an Associate Editor of ASMEs Journal of Tribology.

SHORT COURSE 5
on
REVIEW OF API TP 684—THE API STANDARD PARAGRAPHS COVERING ROTORDYNAMICS AND BALANCING

Ronald F. Bosmans is Corporate Manager, Machinery Diagnostic Services for the Bently Nevada Corporation, in Minden, Nevada. In this capacity, he is responsible for the development of the Bently Nevada Engineer Assist Expert System. Prior to this, he served as Manager of the Machinery Diagnostic Services group from 1976-1989. From 1962-1972, Mr. Bosmans designed and tested centrifugal and axial compressors for the Allis-Chalmers Corporation in the Compressor Engineering Department. From 1960-1962, he was with Waukesha Motors Company in the Experimental Engineering Department, where he participated in the design and testing of internal combustion engines.

Mr. Bosmans has been the author of six ASME papers on rotating machinery, vibration analysis, and expert systems. He received his B.S. degree (Mechanical Engineering) from Marquette University and is a member of ASME.

Royce N. Brown is Consultant and owner of RNB Engineering, in Houston, Texas. He retired from Dow Chemical in 1995 after 28+ years. His responsibilities there included specifications, instrumentation, controls, and consulting and field assistance for large rotating equipment. He has written 30+ technical papers, including a contribution to the ASM Handbook, *Friction, Lubrication, and Wear Technology*, and a book, *Compressors, Selection and Sizing*. Mr. Brown is a fellow member of ISA and ASME, a member of SME, AIChE, the Vibration Institute, and an associate member of SAE. He is a member of the API Subcommittee on Mechanical Equipment, and Chairman of API 617 Task Force and API 684.

Mr. Brown is a registered Professional Engineer in the States of Texas, Michigan, Louisiana, Wisconsin, and California. He has a B.S. degree (Mechanical Engineering) from the University of Texas, and an M.S. degree (Mechanical Engineering) from the University of Wisconsin.

C. Hunter Cloud is Lab Engineer at the University of Virginia's ROMAC Laboratories, in Charlottesville, Virginia. He joined Mobil Research and Development Corporation, in Princeton, New Jersey, after graduating college. Mr. Cloud was a turbomachinery specialist responsible for machinery application engineering, commissioning, startup, and troubleshooting for Mobil's worldwide production, refining, and chemical facilities. During his 11 years at Mobil, he worked on numerous projects including several offshore gas injection platforms in Nigeria as well as serving as reliability manager at a large US refinery.

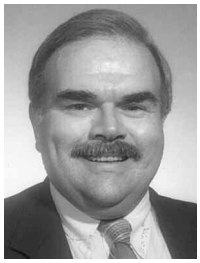
Mr. Cloud received a BSME from the University of Virginia. He is currently pursuing his doctorate where his research focuses on the measurement of turbomachinery stability characteristics. He is a member of ASME, the Vibration Institute, the API 684 rotordynamics Task Force, and he operates his own company, BRG Machinery Consulting.

Caleb F. Davis is a Mechanical Engineer in the Machinery Group of Kellogg Brown and Root (KBR), in Houston, Texas. He provides engineering support for projects involving rotating machinery and packaged equipment. Primary work includes specification, bid evaluation, supplier coordination, review of supplier data, and witnessing tests of turbomachinery. His responsibilities also include consulting on startup and operating equipment problems.

Mr. Davis received his B.S. degree (Chemical Engineering, 1961) from Cornell University. He is a registered Professional Engineer in the States of Texas and California and a member of AIChE.

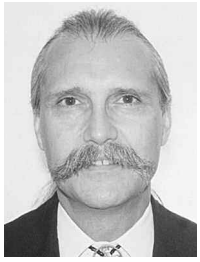
Pranabesh De Choudhury has worked for Elliott Company, in Jeannette, Pennsylvania, for the past 32 years in the area of rotor bearing system dynamics. In his current position as Senior Consulting Engineer, his responsibilities include rotor-bearing dynamics, bearing design and analysis, torsional dynamics, blade vibration analysis, and troubleshooting field vibration problems.

Dr. De Choudhury obtained a BSME degree (1963) from Jadavpur University, an MSME degree from Bucknell University, and a Ph.D. degree (Mechanical Engineering, 1971) from the University of Virginia. He has authored and coauthored 24 technical papers and has been awarded a patent. He is a registered Professional Engineer in the State of Pennsylvania and is a member of ASME and STLE.



Michael J. Drosjack is a member of Rotating Equipment Engineering Department at Shell Global Solutions (US) Inc., in Houston, Texas. He is responsible for providing technical support for rotating and reciprocating machinery to Shell and Shell affiliated companies, worldwide, as well as commercial customers. Since joining Shell in 1975, he has had assignments on projects involving specification, evaluation, installation, and startup of machinery along with extensive field troubleshooting, particularly in the area of vibration measurement, vibration analysis, and rotordynamics.

Dr. Drosjack received his B.S. degree (Mechanical Engineering, 1970) from Carnegie-Mellon University, and his M.S. (1971) and Ph.D. (1974) degrees (Mechanical Engineering) from The Ohio State University. He is a member of ASME, the Vibration Institute, the Machinery Subcommittee of the Ethylene Products Committee, participates in API task forces, and has been a speaker and panelist for NPRA. He has been a Turbomachinery Symposium Advisory Committee member since 1986.

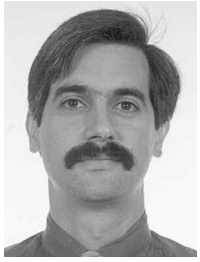


Timothy J. (Tim) Hattenbach is a Principal Mechanical Engineer and Compressor Group Leader with Bechtel Corporation in their Houston, Texas office. He has worked for Bechtel for 25 years and has a total of 30 years of experience in the petrochemical industry. His responsibilities include specification, evaluation, witness testing, and field assistance of turbomachinery for petrochemical and pipeline projects.

Mr. Hattenbach has B.S. and M.S. degrees (Mechanical Engineering) from the University of Houston. He is a member of Omicron Delta Kappa, and is the Bechtel representative to the API Subcommittee on Mechanical Equipment. He is the chairman of the API 670 Task Force on Machinery Protection Systems and a Task Force member on the API 684 Rotordynamic Tutorial and API 616 Gas Turbines Standards. Mr. Hattenbach is a registered Professional Engineer in the State of Texas.

James H. Hudson is Consultant for GE Oil & Gas Operations LLC/A-C Compressor Corporation, in Oshkosh, Wisconsin. He began his career with Allis Chalmers Corporation in 1965 and served in many capacities. In 1985, A-C Compressor Corporation purchased the Compressor Division from Allis Chalmers, and he became Manager of Engineering. He assumed his current position in 1987.

Mr. Hudson graduated with a BSME from Newark College of Engineering (1965). He has been a Task Force member on the Fourth through Seventh Editions of API 617 for centrifugal compressors, API 684 rotordynamics First Edition, and API 671 for couplings. He presently is a member of API 684 Second Edition Task Force. He was a member of the Texas A&M Advisory Committee during five symposia and has published papers on torsional vibration and lateral vibration. Mr. Hudson is a registered Professional Engineer in the State of Wisconsin and holds four United States patents.



John A. Kocur is Chief Engineer of Mechanical Analysis at Demag Delaval Turbomachinery, in Trenton, New Jersey. He has worked in the turbomachinery industry for 11 years. In his current capacity, he directs the rotordynamic and stress analysis of the compressor and steam turbine product lines. Prior to joining Demag Delaval, he held the position of Group Leader of Rotordynamics at Pratt & Whitney's Government Engines and Space Propulsion Division. There Dr. Kocur conducted and directed analysis of aircraft engine and rocket turbopump designs. He started his career at the Amoco Corporation Research Center in the position of Research Engineer.

Dr. Kocur received his BSME (1978), MSME (1982), and Ph.D. (1991) from the University of Virginia and an MBA (1981) from Tulane University. He has coauthored papers, lectured on hydrostatic bearings, has sat as Committee Chairman for the Fluid Film Bearing Workshop at NASA Lewis, and is a member of ASME.

Edmund A. Memmott is a Principal Rotordynamics Engineer at Dresser-Rand, in Olean, New York, where he has been employed since 1973. He has been involved with the rotordynamic analysis and design of a wide range of centrifugal compressor and gas turbine applications. Dr. Memmott has published 11 papers on rotordynamics, most of which deal with high-pressure centrifugal compressors. In addition to membership in ASME and the Vibration Institute, he is on the API 684 Task Force writing the Second Edition of the "Tutorial on the API Standard Paragraphs Covering Rotordynamics and Balancing."

Dr. Memmott holds an A.B. degree from Hamilton College, Phi Beta Kappa, an A.M. degree from Brown University, and a Ph.D. degree from Syracuse University. He was an Instructor in Mathematics at Hamilton College and the State University of New York at Albany.

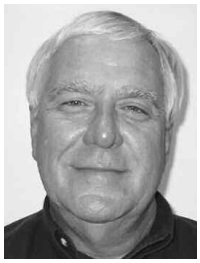
John C. Nicholas is part owner, Director, and Chief Engineer of Rotating Machinery Technology, Incorporated, a company that repairs and services turbomachinery, and manufactures bearings and seals. He has worked in the turbomachinery industry for 26 years in the rotor and bearing dynamics areas, including five years at Ingersoll-Rand and five years as the Supervisor of the Rotordynamics Group at the Steam Turbine Division of Dresser-Rand.

Dr. Nicholas, a member of ASME, STLE, and the Vibration Institute, has authored over 35 technical papers, concentrating his efforts on tilting pad journal bearing design and application. He received his B.S. degree from the University of Pittsburgh (Mechanical Engineering, 1968) and his Ph.D. degree from the University of Virginia (1977) in rotor and bearing dynamics. Dr. Nicholas holds several patents including one for a spray-bar blocker design for tilting pad journal bearings and another concerning bypass cooling technology for journal and thrust bearings.

SHORT COURSE 6
on
RECIPROCATING COMPRESSOR
PERFORMANCE MEASUREMENT AND CONDITION ANALYSIS

Edward E. (Ed) Bonham has been an Application Engineer with the Gas Engine Engineered Solutions group at Dresser-Rand, in Painted Post, New York, since 2000. He has focused on revamping, upgrades, and emission modifications to Ingersoll-Rand, Dresser-Rand, Clark, and Worthington large bore natural gas engines. Mr. Bonham was previously employed by Consolidated Transmission Corporation as a compressor station operator, and by Columbia Gas Transmission Corporation as an Equipment Analyst responsible for analyzing several engines within an operating area on a routine basis. Analysis would include maintenance, performance, and emission analysis to satisfy company policy and state regulations. Dresser-Rand hired him as an Application Engineer in the Compressor Valve group in 1999, where he was responsible for the direct handling of commercial valve application inquiries to include review and evaluation of compressor operating conditions and various engineering programs.

Mr. Bonham has an A.O.S. degree (Automotive Service, 1987) from Alfred Stage College.



Warren Laible has been managing the training, contract analysis services, product testing, and equipment demonstration activities at Windrock, Inc., in Knoxville, Tennessee, for the past two and one half years. He has more than 26 years of compressor experience with more than 4000 mechanical condition, performance, vibration, and pulsation tests.

Mr. Laible graduated in 1970 with a B.S. degree (Industrial Technology). After time in the Army and with United Parcel Service, he was hired as an employee of a major gas company in South Louisiana. It was there that he started his industrial engine and compressor training and began his career as an Equipment Analyst. Beginning in 1977, 20 years of providing contract analysis services followed. In 1997, Mr. Laible accepted a position as Product Support Manager for a compressor manufacturer, packager, and leaser. Valuable experience was gained in high speed compressor package design, spectral vibration troubleshooting, and performance measurement.