

Table of Contents

LECTURES

OPTIMIZING PUMPING SYSTEMS TO MINIMIZE FIRST OR LIFE-CYCLE COST	1
<i>Judy Hodgson, Trey Walters</i>	
NEXT GENERATION PUMP SYSTEMS ENABLE NEW OPPORTUNITIES FOR ASSET MANAGEMENT AND ECONOMIC OPTIMIZATION	9
<i>Fred M. Discenzo, Dennis Rusnak, Lloyd Hanson, Dukki Chung, Joseph Zevchek</i>	
THE USE OF ASBESTOS-FREE MATERIALS IN STATIC SEALING ON PUMPS	17
<i>Anthony R. Currie</i>	
DEVELOPMENTS IN SEALING TECHNOLOGY WITHIN MULTIPHASE PUMPING	25
<i>John G. Evans, Sido Janssen</i>	
BEST PRACTICES IN THE APPLICATION AND MAINTENANCE OF OIL SUMP LUBRICATION OF HORIZONTAL PROCESS PUMPS	33
<i>Brad Rake, Ray Terrell</i>	
OPERATION AND CURRENT DEVELOPMENTS OF SELF-CONTAINED, SELF-LUBRICATING THRUST AND JOURNAL BEARINGS SYSTEMS	43
<i>Matthew M. Marchione</i>	
ADVANCES IN MECHANICAL SEALING—AN INTRODUCTION TO API 682 SECOND EDITION	59
<i>Michael B. Huebner, Joseph M. Thorp, Gordon S. Buck, Cesar L. Fernandez</i>	
CONTAINMENT SEALS FOR API 682 SECOND EDITION	67
<i>Peter E. Bowden, Chris J. Fone</i>	
NUMERICAL SIMULATION OF BPF PRESSURE PULSATION FIELD IN CENTRIFUGAL PUMPS	85
<i>Serguei Timouchev, Jean Tourret</i>	
PRACTICAL USE OF ROTORDYNAMIC ANALYSIS TO CORRECT A VERTICAL LONG SHAFT PUMP'S WHIRL PROBLEM	107
<i>Mark A. Corbo, David B. Stefanko, Robert A. Leishear</i>	
INFINITE DRY-RUNNING AND SOLIDS-HANDLING VIA COMBINING MAG-DRIVE AND GAS SEAL TECHNOLOGY	121
<i>Lev Nelik, Chris L. Miller, Dave McGinty</i>	
PREFILLED EQUIPMENT BASEPLATES— HOW TO GET A SUPERIOR EQUIPMENT INSTALLATION FOR LESS MONEY	131
<i>Todd R. Monroe, Kermit L. Palmer</i>	
SPECIAL PAPER	
PUMPS AND THEIR SYSTEMS—A CHANGING INDUSTRY	141
<i>Robert J. Hart</i>	

TUTORIALS

TOWARD REDUCED PUMP OPERATING COSTS, PART 3—
MINIMIZING THE EFFECTS OF WEAR AND OPTIMIZING PUMP EFFICIENCY145
James P. Netzel, Eugene P.Sabini

AVOIDING FAILURES IN CENTRIFUGAL PUMPS157
William D. Marscher

API 610 NINTH EDITION HIGHLIGHTS177
Jack D. Sanders, Roger L. Jones, Charles C. Heald

MIXER MECHANICAL DESIGN—FLUID FORCES203
Ronald J. Weetman, Bernd Gigas

DISCUSSION GROUPS215

SHORT COURSES233

ADVISORY COMMITTEE247

PROFESSIONAL STAFF253

TURBOMACHINERY LABORATORY257