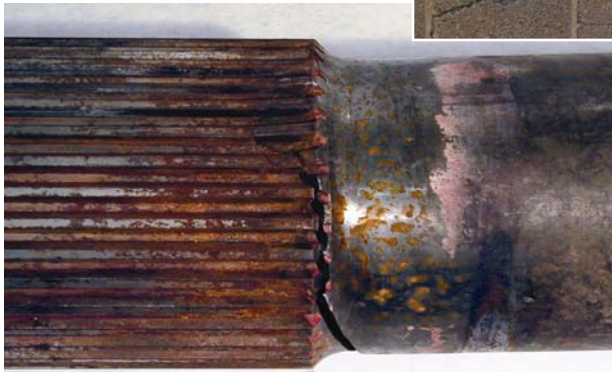


PULP AND PAPER INDUSTRY SERVICES



- *Select the best material for a specific application*
- *Control or prevent corrosion*
- *Minimize outage duration and costs*
- *Make cost-effective decisions on repair versus replacement*

To remain competitive in today's marketplace, pulp and paper mills need to optimize equipment reliability, efficiency, and safety. Engineering analysis can help minimize outage durations and reduce maintenance costs, while verifying or improving fitness-for-service of mill equipment.

Engineering, maintenance and operations personnel in pulp and paper mills daily face problems due to corrosion, cracking, and deterioration of a wide variety of critical components, including paper machine dryers, structural components, recovery boiler tubes, digesters, tanks, etc. They also are expected to make aging equipment operate safely well beyond initial design life expectations.

Unparalleled Experience

Mechanical & Materials Engineering (M&M Engineering) understands equipment damage mechanisms and the effects of process changes on existing equipment as well as anyone in the business. Our engineers have been

technical leaders in TAPPI, AF&PA and BLRBAC committee work for over 20 years and our staff members have either written or actively contributed to most of the industry-standard TIPS published by the Corrosion and Materials Engineering Committee of TAPPI.

Collectively, we have authored over 100 technical articles and publications specifically for the pulp and paper industry. None of our engineering team members has less than 17 years engineering experience, either as consultants or as staff specialists for large paper companies.

Our engineers understand the codes and standards associated with the complex networks of pressure vessels, tanks and piping systems in pulp and paper mills. These include the ASME Boiler and Pressure Vessel Code, National Board Inspection Code and API Standards 510 (pressure vessels), 570 (piping), 653 (tanks) and 579 (fitness for service), and ASME B31.3 for process piping.



Financial Enlightenment Through Engineering

A mill's maintenance program for equipment reliability can be successful if properly planned and budgeted. This involves understanding the damage mechanisms that cause component failures; in-depth knowledge of how and when to inspect for the damage, and experience with cost-effective repair strategies. Our vast practical engineering experience can help a mill maintenance department work within a limited budget to monitor and assure equipment integrity.

M&M Engineering routinely performs risk assessments to help prioritize inspection and repair schedules, and reviews and modifies inspection programs to optimize procedures and reduce maintenance costs whenever possible. We also develop client-specific inspection procedures and guidelines for mill equipment reliability, and, through our RACE program, provide real-time engineering and technical support for client facilities that lack internal engineering support in this important technical area...

MMPIRE

Assuring the integrity and reliability of hundreds of tanks, pressure vessels, and piping systems always is major a management challenge. Knowing what to inspect, when, and how and what remediation options there are has a major impact on maintenance budgets and mill profitability. A computerized management program that helps provide this knowledge can save time and money.

Combining our unmatched depth of engineering expertise with our new management tool, **MMPIRE**, can save our clients plenty of money in the following ways:

- Optimizing inspection protocols and repair specifications reduces inspection and/or repair costs.
- Engineering evaluations of inspection results are used to optimize

inspection intervals and to avoid unneeded repairs. Our evaluations are based on best engineering practices, not on overly conservative, industry consensus guidelines.

- Aggressive co-management of inspection and repair contractor work with the mill improves the quality and cost-effectiveness of this type of work.

MMPIRE helps the mill assemble and manage the Preventative Maintenance information for mill equipment in a very user-friendly way. A secure, web-based database program, it can be accessed by our clients through our web site. Each mill's secure database contains information about the mills equipment – design and operational specifications, photographs and drawings, inspection reports, repair or modification information, and inspection protocols.

Additional Services

Since 1977, M&M Engineering has investigated more than 5,000 equipment failures in many different industries. We apply our knowledge about how and why equipment fails to pro-active decisions regarding the appropriate inspection procedures, materials of construction, corrosion control programs, etc.

Corrosion is the leading cause of premature deterioration of pulp and paper mill equipment. Our extensive technical knowledge and hands-on experience will help you identify, control and prevent corrosion. Our fully-equipped corrosion and materials testing laboratories are also at your disposal. We also can provide extensive expertise on water chemistry, chemical cleaning and other water treatment issues.

We are always on call to help our clients, even for on-site support, and we can get the answers to difficult problems often in less than 24 hours. We take pride in solving complex problems no one else can.



Mechanical & Materials Engineering

4616 Howard Lane #2500
Austin, TX 78728-6302
(512) 407-8589
(800) 421-9185

www.mmengineering.com
info@mmengineering.com