Director’s Message

By Brad S Carlberg, P.E.
Bechtel National Inc.– Richland, WA

Well, it’s just almost two months since the 2007 Presidents Fall Meeting and the ISA 2007 Fall Conference & Exhibition in Houston and we’re already starting to plan for next year’s Expo 2008 which will again be at the Reliant center in Houston.

I’d like to thank long-time PUPID member Randy Cooper of Jacobs for representing PUPID in the Leaders meeting and for being a technical session moderator. And if any of you want to get into the Technical sessions for a bit of work as a Session Moderator, send me an email and I’ll put your names in for it.

PUPID is in dire need of a Director-Elect since as much as I enjoy it, I cannot keep doing it. If you want to get your expenses paid to the two Leaders Meetings and the Expo for a little bit of work (maybe eight hours a month), send me an email and I’ll tell you about it.

Please remind the college students you might have worked with this past summer that there is $1000 scholarship available from PUPID. All they have to do is go http://www.isa.org/~pupid/PUPID_Scholarship_Bulletin.html and download the application and send it to Mike Waller & Pat Dixon along with a transcript and references to be considered for the award. Just ask last year’s recipient, Kyle Hutcheson http://www.isa.org/~pupid/2007ScholarshipWinner.html who will, no doubt tell you it was easy.

I hope you enjoy this quarter’s technical presentation by Dave Suplicki of Enertechnix (http://www.enertechnix.com) on page 14. It will give you a short primer on using Optical Pyrometry in your mill as a maintenance tool.

The other good news for PUPID is that the PUPID Scholarship Endowment has now been set up to perpetuate the yearly awards to students. You can go to the website to download the application. Spread the word to those deserving students!

Mark your calendar for the Spring 2008 Symposium for which we will again partner with TAPPI; this time 2008 TAPPI Coating and Graphic Arts Conference & Trade Fair in Dallas, Texas May 4-7, 2008

Well, I’ll sign off now until next year; keep watching the PUPID website for upcoming attractions!
TUNING TIP: WHAT IS PID—TUTURIAL OVERVIEW

PID stands for Proportional, Integral, Derivative. Controllers are designed to eliminate the need for continuous operator attention. Cruise control in a car and a house thermostat are common examples of how controllers are used to automatically adjust some variable to hold the measurement (or process variable) at the set-point. The set-point is where you would like the measurement to be. Error is defined as the difference between set-point and measurement.

\[(\text{error}) = (\text{set-point}) - (\text{measurement})\]

The variable being adjusted is called the manipulated variable which usually is equal to the output of the controller. The output of PID controllers will change in response to a change in measurement or set-point. Manufacturers of PID controllers use different names to identify the three modes. These equations show the relationships:

\[
P \quad \text{Proportional Band} = \frac{100}{\text{gain}}
\]

\[
I \quad \text{Integral} = \frac{1}{\text{reset}} \quad \text{(units of time)}
\]

\[
D \quad \text{Derivative} = \text{rate} = \text{pre-act} \quad \text{(units of time)}
\]

Depending on the manufacturer, integral or reset action is set in either time/repeat or repeat/time. One is just the reciprocal of the other. Note that manufacturers are not consistent and often use reset in units of time/repeat or integral in units of repeats/time. Derivative and rate are the same.

Choosing the proper values for P, I, and D is called "PID Tuning". Find out more by going to the Expertune website at:

http://www.expertune.com/Tutor2.htm

Calendar of Events

Get a quick overview of the ISA PUPID events for 2006 by going to the Calendar at: http://www.isa.org/~pupid/2007_PUPID_Calendar.htm

62st APPITA Annual Conference and Exhibition
Energy Events Centre
Rotorua, New Zealand
20 – 23 April, 2008
http://www.APPITA.com

TAPPI/PIMA 2008 CONFERENCE: SUSTAINABILITY FOR THE FUTURE
TAPPI PAPERMAKERS – TAPPI COATING & GRAPHIC ARTS - PIMA INTERNATIONAL
DALLAS, TEXAS, USA
MAY 4-7, 2008

54rd Pulp & Paper Industry Conference 2007
June 22 - 27, 2008
Grand Hyatt
Seattle, WA
http://www.pulppaper.org

Upcoming ISA Conferences & Exhibitions

<table>
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<tr>
<th>Year</th>
<th>Month</th>
<th>Location</th>
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<tbody>
<tr>
<td>2007</td>
<td>October 2 – 4</td>
<td>Houston, Texas</td>
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<tr>
<td>2008</td>
<td>October 20 – 23</td>
<td>Houston, Texas</td>
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<tr>
<td>2009</td>
<td></td>
<td>Chicago, Illinois</td>
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<tr>
<td>2010</td>
<td>October 11 – 14</td>
<td>New Orleans, Louisiana</td>
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You can see the online calendar at [http://www.isa.org/~pupid/2007_PUPID_Calendar.htm](http://www.isa.org/~pupid/2007_PUPID_Calendar.htm)
WELCOME TO THE 10 NEW ISA PULP & PAPER INDUSTRY DIVISION MEMBERS SINCE AUGUST 2007
WELCOME TO NEW PUPID MEMBERS

Jussara Silva  Albuquerque
Alex Rodrigues Da Silva
Elias Tadeu Do Nascimento
Ahmad H. Musallam
Piero Giorgio Squizzato
JOHN  TENKULA
Larry E. Wells
Mike  Fife

HERE’S A REMINDER TO THE 29 ISA PULP & PAPER INDUSTRY DIVISION MEMBERS WHO NEED TO RENEW THEIR MEMBERSHIP

Cíntia Vieira Alves  Brian  Kidwell  Ghazaleh  Parvaneh
Tiago Carneiro Araújo  Gerald Howard LaFontaine  Bill D. Pesklevits
Lane  Arias  Mark Denham Lassetter  Jose Mateus Theodoro Ropes
John S. Cain  Douglas H. Lenz  Thiago P Campos Santos
Karel J. Cerny  Jason M. Mangano  Joseph A. Schill
Philip  Cincotti  Robert  Munch  Marcelo Correia Silva
Rutuja Anil Dhariya  John  Myers  Lyle  Swanson
Mario  Freitas  Ronald Leslie Nel  Bruno  Vachon
John  Golde  Kevin F. Nolan  William S. Vlasic
Patrick W. Hall  Jensen D. Oberklein

DON’T FORGET TO RENEW!
INDUSTRY SHOWCASE: LUMBER & TIMBER
IMPROVEMENTS DON’T HAVE TO BE COMPLICATED
BY FRANK WILSON; PACIFIC LUMBER COMPANY; SCOTIA, CA

When it comes to improvements in a production line often times the foregone conclusion is that they have to be more complicated than the existing system. That is not always the case as this article will illustrate.

First let me give a little background on the processing we are looking to improve. In the lumber industry an important aspect of the production process involves grading the lumber after it has been processed from log form into actual boards. Although this part of the process is becoming extremely automated, there are segments of the industry that still utilize human interaction to accomplish that task. These segments are the areas that produce appearance grade lumber such as hardwoods and Redwood. The white soft wood segments make up the larger portion of the overall industry with the end product being used more for construction. Since the largest part of the industry is focused on size and strength of the lumber, the greater resources for development of automated grading systems have been spent on the white wood segment. Those areas have developed scanning systems that have virtually eliminated the need for human interaction with the lumber.

The areas that still use people to accomplish the grading have come up against additional challenges to be profitable and efficient. One of those challenges is the issue of ergonomics (particularly in California). Ergonomic injuries account for 27% of workers compensation claims and 41% of the costs. Those claims include repetitive motion injuries (RMI) and Musculoskeletal Disorders (MSD) which include Tendinitis, Carpal Tunnel Syndrome, Bursitis, as well as sprains, strains, tears, or even just pain.

Traditional grading methods have been the root of graders being one segment of the lumber industry workforce that fall victim to these injuries. As illustrated the workers need to handle each board and turn them so they can examine both sides to make an accurate grade decision. This type of repetitive motion is a cause of several of the mentioned injuries.

One solution that is being employed today is the use of elevated hands off grading stations. This places the operator in a position to observe the lumber and enter grade solutions by pressing buttons to be transmitted to the production line control system, greatly reducing the workers exposure to injuries.
One problem with these type of systems is that they are expensive to install and costly to maintain. In addition to the costs associated with this type of system, due to the irregular nature of lumber (warpage, sizes and shapes) is getting the boards to flow through the grade stations. This can be difficult and require constant means of improvement and modification. That brings us to the main theme of this article “**Improvements don’t have to complicated**”.

The grading system that needed to be changed was located in a Redwood sawmill owned and operated by The Pacific Lumber Company in Scotia, California. The grading stations are depicted in the above photo (Fig. 2).

**Fig. 3**

There are four grading stations to allow the production to be split between the graders so that every fourth board is delivered to them where it is turned over and then re-entered back into the production flow. As illustrated in the photos (Fig. 3 & Fig. 4) each grade station is massive in size and entails a fair amount of complexity. The structure of each station is elevated above the main chain that moves the lumber. The board being pointed to has been diverted from the main chain to be graded. The board will continue up the belt and pass in front of the grade as shown in Fig. 2.

**Fig. 4**

In order to move the board through the operation it requires a separated drive motor for each grade station and a well an absolute encoder to track the position of the board. Each of the drives has its own variable frequency drive (VFD) that is linked to the control system and the absolute encoder.

**Fig. 5**

Board being entered back into main lumber flow.

After numerous attempts to get the lumber to move effective and consistently through the system it was decided to modify the grading stations. Not with more complex mechanical and electrical changes as had been the previous attempts to solve the problems, but rather a much simpler solution.

First the entire overhead structure was removed (Fig. 6) and the grading stations lowered (Fig. 7) to give the graders a better view of the lumber.
There was still a need to turn each board to be able to grade them effectively. So a simple un-powered free turning star mechanism mounted on a shaft that could be raised and lowered individually was installed.

The star device is shown in the raised position. Notice that 3 of the points have holes in them and the fourth is solid. The purpose is that that point is heavier that the other three and simple gravity will cause the device to rotate to the correct position. IT'S JUST THAT SIMPLE.

The photos may not show it well, but there are notches cut into the star device to allow for different thickness of boards to engage it which results in the board being turned over so the graders can see both sides.

Once again SIMPLICITY at its best.

Although there is still a the need for the same basic control system being supplied with a programmable logic controller (PLC) to maintain the data and sequencing control the mechanical equipment is greatly simplified.

This modification to the previous system has proven to be an improvement to the lumber operation. Throughput has increased with less down time and efficiency and maintenance cost have decreased.

To summarize I am not suggesting that every time there is a need to improve a process system that is has to be simpler than the existing one, only that that is an option which should be explored. At a time when the world is increasing with technological advancements, we should not rule out the one resource that has made all of that possible in the first place. That resource being good old creativity and common sense.
Often times I have seen upper management make decisions that affect an operation without utilizing the input of the workers that operate the equipment daily. By not going to those workers (both production and maintenance personnel) we are bypassing a valuable resource that in many times has proven to be more effective than costly consultant and engineering solutions.

Respectfully submitted,

Frank R. Wilson  
Power Plant Manager  
The Pacific Lumber Company

I encourage any comments and input as well suggestions for future articles. I can be reached through email at fwilson@palco.com or by phone at 707-764-4360
WHO’S DOIN’ ANYTHING?:

Metso To Supply Tissue Line To Century Pulp And Paper In India
10/31/2007
Helsinki, Finland - Metso Paper will supply a tissue machine to Century Pulp and Paper in Lalkua, Nainital, Uttarkhand, India. The machine will be started up in the third quarter of 2008. The value of the order is not disclosed. The market value of these types of tissue production lines is in excess of EUR 17 - 20 million, depending on the scope of delivery and production output. The order will be booked in Metso’s fourth quarter order backlog.

Metso's scope of delivery will comprise a complete Advantage DCT tissue machine and the stock preparation equipment. The delivery also includes engineering for the new tissue mill as well as services for installation and start-up of the machine.

The machine will be the first large tissue machine in India. It has a trim width of 2.85 m, an operating speed of 2,000 m/min and a daily production of up to 120 metric tons of high-quality facial, bathroom tissue and towel grades.

Century Pulp and Paper, a division of Century Textile and Industries Ltd, is a manufacturer of rayon grade pulp and an exhaustive range of excellent quality of writing & printing paper. When the company now enters also the tissue paper industry, it already produces 32,000 metric tons of pulp and 198,000 metric tons of writing and printing paper per year.

Metso is a global engineering and technology corporation with 2006 net sales of approximately EUR 5 billion. Its more than 26,000 employees in more than 50 countries serve customers in the pulp and paper industry, rock and minerals processing, the energy industry and selected other industries.

SOURCE: Metso Corporation

New 60” Heat Laminator From TTARP Industries Will Laminate, Slit And Rewind Hot Or Cold Adhesive Systems
10/24/2007
Buffalo, NY - Designed to process sheet or roll goods, including rubber, plastic, foam, textiles, and other materials, the new 60” Laminating System from TTARP Industries, Inc., Buffalo, New York, will laminate, slit and rewind hot or cold adhesive systems (tapes) on one complete machine.

According to TTARP, the new laminator features a heated aluminum drum plus solid-state automatic temperature controls to ensure precise, even heat. The 180-degree round drum provides full contact with the adhesive product to eliminate "edge curl."

The company states that two sets of adjustable double-pinch rollers control curl and improve adhesion. They are powered by a variable-speed drive that operates independently from the rewind unit. The first set of rollers will set and join the material without stretching or distortion. The second set then compresses the material to create a final, high-strength bond.

The new TTARP laminator is available with score cutters or rotating knives to cut the web to width as the material is laminated. Adjustable torque controls are said to provide precise rewind tensioning. A variety of other standard and optional features are available to meet custom applications.

SOURCE: TTARP Industries, Inc.
WHO’S DOIN’ ANYTHING?: (CONTINUED)

Minerals Technologies Signs Agreement With Phoenix Pulp & Paper For Construction Of PCC Satellite Plant In Thailand
10/31/2007
New York, NY - Minerals Technologies Inc. announced recently that its wholly owned subsidiary Specialty Minerals (Thailand) Co., Inc. will construct a precipitated calcium carbonate (PCC) satellite plant at a paper mill owned by Phoenix Pulp & Paper Public Co., Ltd. for the new paper machine it is installing at Nam Phong, Thailand.

The satellite PCC plant, which is expected to be operational by early in the second quarter of 2008, will produce filler-grade PCC for the paper mill and will have a capacity that is equivalent to two units. A unit represents between 25,000 and 35,000 tons of PCC produced annually.

“We are extremely pleased that Phoenix Pulp & Paper has selected Minerals Technologies to construct and operate a satellite PCC plant that will provide our PCC technology for their paper machine at Nam Phong. The addition of this facility is an integral part of our Asia growth strategy for PCC, and brings the total number of satellite PCC facilities to eight in the region,” said Joe Muscari, chairman and chief executive officer of Minerals Technologies. “We look forward to a long and mutually rewarding relationship with this excellent paper company and their parent company Siam Cement Group.”

Phoenix Pulp & Paper Company is a subsidiary of the Siam Cement Group, one of Thailand's the largest industrial conglomerates with more than 100 companies operating in the cement, building products, petrochemical and pulp and paper industries. Phoenix Paper Company indicated that one of the reasons they chose to use PCC is that the PCC manufacturing process uses carbon dioxide from the Phoenix mill, thus providing an environmental improvement at the mill.

PCC is a specialty pigment for filling and coating high-quality paper. By substituting PCC for more expensive wood fiber and for other more expensive pigments, the paper industry is able to produce higher quality paper at lower cost. Minerals Technologies originated the satellite concept for making and delivering PCC on-site at paper mills. This concept has been a major factor in revolutionizing papermaking from an acid to an alkaline-based technology. Minerals Technologies constructed its first PCC satellite plant in 1986. Today, the company has 52 satellite plants in operation or under construction around the world.

SOURCE: Minerals Technologies Inc.

Kadant Receives $11 Million In Recycling Orders From Russia And China
10/3/2007
Westford, MA - Kadant Inc. recently announced that it has received orders for two stock-preparation systems with a combined value of approximately $11 million for paper and liner board producers in Russia and China. The orders, which will be supplied by subsidiaries of Kadant, are for a stock-preparation system for a 120 ton per day tissue mill and for a stock-preparation system for a 1,000 ton per day OCC system to produce linerboard.

“These orders demonstrate Kadant’s global reach as well as the acceptance of our technology throughout the world” said William A. Rainville, chairman and chief executive officer of Kadant. “We continue to see strong demand for our products in Eastern Europe and Russia as the paper industry in that region expands.”

For more information, visit www.kadant.com.

SOURCE: Kadant Inc.
WHO’S DOIN’ ANYTHING?: (CONTINUED)

Intelligent TS4000 Toxic Gas Detector Receives SIL 2 Suitable Rating
10/31/2007
Lake Forest, CA - Providing advanced protection against a wide range of hazardous industrial gases and oxygen deficiency, the TS4000 Intelligent Toxic Gas Detector from General Monitors is now rated SIL 2 suitable.

The TS4000 Toxic Gas Detector has been third-party certified for SIL 2 applications and is approved by CSA, ATEX, CE Marking and GOST. Its sophisticated design offers many advanced features, including long distance remote mounting up to 2,000 feet, dual redundant MODBUS communications, 8 Amp relays, three-digit display, 4-20 mA output, and an indication of remaining sensor life. All electronics are contained within an explosion-proof housing so that sensor information can be processed at the sensor site. The detector provides complete status and control capability in the control room. Additionally, the interface module's galvanically-isolated, intrinsically-safe design supports sensor field replacement without special tools or hot work permits.

Easy to install, the TS4000 features one-person calibration and can virtually self-calibrate by activating a magnetic switch and applying gas. Process engineers who need to protect people and equipment will find the TS4000 Toxic Gas Detector ideal for chemical, oil and gas, water and wastewater treatment, pulp and paper, and other hazardous environments. Additional applications include public utilities, refineries, pharmaceuticals, and food and beverage.

The TS4000 monitors a variety of toxic gases in the parts per million (ppm) range, including ammonia, carbon monoxide, chlorine, chlorine dioxide, hydrogen chloride, hydrogen sulfide, nitric oxide, nitrogen dioxide, oxygen, ozone, and sulfur dioxide. The system displays gas concentrations up to 500 ppm, fault codes for troubleshooting, prompts when calibration is needed, and provides complete status to the user. Additionally, the TS4000 simplifies operation and maintenance and reduces downtime by indicating remaining sensor life.

The TS4000 is comprised of a base unit, sensor housing with interface module and electrochemical sensor. The interface module processes information at the sensor site and communicates detected gas values to the base unit for data control and display. By combining explosion-proof certification with intrinsically safe inputs, the TS4000 provides high performance in hazardous locations.

SOURCE: General Monitors
WHÔ’S DOIN’ ANYTHING?: (CONTINUED)

ABB Wins $33M Pulp Mill Contract In Brazil
10/3/2007

Power and automation support energy efficient production of 1.3 million tons per year

Zurich, Switzerland - ABB, the leading power and automation technology group, has been awarded a contract worth $33 million to provide equipment and services for a pulp mill under construction in Brazil. The new mill, with a capacity to produce 1.3 million tons per year of bleached eucalyptus pulp, will be located in the eastern city of Tres Lagoas, Mato Grosso do Sul.

ABB’s scope of supply includes automation and electrification systems for the new mill, as well as a 138-kV substation. The automation platform will be based on ABB’s Industrial IT System 800xA, which will provide process control along with simulation tools and asset management functions. ABB will also supply medium voltage switchgear, power management and load shedding systems. Intelligent ABB motor control centers will be integrated with the Industrial IT system to optimize the effectiveness of electrical equipment in the mill.

“This project reinforces our position as a key supplier of solutions for the pulp and paper market in Brazil,” said Veli-Matti Reinikkala, head of ABB’s Process Automation division. “By integrating electrical and automation systems on a single platform, we help to ensure quality, productivity and energy efficiency.”

The project, named “Projeto Horizonte,” is being managed by Poyry Empreendimentos Industriais, a company hired for execution of the project construction. Once the mill starts production, it will be transferred to Votorantim Celulose e Papel (VCP), a company of Votorantim Group, as part of an asset swap between VCP and International Paper in 2006. The project will contribute to VCP’s aim to reach a total of 3.5 million tons per year until 2012 and a total of US$ 4 billion as net earnings until 2020.

Votorantim Celulose e Papel is one of the largest companies in Latin America’s pulp and paper sector, and the leading supplier of coated, carbonless copy, thermal, and other specialized paper types in Brazil. The Votorantim Group is one of the largest private industrial conglomerates in Latin America. The pulp produced by VCP is made entirely from forests planted with eucalyptus, which is known for its sustainability and the high quality paper it produces.

ABB is a leader in power and automation technologies that enable utility and industry customers to improve performance while lowering environmental impact. The ABB Group of companies operates in around 100 countries and employs about 111,000 people.

SOURCE: ABB
WHO’S DOIN’ ANYTHING?: (CONTINUED)

EPA Announces $5 Million Clean Air Act Settlement With Pulp Mill
10/9/2007
San Francisco - The U.S. Environmental Protection Agency, the California Air Resources Board, and North Coast Unified Air Quality Management District recently announced a $5 million settlement with Evergreen Pulp, Inc. that will protect air quality in the Eureka, Calif. area by reducing emissions of particulate matter and hazardous air pollutants from its wood pulp mill by approximately 340 tons annually.

Evergreen Pulp allegedly violated the federal emission standard for hazardous air pollutants by approximately 230 percent, and violated monitoring, reporting, and recordkeeping requirements. The company also allegedly violated state air pollution control laws for nuisance, opacity, and air pollution control equipment maintenance requirements.

“Emissions from pulp mills can have a significant impact on air quality in the immediate area around these facilities,” said Deborah Jordan, director of the EPA’s Air Division for the Pacific Southwest region. “Today’s settlement reduces harmful air emissions by nearly 340 tons each year, providing a clear environmental benefit for the surrounding community.”

“The people of Eureka and surrounding communities along Humboldt Bay will breathe easier thanks to this team effort by local, state and federal regulators,” said ARB Chairman Mary Nichols.

Under the settlement, Evergreen will pay a combined penalty totaling $900,000 to be shared equally among the three regulatory agencies. The company also spent approximately $4 million to install a pollution control device on its lime kiln that uses electric charges to capture and collect tiny particles of air pollution. Recent source tests show that the device is reducing harmful particulate emissions.

The company also spent about $100,000 in 2005 to install and operate an additional pollution control device on its smelt dissolver tank. The company also agreed to continue monitoring the performance of air pollution controls of the company’s smelt dissolver.

“The hard work of all parties to reach a settlement in this case is significant to both air quality conditions and our economy. In particular, I am appreciative of Evergreen’s willingness to work toward much needed improvements and to our local Air District staff who have diligently pursued the necessary resolution to this matter.” said John Woolley, North Coast Air District Board member.

Particulate matter adversely affects humans -- principally through inhalation and the deposit of particles in the nose, throat, and lungs. Health effects from chronic exposure to high levels of particulate matter range from nasal irritation to bronchitis to emphysema. Young children and the elderly are the most susceptible to the adverse effects of particulate matter exposure because of their relatively limited ability to eliminate particulate matter once it is deposited in the body.

Pulp mills also emit toxic metals including, antimony, arsenic, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, and selenium. Health effects associated with exposure to these toxins metals can include cancer, reproductive and developmental effects, gastrointestinal effects, damage to the nervous system, and irritation to the eyes, skin, and respiratory system.

The Evergreen settlement was lodged today in the U.S. District Court for the Northern District of California and is subject to a 30-day public comment period.

SOURCE: U.S. Environmental Protection Agency
TECHNICAL PRESENTATION: PYROPTIX

By Dave Suplicki of Enertechnix in Maple Valley, WA

PyrOptix uses infrared imaging to provide instantaneous thermal images within high-temperature particle laden environments. Able to penetrate to depths of 100ft, the PyrOptix allows you to monitor developments anywhere in the combustion chamber and convective sections. Equipped with a digital recorder, PyrOptix is an effective monitoring, optimization and communication tool, enabling immediate response and trend analysis.

The Powerpoint presentation on the following nine pages will show you how to protect your plant heat recovery equipment.

For more information, go to http://www.enertechnix.com/ or Phone (425) 432-1589
Enertechnix

Infrared Imaging Systems

Waste to Energy Boilers
Benefits of IR Inspection
At Full Load, Anywhere, Anytime

Asset Management
- Avoid catastrophic failures
  - Prevent Superheater Failure
  - Convection Pass Inspections
  - View Refractory Wall Conditions

Maintenance Planning
- Inspect equipment & fixtures
- Assess workload prior to outage

Operational Efficiency
- Identify & Eliminate Slag
- Optimize Steam Usage
- Reduce Fan draw & Over Fire Air (pluggage)

Safety
- Proactive vs. Surprised
- Maximum safety maintained with full capability of usage

High Expected ROI

Expected Payback < 3 Month
Second Generation Technology

- **Patented** IR wavelength interrogation
- Digital Real time (30 frame/sec) images
- Portable mobile inspection camera
- Fixed Mount/Mobile: permanent and portable combination
  - Go from “FIXED” docking to Mobile in seconds!
PyrOptix™ IR Imaging Capabilities

- Real Time Collaboration & Assessment of Boiler Conditions
- Full Complement of Lens including 360D Viewing
- Integrate Surface Temperature Measurement & Software Options
- Integrate signal processing for advance boiler control systems
Inspect Refractory Tile Conditions

Major Impact Areas

- *Asset Management*
  - tile conditions
- *Maintenance Planning*
  - outage work schedule
  - purchasing activities
- *Plan Outages & Maintain Safety*
  - proactive assessment of actual conditions
  - insure maximum boiler usage
Superheater Entrance Conditions

Major Impact Areas

• Asset Management
  • Superheater Environment
• Maintenance Planning
  • Tube Conditions
  • Structure Issues
• Plan Outages & Maintain Safety
  • Eliminate hours due to unknown situations
  • insure maximum investment in time and materials
Crucial Low Light Inspections

Application Area

- Economizer
- Precipitator
- SCR
- Electrical Inspection
- Scrubber Components
- Tube Integrity
- Leak Detection
- Carryover Analysis

Scrubber Chemical Injector Inspection
Competitiveness thru Technology
Keeping America’s Edge

• Real Cost Reductions
  – Improved heat transfer efficiency
  – Reduced maintenance costs
  – Optimized steam usage

• Avoidance of Forced outages
  – Avoid blockage due to runny slag
  – Prevent critical slag
  – Identify critical equipment failure

• Improve Maintenance Planning
  – Estimate workloads before outage

• Identify Refractory / Tube Problems
  – Tube Rubbings, Plugging
  – Manage Maintenance through early detection

• And working in a Safe & Reliable Environment!
Exceptional Competitive Advantages

- Depth of view capability patent protected
- Extreme Ease of Use
- Made for Industrial Application (rugged)
- Multi-Use Device
  - Bed/BIC Combination for Dual Use
  - Low Light Lens
- Substantial Price Advantage
- 15 Years of Technology Leadership
LETTERS TO THE EDITOR

Send your comments on this newsletter to the ISA PUPID Technical Discussion Forum & “get something started”!

You can reach the site at http://www.isa.org/scripts/lyris.pl?enter=pupid&text_mode=&lang=english or by going to the PUPID or the main ISA websites and looking for the “ISA Technical Divisions”
**Links to Related Websites**

**ISA Pulp & Paper Website**
http://www.isa.org/~pupid/

**ISA Pulp & Paper Technical Discussion Forum**
http://www.isa.org/scripts/lyris.pl?enter=pupid&text_mode=&lang=english

**ISA Technical Conference Session Schedule**
http://www.isa.org/Template.cfm?Section=Conferences_and_Exhibitions&template=/taggedpage/conferencesbydate.cfm&icid=61

**Pulp & Paper Research Institute of Canada**
http://www.paprican.ca/

**TAPPI**
http://www.tappi.org/

**PIMA**
http://www.pimaweb.com/

**American Forest and Paper Association**
http://www.afandpa.org/

**National Society of Professional Engineers**
http://www.nspe.org/

**Swedish Royal Institute of Technology**
http://www.prkrb.se
http://www.hut.fi/English/

**Helsinki University of Technology**
http://www.hut.fi/English/

**Technical Association of the Australian and New Zealand Pulp &amp Paper Industry (APPITA)**

**Australian Pulp & Paper Institute**

**ISO Standards Technical Committee List**

**ISA Standards Committees Listserver**
http://www.isa.org/shellcgi/lyris.pl?site=isa&page=topic&topic=standards+committees&text_mode=0&lang=english

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**Quickies**

**ISA Pulp & Paper Technical Discussion Forum**

Anybody (not necessarily an ISA or PUPID member) can subscribe to the PUPID Pulp & Paper Technical Discussion Forum. To subscribe, go to the PUPID homepage at http://www.isa.org/~pupid/, select "Pulp & Paper Technical Discussion Forum" in the pick box, click "Go", and enter you email address and a password.

**ISA Email address for ALL Members**

Any ISA member can register for a free email address and online mailbox. If you set it up, your ISA email address will be yourname@member.ISA.org. To register, go to http://www.isa.org/membership/benefits/, and follow the registration instructions.

**ISA PUPID Calendar**

Get a quick overview of ISA PUPID events for 2002 by going to the Calendar at:
http://www.isa.org/~pupid/2002_PUPID_Calendar.htm
WORLD CORNERS

CANADA CORNER

Nothing from anyone there this time!

CENTRAL & SOUTH AMERICAN CORNER

Nothing from anyone there this time!

FAR EAST CORNER

Nothing from anyone there this time!

FROM THE LAND OF THE MIDNIGHT SUN

Nothing from anyone there this time!

EUROPEAN CORNER

Nothing from anyone there this time!
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