Director’s Message

By Brad S. Carlberg, P.E.
BSC Engineering – Richland, WA

Honorable Members of PUPID,

Well, I am like a “bad penny” that keeps coming back. Paul Burnett has had work abroad that will keep him from completing the second year as PUPID Director leaving me to take over as interim Director. I am honored to do it; but I really need to ask some of you, particularly the “old timers”, to “step up to the plate” and help as a PUPID Director-Elect. As the saying goes, “it’s the tougher job you’ll ever love”. I’ve heard all the excuses why people can’t take the time to be a volunteer leader, and we all know what excuses re like; but now is the time to help the Division. Seriously, the rewards are more than worth the time you’ll spend. Especially because your employers are asking you to do more with less these days, by helping PUPID you’ll actually be helping them and yourself.

Here’s what I am asking from you; we need a Director-Elect, and a symposia coordinator. The Director-Elect will train in 2011 and take over as Director for the 2012/2013 biennium. If you can only do it for a single year, then we can look at single terms. In return for the work, you’ll get your ISA Fall Conference registration.

Now for the Symposia Coordinator, if you’ve thought about getting involved with a technical conference and/or writing a paper, this is for you. I did this for three years to continue PUPID’s partnering with TAPPI for a Spring Symposium (which we started in 1962). If you’re a TAPPI member as well as ISA it’s a great way to meet more people which can help you solve your plant problems by seeing how other people have solved theirs.

Please do not hesitate to contact me at either (251) 454-1200 or brad.carlberg@bsc-engineering.com to discuss how you can help PUPID.

Now, that’s enough of my pitch. I hope you’ll get some info about sootblowing from the following papers from this Fall’s TAPPI Peers conferences last October 17 – 21

- Sootblowing Powerpoint Presentation
- Sootblowing Paper

There’s some good news regarding the PUPID membership; with 3 renewing members, the membership is down about 5% to 442. Welcome to all of you!

I hope it is an encouragement to you to become more involved with the Division and to enroll more members from the great international pulp & paper community.

Do feel free to forward the Newsletter to your friends and colleagues who may have an interest in it.
### TUNING TIP: ADVANCED REGULATORY CONTROL (ARC) OR ADVANCED PROCESS CONTROL (APC)?

R. Russell Rhinehart, rrr@okstate.edu  
School of Chemical Engineering, Oklahoma State University

Both Advanced Classical and Model-Predictive Control are important, useful, functional, and powerful. The question many process control professionals ask is, “Where should I use which?”

There are many control problems, and for each there is a wide range of technical solutions, from simple to complex. Once the technical details are understood the audience will be ready to see the issues related to initial cost, maintenance, personnel training, etc.; and will be able to choose an approach that best addresses the guiding engineering principles of K.I.S.S., sustainability, and balance technology within the human situation.

This Tuning Tip was excerpted from Russell Rhinehart’s paper from last Fall’s ISA Automation Week 2010 Technical Conference at the Westin Galleria in Houston, TX

ISA Members can download this paper FOR FREE and its powerpoint from the ISA website.

### Calendar of Events

Get a quick overview of the ISA PUPID events for 2010 by going to the Calendar at:  

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2010 ISA FALL LEADERS MEETING</strong></td>
<td><strong>SATURDAY, 02 Oct 2010</strong></td>
<td><strong>THRU SUNDAY, 03 Oct 2010</strong></td>
</tr>
<tr>
<td><strong>ISA AUTOMATION WEEK 2010</strong></td>
<td><strong>MONDAY, 04 Oct 2010</strong></td>
<td><strong>THRU THURSDAY, 07 Oct 2010</strong></td>
</tr>
<tr>
<td><strong>WESTIN GALLERIA HOUSTON, TEXAS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Come meet your leaders &amp; get involved!</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2010 TAPPI/PIRA Specialty Papers Conference</strong></td>
<td><strong>November 10 - 11, 2010</strong></td>
<td><strong>Hotel Allegro Chicago</strong></td>
</tr>
<tr>
<td><strong>Chicago, IL USA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2010 Innovative Nonwovens Conference</strong></td>
<td><strong>November 10 - 12, 2010</strong></td>
<td><strong>Raleigh, NC USA</strong></td>
</tr>
<tr>
<td><strong>2011 TAPPI International Bioenergy &amp; Bioproducts Conference</strong></td>
<td><strong>March 14 - 16, 2011</strong></td>
<td><strong>Atlanta Hilton</strong></td>
</tr>
<tr>
<td><strong>Atlanta, GA USA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>65th Appita Annual Conference and Exhibition</strong></td>
<td><strong>April 10 - 13, 2011</strong></td>
<td><strong>Energy Events Centre</strong></td>
</tr>
<tr>
<td><strong>Rotorua, New Zealand</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2011 TAPPI PaperCon Conference</strong></td>
<td><strong>May 1 - 4, 2011</strong></td>
<td><strong>Northern Kentucky Convention Center</strong></td>
</tr>
<tr>
<td><strong>Covington, KY USA</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IEEE**  
**Industry Application Society**  
**57th Annual Pulp and Paper Industry Conference**  
**Downtown Sheraton**  
**Nashville, TN**  
ISA PULP & PAPER INDUSTRY DIVISION 2011 CALENDAR

You can see the online calendar at http://www.isa.org/~pupid/2011_PUPID_Calendar.htm
WELCOME TO THE 38 NEW ISA PULP & PAPER INDUSTRY DIVISION MEMBERS SINCE MAY 2010

THANKS TO THE 3 MEMBERS WHO RENEWED THEIR MEMBERSHIPS

Mark Coppler     Rick Meeker, Jr., P.E.     David A. Avery

HERE’S A REMINDER TO THE 45 ISA PULP & PAPER INDUSTRY DIVISION MEMBERS WHO NEED TO RENEW THEIR MEMBERSHIP

Jerry Aldridge     Ake Hansson     Jim Robbins
Timothy L. Allen     Kevin Helinger     Daniel Royce
Troy Bowen     Vitor Ikarugi     Alvaro Montano Saavedra
Dr. Maurizio Brancaleoni     Mikko Kunnari     Joseph A. Schill
Simon Jeffry Bruinsma     Francis D. Leynaert     Brad Stanley
George L. Bryant, Jr.     F G. Long     Brian Steed
Dr. Srinivasa Babji Buddhi     Robert Marandola     Robert A. Stevens
Daniel C. Capra     Brad Meaney     David Strobhar
Allan Coco     Bo J. Midfast     Lyle Swanson
Philip M. Culberson     Thomas Miller     Tanvi Thakur
Kevin Anton DeWitt     Paulo Sergio Miquelino     Guy Trottier
Wendel Andre Dos Santos     Daniel Murphy     R Spencer Tyson, Jr.
John Gill     Bill D. Pesklevits     Joaquin Ureta Mesa
Kevin Gross     S.D Hamsa Rekha     Roy A. Warner, CCST
John Guthrie     Vitor Campos Ribeiro     Mark Whitley

DON’T FORGET TO RENEW!
Government Of Canada Leading Forest Sector Renewal By Investing In Environmental Improvements At The Norampac Trenton Pulp And Paper Mill

November 3, 2010

Trenton, Ontario --(Marketwire) - The Government of Canada's investment of $83,000 in Norampac Trenton, a division of Cascades Canada Inc., is helping drive the transformation of Canada's forest sector and sustain the many jobs it provides for Canadians.

The Norampac Trenton Pulp and Paper mill will receive funding under the Pulp and Paper Green Transformation Program (PPGTP) to improve the energy efficiency of the mill's existing paper machine by upgrading its capacity to capture and redirect energy for other uses within the mill. This investment in energy-efficient equipment is improving the mill's environmental performance and represents an important step in the evolution of Canada's forest sector.

"Financial support for this project will reinforce Norampac Trenton's environmental performance and help the mill meet market demand for pulp and paper products that have a low environmental impact," said Rick Norlock, Member of Parliament for Northumberland Quinte West. "This is a good example of how our Government's strategic investments in energy-efficient technologies are establishing the groundwork for a renewed, more competitive sector."

To increase energy recovery, Norampac has made improvements that have increased the efficiency of the mill's heat exchangers. The recovery of this additional energy will reduce the mill's energy requirements and its use of natural gas to heat the paper machine departments by more than 20,000 gigajoules per year. In turn, greenhouse gas emissions will be reduced by over 1,000 metric tonnes annually — the equivalent volume of emissions produced by 250 cars in a year.

"This $481,000 project, in which the PPGTP will invest $83,000, will allow Norampac Trenton to improve its environmental performance by reducing the use of fossil fuels," said Marc-André Dépin, President and Chief Executive Officer of Norampac. "The modifications that will be brought to the existing heating system in the mill will reduce energy costs and improve energy efficiency."

Cascades Canada is one of 24 pulp and paper companies across Canada that qualified for credits under the $1-billion program, based on their 2009 production levels of black liquor, a liquid byproduct of the pulping process used to generate heat and power.

Today's announcement complements and builds upon on the success of many initiatives in Canada's Economic Action Plan that are helping to sustain and enhance Canada's forest industry and the families and communities that depend on it. Budget 2010: Leading the Way on Jobs and Growth established the $100-million Investments in Forest Industry Transformation program to promote the development, commercialization and implementation of advanced technologies in the forest sector — helping create a world-class industry able to compete in the clean energy economy of tomorrow.

In addition, the Government of Canada has committed $170 million to assist the development of next-generation forest products and expand global markets for Canadian forest products. This funding includes $40 million to develop pilot-scale demonstrations under the Transformative Technologies Program.

FOR BROADCAST USE:
The Norampac Trenton Pulp and Paper mill in Trenton, Ontario, will receive $83,000 under the federal Pulp and Paper Green Transformation Program. The funding will be used to improve energy efficiency by upgrading the capacity of the mill's existing paper machine to capture and redirect heat for other uses.

The following media backgrounders are available at www.nrcan.gc.ca/media:

Government of Canada Supporting Forest Industry Renewal and Environmental Performance

Federal Assistance for Canada's Forest Sector and Communities

SOURCE: Natural Resources Canada

Metso To Supply Fiberline To Yun Nan Yun-Jing Forestry And Pulp Mill In China

October 28, 2010

Helsinki Finland (Marketwire) - Metso Corporation's press release on October 27, 2010 at 11:00 a.m. local time
WHO’S DOIN’ ANYTHING?: (CONTINUED)

Metso will provide a new fiberline to the Yun Nan Yun-Jing mill of Yun Nan Yun-Jing Forestry and Pulp Mill CO., Ltd in the province of Yunnan in China. Start-up is scheduled for the first quarter of 2012. The value of the order is less than EUR 10 million. The order is included in Paper and Fiber Technology's Q3 orders received.

Metso's delivery will include a cooking plant and fiberline equipment for screening, brown stock washing, oxygen delignification, post oxygen washing and bleaching as well as basic engineering, supervision and spare parts. The brown stock washing in the line will be performed on wash presses and washing after each bleaching stage on vacuum filters.

The new fiberline is an important investment for the Yun Nan Yun-Jing mill for ensuring high-quality and environmentally beneficial operation. Processes and equipment delivered by Metso provide sustainable production with a low use of chemicals, water and electricity.

Yun Nan Yun-Jing Forestry and Pulp Mill CO., Ltd's first production line was built in 1995.

Metso is a global supplier of sustainable technology and services for mining, construction, power generation, automation, recycling and the pulp and paper industries. We have about 27,000 employees in more than 50 countries. www.metso.com

Honeywell's Newest Paper Industry Offering Simplifies Operations And Reduces Costs With An Integrated Quality Control System

November 1, 2010

Experion MX Improves Paper Quality While Helping Mills Reduce Unplanned Shutdowns

Shanghai, China - Honeywell recently released its new quality control system (QCS) designed to help papermakers easily improve their paper quality while reducing maintenance and service costs.

By integrating with Honeywell's Experion Process Knowledge System (PKS), Experion MX simplifies operations by allowing mill operators to use a single software platform to control all critical mill functions, including process control, safety and security, and others. This reduces training requirements and provides easier access to everything from mill-wide production planning to individual process control loops.

"Experion MX was created to be more than just a measurement and control platform, it's designed to improve business performance," said Jack Ross, global business leader of Honeywell's pulp and paper business, "Given the challenging economic climate, paper mills are scrutinizing technology to see if it can help operations run more efficiently and cost effectively. Experion MX embodies all of these qualities with its easier installation and operation, more efficient service and maintenance to provide the lowest total cost of ownership."

Experion MX can save service and maintenance costs with its new scanner design and modular sensors that are easily installed and require fewer spare parts. It also features new maintenance planning and diagnostic tools designed to reduce unplanned shutdowns and help mills more easily forecast labor and parts requirements. Combined with flexible service plans, a new operator interface, and unique sensors, Experion MX can help mills improve operational efficiency by up to 5 percent and production by up to 10 percent. It can also help reduce raw materials consumption by up to 3 percent.

Experion MX features integrated process performance analysis systems, such as web inspection, web monitoring and condition monitoring to easily track the root cause of breaks, defects and process variability for more efficient production with less waste.

For more information about Experion MX and other Honeywell solutions that improve overall plant safety, reliability and efficiency, please visit: www.honeywell.com/ps.

SOURCE: Honeywell International
WHO’S DOIN’ ANYTHING?: (CONTINUED)

Boise® FIREWORX® Takes A Stand Against Bland
October 29, 2010

Two new colors in leading colored paper brand now available

Boise, ID /PRNewswire/ - Boise Inc. (NYSE: BZ) announces that two new Boise® FIREWORX® colored paper additions – Turbulent Turquoise™ and Cat Tail Copper™ – are now available for sale.

In an era where colored printing on white paper has become the norm, colored paper can be used as a way to stand out and get noticed. Utilizing colored paper creatively is not just for arts and crafts. It can be a great way to add pizzazz to a presentation, make memos top-of-mind or add flash to flyers. Self-expression is so personal that Boise turned to its customers to select the newest colors for the Boise FIREWORX product line in an online “Root for Your Color” contest.

The Boise FIREWORX bold assortment makes it easy to find the color that can best express important messages that need to be noticed. Is Cat Tail Copper™, the beauty behind your brains? Or Turbulent Turquoise™ the color that rises up and gets you noticed? Boise FIREWORX colored paper allows documents to make waves against a sea of white paper.

Boise FIREWORX colored papers come in a full spectrum of vibrant colors and a variety of weights and sizes, to help paper users discover new and colorful ways to stand out. To ensure the sustainable use of paper, Boise FIREWORX colored papers contain 30% post-consumer fiber content, and are offered with the responsible forest management guarantee of Forest Stewardship Council™ or Sustainable Forestry Initiative® chain of custody certification.

Contact your Boise sales representative for more information, or Boise's customer service team toll-free at 800-864-2450.

Request a sample pack of the two new Boise FIREWORX colors at www.BoiseInc.com/newcolors
Visit Boise FIREWORX colored paper on Facebook at www.rootforcolor.com/facebook

About Boise Inc.
Headquartered in Boise, Idaho, Boise Inc. (NYSE: BZ ) manufactures packaging products and papers including corrugated containers, containerboard, label and release and flexible packaging papers, imaging papers for the office and home, printing and converting papers, newsprint, and market pulp. Our employees are committed to delivering excellent value while managing our businesses to sustain environmental resources for future generations. Visit our website at www.BoiseInc.com.

SOURCE Boise Inc.

ABB To Deliver Automation And Electrical Systems For Paper Mill In Philippines
September 29, 2010

Complete automation and electrification package will optimize productivity and energy efficiency for Schweitzer – Mauduit's new paper machine

Singapore - ABB announced that it recently won an order from Schweitzer – Mauduit International Inc., to provide automation and electrification systems for its greenfield specialty paper mill in Batangas, in the Philippines.

Schweitzer-Mauduit International, Inc. is a diversified producer of premium specialty papers to the tobacco sector; it also manufactures specialty papers for other applications. The Batangas mill will produce Reconstituted Tobacco Leaf (RTL), a specialty product that helps cigarette manufacturers to recycle their by-products while also providing a tool that facilitates them to meet regulatory requirements.

The new paper machine to be installed will have a capacity of 30,000 tons per year and is scheduled to be operational by November 2011.

ABB was awarded the contract for its knowledge, expertise and experience in the Pulp and Paper Industry and the latest Product and System
offerings which provide seamless integration of mill operations and optimized energy efficiencies. The electrification delivery includes air insulated switchgear, Onan Transformers, and low voltage Motor Control Centers with drives, Softstarters and low voltage motors. The automation scope of supply includes a comprehensive DCS (distributed control system) based on extended automation System 800xA with ACS800M Controllers, Process Portal Operator Stations with complete Profibus integration for the mill. The QCS (Quality Control Systems) delivery includes the popular NP700 Network platform with Moisture, Basis Weight and Infrared measurements.

ABB's local operations in Singapore and Philippines will execute the project. Installation and commissioning is scheduled for the second quarter of 2011.

SOURCE: ABB

Honeywell Selected To Automate Component Of New Pulping Line For Major Russian Paper Maker

September 29, 2010

Mondi Syktyvkar Mill Will Use Experion PKS and Field Device Manager to Increase Production Capacity

Moscow - Honeywell recently announced it has been selected to design the automation system that will control a new pulping line for one of Russia's largest paper producers. Specifically, Honeywell will provide its Experion Process Knowledge System (PKS) to control the new chemical regeneration unit at Mondi Syktyvkar's uncoated fine paper plant, an integrated paper mill producing office and offset printing papers, white top papers used in items such as corrugated packaging products and newsprint papers.

The chemical regeneration unit includes a new wood yard, white liquor plant, soda recovery boiler, evaporation plant and two new cooling towers. Controlled by Experion and Honeywell's Field Device Manager, the unit will provide additional pulp that will help increase the overall capacity of Mondi Syktyvkar's paper machines.

"This new chemical regeneration plant will play a crucial role in the growth of our company as it reduces our reliance on pulp produced by third parties and so will make us more self sufficient," said Gerhard Kornfeld, Managing Director Mondi Syktyvkar. "Honeywell was chosen for this project because it has been a reliable partner for the last decade and Experion is a proven solution that delivers the right production information to the right people at the right time."

Used at manufacturing facilities across the globe, Experion is Honeywell's main industrial automation and control platform. Field Device Manager, which can be directly integrated with Experion, streamlines maintenance by allowing operators to monitor how their field instruments are functioning.

Mondi Syktyvkar will produce 1 million tons of paper and board per year and is supplied with wood from its own logging companies.

"This system will help Mondi Syktyvkar advance its position as one of the premiere paper and board producers in Russia, so reliable and efficient operations are critically important," said Alexander Rodionov, sales manager for Russia, Honeywell Process Solutions. "Solutions such as Experion and Field Device Manager are meant to do more than just keep operations running – they truly bring more-meaningful process knowledge to all levels of the plant to help personnel make better decisions. This improves overall business performance."

SOURCE: Honeywell International

Clearwater Paper To Acquire Cellu Tissue Holdings, Inc.

September 16, 2010

SPOKANE, WASH.--(BUSINESS WIRE)--

Clearwater Paper Corporation (NYSE: CLW) today announced it has agreed to acquire Cellu Tissue Holdings, Inc., an Alpharetta, GA-based integrated manufacturer of tissue products (NYSE: CLU), for approximately $502 million, including equity value of approximately $247 million and net debt of approximately $255 million. Clearwater Paper will pay $12.00 per share in cash for Cellu Tissue's outstanding common stock and intends to fund the acquisition using a combination of existing cash on hand and $350 million of debt financing. Clearwater Paper has secured a financing commitment for the transaction from BofA Merrill Lynch.

Clearwater Paper believes the acquisition will be immediately accretive to earnings per share before taking into account an estimated $15-$20 million in net annual cost synergies expected by the end of 2012. The acquisition has been unanimously approved by both companies' boards.
of directors and is expected to close in the fourth quarter of 2010, following Cellu Tissue stockholder approval, regulatory clearances, and other customary closing conditions. Weston Presidio and Russell Taylor, Cellu Tissue's chief executive officer, which together own approximately 56% of Cellu Tissue's common stock outstanding, have agreed to vote their shares in favor of the transaction.

"We are very pleased to have the opportunity to rapidly expand our tissue manufacturing footprint through the acquisition of Cellu Tissue and create a combined company with much stronger operational scale to better serve private label tissue customers. This acquisition, coupled with the previously announced construction of our new tissue machine and converting facilities in Shelby, North Carolina, is expected to provide both short and long-term value to our shareholders," said Gordon Jones, chairman, president and CEO. "Clearwater Paper already has a national sales footprint, and this acquisition gives us a rare opportunity to immediately have a national manufacturing presence to increase service to our existing private label grocery customers and expand into new private label channels," added Jones.

The expected strategic and financial benefits of the transaction are as follows:

Opportunity for Clearwater Paper to establish a national manufacturing presence as a papermaker and converter of tissue products
Customer growth with existing and new customers
Increased Through-Air-Dried (TAD) capacity
Logistical improvements through shipping and transportation synergies
Combined company annual revenues expected to be approximately $1.9 billion
Immediate accretion to earnings per share before synergies
Expected annual net cost synergies of $15-$20 million by the end of 2012
Cellu Tissue's well-developed private label and specialty tissue businesses, which include 10 sites, complement Clearwater Paper's existing private label tissue and pulp and paperboard businesses.

In connection with the acquisition of Cellu Tissue, Clearwater Paper intends to tender for or defease Cellu Tissue's outstanding 11.50% senior secured notes due 2014.

BoFA Merrill Lynch acted as financial advisor and Pillsbury Winthrop Shaw Pittman LLP acted as legal advisor to Clearwater Paper. Goldman, Sachs & Co. acted as financial advisor and King & Spalding LLP acted as legal advisor to Cellu Tissue.

CONFERENCE CALL INFORMATION

A live audio webcast and conference call will be held today, Thursday, September 16, 2010 at 8:30 a.m. Pacific time (11:30 a.m. Eastern time). Investors may access the conference call by dialing 877-303-9241 (for U.S./Canada investors) or 760-666-3575 (for international investors). The audio webcast may be accessed on the company’s Web site at http://ir.clearwaterpaper.com/events.cfm. An accompanying presentation will be available for downloading at the same site at 5:30 a.m. Pacific time (8:30 a.m. Eastern time). The webcast will be audio only. Investors are recommended to download the accompanying presentation prior to the call.

For those unable to participate in the call, an archived recording will be available through the Clearwater Paper Corporation Web site www.clearwaterpaper.com under "Investor Relations" following the conference call.

FORWARD-LOOKING STATEMENTS SAFE HARBOR

This press release contains certain forward-looking statements regarding the proposed transaction between Clearwater Paper and Cellu Tissue, including but not limited to statements regarding expected accretion to earnings, the estimated amount of annual synergies resulting from the merger, expected combined company annual revenues, the benefits of the proposed transaction to Clearwater Paper stockholders, opportunities for growth with existing customers and new customers in new channels, tissue production facilities and the expected timing of closing. Actual events or results may differ materially from those contained in these forward-looking statements. Among the important factors that could cause future events or results to vary from those addressed in the forward-looking statements include, without limitation, risks and uncertainties arising from the possibility that the closing of the transaction may be delayed or may not occur; difficulties with the integration process or the realization of the benefits expected from the proposed transaction; Clearwater Paper's ability to obtain debt financing to fund the acquisition price; general economic conditions in the regions and industries in which Clearwater Paper and Cellu Tissue operate; changes in the cost and availability of wood fiber used in the production of the companies' products; and litigation or regulatory matters involving antitrust or other matters that could affect the closing of the transaction. In addition, please refer to the documents that Clearwater Paper and Cellu Tissue file with the Securities and Exchange Commission ("SEC") on Forms 10-K, 10-Q and 8-K. The filings by Clearwater Paper and Cellu Tissue identify and address other important factors that could cause events or results to vary from the forward-looking statements set forth in this press release. Clearwater Paper and Cellu Tissue are under no duty to update any of the forward-looking statements after the date of this press release to conform to actual results.
WHO’S DOIN’ ANYTHING?: (CONTINUED)

Cellu Tissue intends to file with the SEC a preliminary proxy statement and a definitive proxy statement and other relevant material in connection with the merger. The definitive proxy statement will be sent or given to the stockholders of Cellu Tissue. Before making any voting or investment decision with respect to the merger, investors and stockholders of Cellu Tissue are urged to read the proxy statement and the other relevant material when they become available because they will contain important information about the merger. The proxy statement and other relevant materials (when they become available), and any other documents filed by Cellu Tissue with the SEC, may be obtained free of charge at the SEC's website at www.sec.gov, at Cellu Tissue's Investor Relations website at cellutissue.com/investor (click "SEC filings") or from Cellu Tissue by contacting Investor Relations by mail at 1855 Lockeway Drive, Suite 501, Alpharetta, Georgia 30004, Attention: Investor Relations, or by telephone at (707) 407-2164.

PARTICIPANTS IN THE SOLICITATION

Clearwater Paper and Cellu Tissue and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from Cellu Tissue stockholders in connection with the merger. Information about Clearwater Paper's directors and executive officers is set forth in Clearwater Paper's proxy statement on Schedule 14A filed with the SEC on March 29, 2010 and its Annual Report on Form 10-K for the year ended December 31, 2009 filed with the SEC on February 26, 2010, respectively. Information about Cellu Tissue's directors and executive officers is set forth in its proxy statement on Schedule 14A filed with the SEC on June 25, 2010. Additional information regarding the interests of participants in the solicitation of proxies in connection with the merger will be included in the proxy statement that Cellu Tissue intends to file with the SEC.

ABOUT CLEARWATER PAPER

Clearwater Paper manufactures quality consumer tissue, bleached paperboard and wood products at six facilities across the country. The company is a premier supplier of private label tissue to major retail grocery chains, and also produces bleached paperboard used by quality-conscious printers and packaging converters. Clearwater Paper's 2,500 employees build shareholder value by developing strong customer partnerships through quality and service.

ABOUT CELLU TISSUE HOLDINGS

Cellu Tissue Holdings, Inc. is a North American producer of tissue products, with a focus on consumer-oriented private label products and a growing presence in the value retail tissue market. For more information, visit Cellu Tissue's website at www.cellutissue.com.

For additional information on Clearwater Paper, please visit our website at www.clearwaterpaper.com.

Copyright Business Wire 2010

ABB Wins Order To Deliver Collaborative Production Management System To Corenso's Coreboard Mill In Finland

September 1, 2010

Helsinki, Finland - ABB, the leading power and automation technology group will upgrade the Collaborative Production Management (CPM) system at Corenso’s coreboard mill in Pori, Finland.

The delivery includes ABB’s cpmPlus solutions for production planning, production management, quality management and decision support. Included in the contract is also ABB’s production diary and production costing functionality. The CPM system will be integrated to Corenso’s ERP system, various production systems and laboratory devices. The new system provides visibility to the production process and helps to allocate costs to the final products. It streamlines the operations as all mill functions can be handled in one comprehensive system. The production diary also improves the communication between different process/personnel groups.

The new CPM system is planned to be taken in use in November 2010, less than 5 months after contract signing.

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

Metso To Supply A Pulp Mill To Oji Paper To China
September 1, 2010

Helsinki, Finland--(Marketwire) - Metso Corporation's press release on August 23, 2010 at 5:00 p.m. local time

Metso will supply a greenfield kraft pulp mill to the Japanese Oji Paper Co. Ltd., to be built in Nantong City, Jiangsu Province, in the southern part of China. Start-up of the pulp mill is scheduled at the end of 2012. The value of the order will not be disclosed. A typical value of this type of a pulp mill ranges from EUR 100 to 150 million depending on the scope of the delivery. More than a half of the order was included in Paper and Fiber Technology's Q2 orders received and the rest in Energy and Environmental Technology's Q2 orders received.

Metso's scope of supply covers all main process equipment for the new mill, including chip screens and storage systems, a continuous cooking system, a fiberline including wash presses, ozone bleaching, a wet lap machine, a recovery boiler, an evaporation system, a white liquor plant and a gas handling system. The state-of-the-art technology delivered by Metso will ensure environmentally friendly and efficient production.

The new pulp mill will produce 700,000 tonnes of bleached hardwood pulp annually and will be integrated with an existing paper machine at the Nantong mill.

The order emphasizes Metso's strong capabilities as a full-scope supplier for the pulp and paper industry. In June 2010 Metso announced that Ilim Group contracted Metso to supply the main technology for a new 720,000 tonnes kraft pulp mill in Bratsk, Russia.

Oji Paper Co. Ltd., one of the world's largest paper producers, manufactures paper, pulp, and processed paper goods, including newsprint, carbonless paper, wrapping and packaging paper, and paperboard. The new pulp mill in Nantong is a part of Oji’s strategy to promote business expansion in East Asia.

Metso is a global supplier of sustainable technology and services for mining, construction, power generation, automation, recycling and the pulp and paper industries. We have about 27,000 employees in more than 50 countries. www.metso.com

Further information for the press, please contact: Lars Dahlqvist, Senior Vice President, Fiber Processing Unit, Fiber business line, Metso, tel. +46 70 606 80 90
Kari Remes, General Manager, Sales, Power business line, Metso, tel. +358 40 709 2015

[HUG#1439598]

This announcement is distributed by Thomson Reuters on behalf of Thomson Reuters clients. The owner of this announcement warrants that:

(i) the releases contained herein are protected by copyright and other applicable laws; and

(ii) they are solely responsible for the content, accuracy and originality of the information contained therein.

All reproduction for further distribution is prohibited.

Source: Metso Corporation via Thomson Reuters ONE

SOURCE: Metso Corporation
MILL TRIAL ON NEW SOOTBLOWER DESIGN AND STRATEGY TO COMBAT PLUGGING IN RECOVERY BOILERS

DANNY S. TANDRA
JOHN EDENFIELD
ATI MANAY

ANDREW K. JONES

MILL TRIAL ON NEW SOOTBLOWER DESIGN AND STRATEGY TO COMBAT PLUGGING IN RECOVERY BOILERS

Danny S. Tandra
John Edenfield
Ati Manay

Andrew K. Jones

2010 TAPPI PEERS & 9th Research on Recycling Forum
Background

- Plugging in recovery boiler is the words that send chill through boiler operators and engineers.

- Sootblowers are the main tools used by pulp mills to control the deposit accumulation and prevent boiler plugging.
Sootblower Deposit Removal Mechanisms:
A Brief Overview
Sootblower Deposit Removal Mechanisms

- Brittle Break-up
  - Circumferential tensile stress
  - Fractured Deposit

- Debonding
  - $h_{\text{deposit}}$
### Brittle Break-up Removal Mechanism

- **Brittle Break-up**

- **Removal criteria for thin deposit**
  \[ P_{Jet} > \frac{1 - \nu}{1 - 2\nu} S_{tensile} \]

- **Removal criteria for thick deposit**
  \[ P_{Jet} > \frac{2}{1 - 2\nu} S_{tensile} \]

  *For typical deposit Poisson’s ratio (\(\nu\)) of = 0.2,*

  \[ P_{Jet} > 1.33 \ S_t \]

  \[ P_{Jet} > 3.33 \ S_t \]

  The \( P_{Jet} \) required to remove a thick deposit is almost three times higher than that to break a thin deposit.
Brittle Break-up Removal Mechanism

- Thin Deposit

  ![Diagram of Thin Deposit](image)

  - Circumferential tensile stress
  - Fractured Deposit
  - Sootblower

- Thick Deposit

  ![Diagram of Thick Deposit](image)

  - Fractured Deposit
  - Boiler Tube
  - Thick Deposit
  - Sootblower
Sootblower Deposit Removal Mechanisms

- **Brittle Break-up**

- **Debonding**
Debonding Removal Mechanism

The thicker the deposit, the easier it is to be removed by debonding

\[ P_{Jet} > \Psi S_{adhesion} \frac{D_{tube}}{h_{deposit}} \]

- Removal criteria for thick deposit
- Removal criteria for thin deposit
Sootblower Deposit Removal Mechanisms

- **Brittle Break-up** *(effective in removing thin deposits)*

- **Debonding** *(effective in removing thick deposits)*
Heavy Fouling & Plugging in Recovery Boilers
Heavy Fouling and Plugging

- Heavy fouling and Plugging in a recovery boiler or other tight tube spacing boilers start with the deposit accumulation in the leading edge of boiler tubes.

Flue gas
Heavy Fouling and Plugging

- Heavy fouling and Plugging in a recovery boiler or other tight tube spacing boilers start with the deposit accumulation in the leading edge of boiler tubes.

- Most sootblower is designed with the nozzles directed parallel to the flow of the flue gas. In this case, the jet produces zero torque and brittle break-up is the only way the leading-edge-deposit can be removed from the tubes.
Heavy Fouling and Plugging

- Heavy fouling and Plugging in a recovery boiler or other tight tube spacing boilers start with the deposit accumulation in the leading edge of boiler tubes.

- With the brittle break-up mechanism, as the deposit is getting thicker, the jet removal attempt is getting harder ($P_{jet}$ required to remove the deposit is getting larger) – The jet is only pushing the deposit against the tubes.
Leading-edge-deposits
Plugging is inevitable if the deposit accumulation rate is higher than the rate of deposit removal.
Plugging
New Sootblower Nozzle Design
The idea / Principles

● In the hot side of recovery boiler convection sections, where the deposit temperature is generally above 350 °C (662 °F), the deposit adhesion strength (Sadhesion) is generally significantly smaller than the deposit tensile strength (Stensile).

● This suggests that it would be easier to remove deposits in the superheater or hot-side of the generating bank with debonding than that of brittle break up.

● Jet Angle of Attack (α) dictates whether a deposit is more likely to be removed by brittle break-up or debonding.
Principles

- **Zero α (Brittle Break up)**
  - Sootblower Jet positioned at Zero Angle of Attack
  - Deposit
  - Boiler tube

- **Non Zero α (Debonding)**
  - Sootblower Jet positioned at an α Angle of Attack
  - Deposit
  - Boiler tube

α

¾ Zero α (Brittle Break up)

¾ Non Zero α (Debonding)
New Nozzle Design

Nozzle positioned in an angle

Nozzle positioned straight facing the tube bank passages
New Nozzle Design

- Jet from the angled nozzle - responsible for the deposit removal on the leading edge of the tubes (mainly by debonding).
- Jet from the straight nozzle - responsible for controlling the deposit accumulation inside the tube banks (by debonding) and on the leading edge of the tube bank (by brittle breakup).
Balancing strategy

\[ F_{1x} = F_{2x} \]

\[ F_{1x} = F_1 \beta \cos \delta = F_{2x} \]
Note on Lead lag nozzle (which typically used in coal fired boilers)

- Lead lag nozzle may work for coal fired boilers, which have large tube spacing, but not recovery boilers.
Note on Lead lag nozzle (which typically used in coal fired boilers)

- This is due to the fact that the jet coming from an angle nozzle may not be able to penetrate deep into the tight-spacing-recovery-boiler-tube and remove the deposit that accumulates in between the tubes.
Mill Trial:

Preliminary Test Result
Mill Trial

- The mill trial was performed on a B&W recovery boiler unit designed to burn 3.8 million lb/day (1721 ton/day) of black liquor dry solids (BLDS) and to produce 567,700 lb/hr (253,367 kg/hr) steam at 900 oF (482 oC) and 1525 psig (105 bars).
Plugging in recovery boilers, especially in the superheater section, starts with the deposit accumulation on the leading edge of the tube banks.

In the hot side of recovery boiler convection sections, where the deposit temperature is generally above 350 °C (662 °F), the deposit adhesion strength ($S_{adhesion}$) is significantly smaller than the deposit tensile strength ($S_{tensile}$). This suggests that it would be easier to remove deposits in the superheater or hot-side of the generating bank with debonding than that of brittle break up.
Summary (2 of 3)

- Unfortunately, conventional sootblowers, which exert force parallel to the gas flow and perpendicular to the deposits, hit the deposits and push it against the tubes. With this cleaning strategy, conventional sootblowers can only attempt to remove the leading-edge-deposits with the brittle break-up mechanism.

- A new sootblower design has been developed. It is designed with one nozzle positioned in an angle while the other is positioned straight facing the tube bank passage.

- The main role of the angled nozzle is to deal with the deposit accumulation on the leading edge of the tubes and promote the debonding removal mechanism.
Summary (3 of 3)

- The straight nozzle, on the other hand, is to deal with deposits that are more efficient to be removed with brittle break-up mechanism, such as those that are small in size, and to generate a jet that can penetrate deep into the tube bank and control the deposit accumulation inside the banks.

- Since the two nozzles have different angle of attacks, the resultant forces have to be balanced to prevent lance imbalance.

- Results of the mill trial suggest that the new sootblower removes deposits more effectively than that of conventional sootblowers.
MILL TRIAL ON NEW SOOTBLOWER DESIGN AND STRATEGY TO COMBAT PLUGGING IN A RECOVERY BOILER

Danny S. Tandra, Ati Manay, Arnaud Thabot
Clyde-Bergemann, Inc.
Atlanta, GA, USA

Andrew K. Jones
International Paper
Loveland, OH, USA

ABSTRACT

Massive deposit build-up in recovery boilers will not only reduce the heat transfer efficiency, but may also lead to costly unscheduled shutdowns due to the plugging of the flue gas passages. Deposits accumulated on the leading edge of tube banks have been identified as the main root cause of boiler plugging, especially in the superheater section of a recovery boiler. These are also one of the most difficult deposits to remove with conventional sootblowers. This paper discusses a new sootblower that is designed to increase the effectiveness of deposit removal on the leading edge of boiler banks and the preliminary results of the mill trial conducted in a recovery boiler located in the south east USA. While conventional sootblowers rely only on the brittle break-up mechanism to remove the leading-edge-deposits, the new sootblower design leverages both brittle break-up and debonding mechanisms to effectively remove these deposits.

INTRODUCTION

The accumulation of fireside deposits on recovery boiler heat transfer surfaces not only creates an insulating barrier that reduces the boiler thermal efficiency, but can also lead to costly unscheduled shutdown due to the plugging of the gas passes. Control of the deposit accumulation is attained by sootblowers, which periodically blast deposit off the tube surfaces with high pressure superheated steam.

Brittle break-up and debonding are the two most important deposit removal mechanisms by sootblower jets. Brittle break-up occurs when the stress exerted by the sootblower jet on the deposit ($S_{Jet}$) is powerful enough to fracture the deposit and/or to enlarge the existing cracks around the jet/deposit impact point. The deposit is detached from the boiler tube when the propagation of the crack reaches the deposit/boiler tube interface and the crack is enlarged by the act of circumferential tensile stress and the shear stress developed by the sootblower jet as illustrated in Figure 1 a. This mechanism can only take place if $S_{Jet}$ exceeds the deposit tensile strength ($S_{tensile}$).

Debonding is a deposit removal mechanism that relies on weak deposit adhesion strength ($S_{adhesion}$) at the interface between the deposit and the tube surface (Figure 1 b). To remove a deposit with debonding, the $S_{Jet}$ has to be greater than the $S_{adhesion}$. A deposit with high $S_{tensile}$ can be pushed away from the tube, even with a relatively weak sootblower jet force, providing that the jet can overcome the $S_{adhesion}$.

![Diagram](image.png)

a) Brittle Break-up
b) Debonding

**Figure 1. Brittle break-up and Debonding deposit removal mechanism**

The brittle break-up deposit removal criteria for thin layer of deposit strongly attached to a boiler tube is

\[ P_{jet} > \frac{1 - \nu}{1 - 2\nu} S_{\text{tensile}} \]  \hspace{1cm} (1)

While, for thick layer of deposit, the deposit removal criteria is as follows

\[ P_{jet} > \frac{2}{1 - 2\nu} S_{\text{tensile}} \]  \hspace{1cm} (2)

Detailed derivation of these equations can be seen in reference [1].

- \( P_{jet} \) = Sootblower jet stagnation pressure at the jet/deposit impact point
- \( \nu \) = Deposit Poisson’s ratio
- \( S_{\text{tensile}} \) = Deposit tensile strength

The jet power required to break a brittle deposit increases with deposit thickness. In other words, it is more difficult to remove thick deposits with brittle break-up mechanism than that of thin deposits. For a typical deposit Poisson’s ratio of \( \nu = 0.2 \), the removal criteria for thin layer, equation (1), becomes \( P > 1.33 S_{j} \), and the removal criteria for thick layer, equation (2), reduces to \( P > 3.33 S_{j} \). The jet power required to remove thick deposit with \( \nu = 0.2 \) is two and a half times higher than that of thin deposit. In addition, for thick deposits, the tensile stress created by the sootblower jet drops quickly from the point away from the jet/deposit impact point. In this case, the crack created by the jet may not be able to penetrate deep into deposit/boiler tube interface. Hence, only a small portion of deposit is removed by the sootblower jet as illustrated in Figure 2.
Unlike brittle break-up, it is easier to remove thick than thin deposits by debonding. Analysis of stresses at the interface between the deposit and tube shows that removal criteria for debonding may be presented as follows [2]:

$$ P_{Jet} > \Psi S_{adhesion} \frac{D_{tube}}{h_{deposit}} $$  \hspace{1cm} (3)

- $P_{Jet}$ = Sootblower jet stagnation pressure at the jet/deposit impact point
- $\Psi$ = A coefficient which depends on deposit shape and interface area
  - $\Psi \approx 1$ for deposit that covers half of the tube circumference
- $S_{adhesion}$ = Deposit adhesion strength
- $D_{tube}$ = Tube diameter
- $h_{deposit}$ = Deposit thickness as shown in Figure 1b

As seen in equation (3), $h_{deposit}$ is located in the denominator of the equation. Hence, the thicker the deposit, the easier it is removed by debonding. This principle can also be understood by evaluating the torque exerted by the jet on thick and thin deposits as seen in Figure 3. Note that the torque experienced by the deposit is proportional to the magnitude of the jet force times the moment arm of the force.

Brittle break-up mechanism is more effective in removing thin and small deposits, while debonding is more effective in removing thick and large deposits.
PLUGGING ON THE LEADING EDGE OF A TUBE BANK

Plugging in the convection section of a recovery boiler generally starts from the deposit accumulation in the entrance of a tube bank. These deposits are responsible for the plugging of a recovery boiler, especially in the superheater section [3]. Figure 4 illustrates the process of carryover deposition on the leading edge of superheater tubes, which leads to the plugging of the flue gas passage.

Figure 4. Plugging process in a recovery boiler superheater platen

Conventional sootblowers generally consist of two 180° opposing nozzles as shown in Figure 5. Because of this nozzle arrangement, conventional sootblowers can only attempt to remove the leading-edge-deposits with the brittle break-up mechanism. The jets, which exert force parallel to the gas flow and perpendicular to the deposits, hit the deposits and push it against the tubes (Figure 6). Hence, there is no significant toque produced by the jets to promote debonding removal mechanism.

Figure 5. Conventional sootblower with two 180° opposing nozzles
Since the deposits accumulated on the leading edge of a tube bank are generally fast-growing and thick, the brittle break-up mechanism is ineffective in removing the deposits. This was confirmed by many boiler inspections carried out using a high temperature infrared camera [4].

In regions where the deposit temperature is above 350 °C (662 °F), the deposit adhesion strength ($S_{\text{adhesion}}$) is generally significantly smaller than the deposit tensile strength ($S_{\text{tensile}}$) [2]. This suggests that it would be easier to remove deposits in the superheater or hot-side of the generating bank with debonding than that of brittle break up.

Some sootblowers, mainly for coal fired boiler applications, are designed with a lead-lag nozzle to promote the debonding removal mechanism (Figure 7).

Although the lead lag nozzle arrangement may be effective in removing deposits that are accumulating on the leading edge of the tube, it is not effective in removing thin deposits and may fail to penetrate deep down into the tube bank passage. This is especially true for recovery boilers which have tight side spacing (typically 10 inch as seen in Figure 8). In this case, the deposit located deep inside the tube bank may accumulate and plug the banks.
Figure 8. Deposit removal scenario by a lead-lag nozzle

The focus of the new sootblower design discussed in this paper is directed to not only equip the sootblower to remove deposits with brittle break-up but also to remove them with debonding.

THE NEW SOOTBLOWER NOZZLE ARRANGEMENTS

The sootblower jet angle of attack ($\alpha$) dictates whether a deposit is more likely to be removed by brittle break-up or debonding. Zero angle of attack is a condition where a sootblower jet is positioned normal to the boiler tube and is pushing the deposit against a stationary object, such as a boiler tube (Figure 9). In this case, the jet produces zero torque and brittle break-up is the only way the deposit can be removed from the tube.

Figure 9. Zero angle of attack

For debonding to occur, the jet angle of attack has to be greater than zero. This is due to the fact that debonding requires the sootblower jet to produce sufficient torque to debond the deposit. Torque exerted on deposit can only be generated with an angle of attack greater than zero (Figure 10).

Figure 10. Sootblower jet positioned at an $\alpha$ angle of attack
The new sootblower is designed with one nozzle positioned in an angle while the other is positioned straight facing the tube bank passage. Figure 11 illustrates the new sootblower nozzle configuration with one nozzle positioned in an angle and the other one positioned straight facing the tube bank passages.

Figure 11. New sootblower nozzle configuration [Patent Pending]

The main role of the angled nozzle is to deal with the deposit accumulation on the leading edge of the tubes and promote the debonding removal mechanism. On the other hand, the straight nozzle’s role is to deal with deposits that are more efficient to be removed with brittle break-up mechanism, such as those that are small in size, and to generate a jet that can penetrate deep into the tube bank and control the deposit accumulation inside the banks. Figure 12 illustrates this idea.

Figure 12. Deposit removal by the new sootblower nozzle configuration

Since the two nozzles have different angle of attacks, the resultant forces have to be balanced to prevent lance imbalance. Lance imbalance occurs when the magnitude of \( F_{1x} \) is not the same as that of \( F_{2x} \) as shown in Figure 13. This imbalance, especially in the long retractable sootblower, may cause the lance tube to move erratically, hit and damage the boiler tubes. In order to balance the jet force, the angled nozzle has to be designed with a larger nozzle throat diameter than its straight nozzle counterpart or by manipulating the shape factor (\( \beta \)) to equalize \( F_{1x} \) and \( F_{2x} \) (Equation 4).

\[
F_{1x} = F_1 \cos \delta = \beta F_{2x}
\] (4)
Where $\beta$ is a shape factor which depends on the nozzle configuration, such as the distance between the two nozzles, lance diameter, nozzle size, etc. $\beta$ approaches one as the lance diameter increases. The nozzle angle ($\delta$) should be designed to create maximum debonding effects on the leading edge deposits. The smaller the distance between the upstream and downstream tube banks ($d$ as shown in Figure 12) and the thicker the deposit buildup on the leading edge of the bank, the greater the $\delta$ is required to provide significant debonding effects.

**PRELIMINARY RESULT OF THE MILL TRIAL**

The mill trial was performed on a B&W recovery boiler unit designed to burn 3.8 million lb/day (1721 ton/day) of black liquor dry solids (BLDS) and to produce 567,700 lb/hr (253,367 kg/hr) steam at 900 °F (482 °C) and 1525 psig (105 bars). Figure 14 shows the side elevation of the recovery boiler and the four sootblower locations (SB#1, #13, #15, #25) where the conventional nozzles were replaced with the new sootblower nozzles. The performance of these four new nozzles in cleaning the right side of the secondary superheater section was evaluated against the performance of their conventional nozzle counterparts in cleaning the opposite side (i.e., the left side of the secondary superheater section).

**Figure 13. Jet force distribution of the new sootblower nozzle**

**Figure 14. Location of the new sootblower design**
The cleaning efficiency of the new nozzle design during the trial was determined using a fouling index. If this index trended up with time, it indicates that the right side of the secondary superheater section is dirtier than the left side of the secondary superheater sections and vice versa.

As seen in Figure 15, before the installation of the new nozzle design (Period before December 17th, 2010), the difference in the fouling index between the right and the left sides of the superheater consistently trended up with time, indicating that the right side of the secondary superheater fouled at a faster rate than the left side. After the installation of the new nozzles (Period after December 17th, 2009), the trend reversed, suggesting that the new nozzle design has higher deposit removal efficiency than that of the conventional nozzles.

**Figure 15. Difference in Fouling Index (Right Side minus Left Side of the Secondary Superheater)**

### SUMMARY

Plugging in recovery boilers, especially in the superheater section, starts with the deposit accumulation on the leading edge of the tube banks. In the hot side of recovery boiler convection sections, where the deposit temperature is generally above 350 °C (662 °F), the deposit adhesion strength \( S_{adh} \) is significantly smaller than the deposit tensile strength \( S_{tensile} \) [2]. This suggests that it would be easier to remove deposits in the superheater or hot-side of the generating bank with debonding than that of brittle break up. Unfortunately, conventional sootblowers, which exert force parallel to the gas flow and perpendicular to the deposits, hit the deposits and push it against the tubes. Hence, there is no significant torque produced by the jets to promote debonding removal mechanism. With this cleaning strategy, conventional sootblowers can only attempt to remove the leading-edge-deposits with the brittle break-up mechanism.

A new sootblower design has been developed and its performance is currently being evaluated in a south east US pulp mill. The new sootblower is designed with one nozzle positioned in an angle while the other is positioned straight facing the tube bank passage. The main role of the angled nozzle is to deal with the deposit accumulation on the leading edge of the tubes and promote the debonding removal mechanism. The straight nozzle, on the other hand, is to deal with deposits that are more efficient to be removed with brittle break-up mechanism, such as those that are small in size, and
to generate a jet that can penetrate deep into the tube bank and control the deposit accumulation inside the banks. Since the two nozzles have different angle of attacks, the resultant forces have to be balanced to prevent lance imbalance. In order to balance the jet force, the angled nozzle has to be designed with a larger nozzle throat diameter than its straight nozzle counterpart or by manipulating the shape factor ($\beta$) to equalize $F_{1x}$ and $F_{2x}$.

Preliminary results of the mill trial suggest that the new sootblower removes deposits more effectively than that of conventional sootblowers.

REFERENCES

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=0&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.pima-web.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.pmt.kth.se
http://www.hut.fi/English/

HELSDINK UNIVERSITY OF TECHNOLOGY
http://www.hut.fi/English/

TECHNICAL ASSOCIATION OF THE AUSTRALIAN AND NEW ZEALAND PULP & 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

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/benies/, 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
Nothing from anyone there this time!

Nothing from anyone there this time!

Nothing from anyone there this time!

Nothing from anyone there this time!
2009 Pulp & Paper Industry Division Officers

Director
Paul Burnett
(203) 482-3553
paulburnett@att.net

Past-Director
Eugene C. Sabo, P.E.
Indiana State University
(317) 340-4122
esabo@mymail.indstate.edu

Associate Newsletter Editor
Frank Wilson
Pacific Lumber Company
fwilson@palco.com
(707) 764-4210

Education Chairman
Patrick J. Dixon
Process Automation Services, Inc.
PatDixon@DPAS-INc.com

Advisor
Richard E. Britton, P.E.
Retired – International Paper
richardbritton1@comcast.net
(251) 342-0998

Advisor
Larry E. Wells, P.E.
CCSA, LLC
ccsalc@bellsouth.net

Associate Newsletter Editor
Frank Wilson
Pacific Lumber Company
fwilson@palco.com
(707) 764-4210

Paper Review Coordinator
vacant

Environmental Chairman
vacant

Secretary / Treasurer:
Vacant

Programs / H&A:
vacant

Standards & Practices
vacant

Director-Elect
Webmaster/Newsletter Editor:
Brad S. Carlberg, P.E.
BSC Engineering
(251) 621-9405
(251) 621-5139
brad.carlberg@bsc-engineering.com

ISA Pulp & Paper Industry Division
P.O. Box 12277
Research Triangle Park, NC 27709

ADDRESS CORRECTION REQUESTED