Director's Message

By Brad S Carlberg, P.E.
BSC Engineering – Daphne, AL

Well; it’s already the middle in August, has the summer been hot enough for you?

There’s only ten weeks until the fall conference this upcoming October 17 – 19 at Reliant Center in Houston. I’m developing the sixth edition of the “Web-Based HMI Panel” and the fifth edition of the Ethernet I/O panel.

Well, there’s only six months until the 2007 PUPID scholarship deadline. Please, get the word out that we have two $1000 scholarships to give away. If you know of any deserving student, urge them to go to the PUPID website look at last years scholarship winners, fill out the application and email it to Mike Waller. Let’s not miss the chance to give away some of our scholarship endowment money. Spread the word!

PUPID membership is slowly dwindling, it is now at 519 members. How can we get back to the 1996 membership level of around 1900 members?

I want to challenge ALL OF YOU to send me a couple of paragraphs telling me what you are doing in your part of the world. You can send me either some good news about some new and fun project you’ve been working on lately OR simply vent your frustrations with the state of the world (I’ll make your quotes anonymous if you want!)

The 2007 Spring Symposium will be with the TAPPI Papermaking and Process Control, Electrical & Information Divisions (PCE&I) and PIMA and will be March 12 – 16 at the Hyatt Regency Jacksonville Riverfront Hotel in Jacksonville, Florida. Mark it on your calendars.

Again at this year's ISA Fall Conference, the ISA Joint A&T/I&S Luncheon will be on Tuesday. The cost will be $32. On Wednesday the PUPID Luncheon will be “piggy-backing” with the Automatic Controls, Chemical & Petroleum, and Water & Wastewater Divisions. The cost will be $18. I hope to see you there.

Well, I’ll sign off now until next time; keep watching the PUPID website for upcoming attractions!
TUNING TIP: HOW TO ESTIMATE OPTIMIZATION RESULTS?

The idea is to have numbers for every aspect. These estimates can be calculated before optimization or after the work is done.

Benefits of optimization
- Increase process performance
- Better use of the equipment
- Reduced energy costs
- Improved product quality
- Variability reduced
- Reduced valve maintenance
- Cycling removed
- Efficiency improved
- Better operation
- Smooth start-up

Expected results
If the work is done professionally using good tools and applying best practices, we can estimate that we will obtain:

variability, quality, cycling, valve travel,

robustness, efficiency, energy costs, reduced by a factor of 2
improved by +30%
removed
reduced by a factor of 5;
we also estimate that valve wear should be reduced by a factor of 2
will be twice better; stability will be twice better when process changes
increased by 1 to 5 %
reduced by 1 to 5 %

Accounting
Optimizing 32 loops can be done within 1 week. Hence the total cost for this optimization is under 10 000$. Return on investment is evaluated in days, not months.
At this point an accountant would also evaluate cash flow, ratios, etc.

Other considerations (not calculated here):
- Improved stability and smoother operation
- Steam header stability, improving performance on other parts of the process
- Unplanned shutdowns reduction
- Better quality product (less variability)

This tuning tip was from the July 2006 Top Control newsletter at: http://www.topcontrol.com/news/2006/news_vol3_no64p.php

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/2006_PUPID_Calendar.htm

ISA PRESIDENT’S FALL MEETING
HOUSTON, TX
OCTOBER 14 - 16, 2006
Come meet your leaders & get involved!

ISA EXPO 2006
RELIANT CENTER, HOUSTON, TX
OCTOBER 17 - 19, 2006

PIMA/TAPPI Papermakers Conference 2007
March 12 - 16, 2007
Hyatt Regency Jacksonville Riverfront Hotel
Jacksonville, Florida

June 24 - 28, 2007
Williamsburg Lodge
Williamsburg, VA
http://www.pulppaper.org

Upcoming ISA Conferences & Exhibitions

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You can see the online calendar at [http://www.isa.org/~pupid/2006_PUPID_Calender.htm](http://www.isa.org/~pupid/2006_PUPID_Calender.htm)
WELCOME TO THE 26 NEW ISA PULP & PAPER INDUSTRY DIVISION MEMBERS SINCE MAY 2006
WELCOME TO NEW PUPID MEMBERS

Kevin N. Persyn
Michael S. Cantor
Jason E. Ford
James D. Torstenson
Michael H. Garrett
Arthur George Stokes
Francis D. Leynaert
Tim Butcher
Joseph Scherer
Rene Boudreau
Peter Sun
Timothy D. Conners
Roy W. Massengale
Jos, Rafael Silva, Jr., Rafael
Kenneth D. White, CCST
Michael A. Sorel
Marcelo Abreu Sereno
David A. Smith
Richard Arthur Jensen
Don M. Adams
Matt Hanwell
Todd M. Hammaker
Jerry Lee Fontenot
Ronald Simpson
Kent L. Holmes
Andre Luiz Santana Porfírio

SORRY TO LOSE THESE 49 ISA PULP & PAPER INDUSTRY DIVISION MEMBERS SINCE MAY 2006
IF YOU KNOW ANY OF THESE PEOPLE, REMIND THEM TO REJOIN!

Sarah Dawn Mason
Steven Cargo
Dwight Anderson
Jack Haldane
Mudasar Qurishi
Ivan Raul Herrera Sosa
Don R. Andrews
William Hart
Stanley Scott Steves
Mark Donahue
Michel Desrosiers
Gamal Balady
Kenneth C. Hall
David A. Noble
Harish Kumar
Mayur Shivshankar Hedaoo
Rob Reid
Dr. Srinivasa Sridhara Prabhu
Shawn Packer
Hamid Vahdati
Joel C. Orozco
Joseph Kleidon
Peter B. Lagan
Carlos Satoshi Aoki
Mario Freitas
Daniel Gordon Thompson
Joshua M. Justice
Michael Vach
Johnny Ray Morris
Greg Westra
Miguel Campos
Normand Raymond
Mark E. Caraway
Achraf Boules
George Raymond Hoover, CCST
Vitto R. Krlašký
Glen J. Kolank
William G. Reeson
Gilbert L. Boyer
Paul H. Eckes
George Amos Rolen
Yanick Bouchard
Jeff Coulthurst
Roger Maurice Hebert
Yoichiro E. Koyama
Daniel Frenette
Douglas C. Beck
Jeffrey F. Carmony
John F. Harney
PRODUCT SHOWCASE:
A NEW CONSISTENCY TRANSMITTER FOR HOT STOCK

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Where’s The Action? Who’s doin’ anything?

Oji Paper goes after Japanese rival 3 August 2006

The paper industry continues its consolidation as Oji Paper Co., Japan’s largest paper producer, began a $707 million (80.66 billion yen) hostile bid for Hokuetsu Paper Mills Ltd.

If this deal goes through, it would create the world’s fifth largest papermaker.

The hostile offer comes a week after Hokuetsu rejected a first merger proposal from Oji and said it would instead move forward with a previously planned deal with Mitsubishi Corp.

Oji said in a release issued late Tuesday that it would take a 61% stake in Hokuetsu. The tender offer will run through 4 September.

Hokuetsu, which is based in northern Niigata and employs 2,822 people, said it plans to issue new shares to Mitsubishi Corp. to earn funds for capital investment and expansion. Mitsubishi has said it plans to invest $266 million (30.35 billion yen) in Hokuetsu to help it bolster an existing plant in Niigata.

Hokuetsu said the company would examine Oji’s new offer before deciding how to proceed.

New Pulp and Paper Mill Planned in Russia

July 31, 2006 - The government of Khanty-Mansyisk autonomous region, Russia, has signed a cooperative agreement with Avantage Capital for the construction of a new pulp and paper mill.

According to a report in Paper and Life, the mill project will become a part of a regional development program for 2000–2010.

The proposed mill would have an annual capacity to produce 500,000 tons of pulp.

The future mill’s paper capacity was not disclosed.

SOURCE: Paper and Life

International Paper Completes Sale of Coated/SC Papers Business

Aug. 01, 2006 - International Paper said that it has completed the previously announced sale of its coated and supercalendered papers business to CMP Holdings LLC, a subsidiary of Verso Paper Holdings LLC, an affiliate of Apollo Management L.P., for approximately $1.4 billion, subject to certain post-closing adjustments.

The deal includes approximately $30 million in the form of a 10-percent limited partnership interest in CMP Investments L.P., the parent company of CMP Holdings. This interest includes the right to receive certain additional payments contingent upon the buyer's achievement of certain investment return hurdles.

In a separate transaction, International Paper has agreed to sell the Sartell Hybrid Poplar Farm to CMP Fiber Farm LLC, a subsidiary of CMP Investments.

The coated and supercalendered papers business, which will be renamed Verso Paper Holdings LLC post-closing, annually produces approximately 1.7 million tons of coated freesheet and coated groundwood papers for the magazine, catalog and retail insert markets. It includes four paper mills, located in Jay, Maine; Bucksport, Maine; Quinnesec, Mich.; and Sartell, Minn., and generated $1.6 billion in sales in 2005. Its major brands are Advocate(R), Influence(R), Liberty(TM), Savvy(R), Trilogy(R) and Velocity(TM). The business, which will remain headquartered in Memphis, Tenn., employs approximately 3,000 people.

SOURCE: International Paper
Guangzhou Paper Breaks Ground for New Newsprint Machine

Aug. 1, 2006 - Guangzhou Paper Corp. on July 28 held an earth-breaking ceremony for the construction of its new 400,000 mtpy newsprint machine in Nansha, China, the company's future mill site. The new #9 PM, to be built by Metso Paper, is designed to produce 45 gsm. and lighter grades of newsprint.

In June this year, Guangzhou Paper started up its #1 PM—a new 180,000 mtpy newsprint machine. The company is also rebuilding its #8 PM in order to increase the machine's capacity to 120,000 mtpy by the fourth quarter of 2006. According to Guangzhou Paper, #9 PM is slated to come on line in early 2008, which would make the company the third largest newsprint producer in China with a total capacity over 900,000 mtpy.

SOURCE: China Paper Online

UPM Raflatac to Build New Labelstock Plant in Illinois

July 27, 2006 - UPM Raflatac said that it has plans to build a new pressure sensitive labelstock factory in Dixon, Illinois, 105 miles west of Chicago. According to UPM, the new plant will focus on serving label converters in the Midwest. Construction will begin immediately and completion is slated for the first quarter of 2008, UPM said. The value of the investment will be about US$109 million.

"With the Dixon investment we will complete our service network in the U.S. market, consisting of our labelstock and RFID tag and inlay factories in Fletcher, North Carolina and the slitting terminals in Wilkes-Barre, Pennsylvania and Ontario, California," said Heikki Pikkarainen, president, UPM Raflatac. "The Dixon factory will enable us to grow further in North America where the market growth is annually approximately 5 percent," Pikkarainen added.

SOURCE: UPM

Honeywell unveils ProWeb paper web monitor

Phoenix, AZ-based Honeywell has launched ProWeb, a camera-based web monitor for newsprint, fine paper producers and printing houses. ProWeb’s new software and hardware features provide a real-time window into the cause of paper breaks, helping to improve machine uptime, process stability and product quality.

"ProWeb is ideal for root cause analysis of sheet breaks, product irregularities, process variation and other events that affect machine uptime," said Ray Shead, director of marketing for the pulp, paper and printing markets. ProWeb records the moving web and processes and analyzes the images in real time. A new video recording and analyzing board (VRAB) supports two cameras per card. The VRAB has the latest digital signal processor (DSP) technology and a central processing unit (CPU) for complex, real-time analysis of video.

New analysis functions include web tension measurement and an embedded process vision toolkit (PVT) covering region of interest, web release angle and edge squirt analysis. Server CPUs handle the data storage, presentation layer, communication links and nonreal-time analysis. With improved processing power, the system runs all current standard analysis packages and optional PVT analysis packages within the same server.

ProWeb can support high frame rate, color, pinhole and high-speed, Gigabit Ethernet cameras. Color cameras let manufacturers trace machine runnability problems when used in correct locations at the machine. High frame-rate cameras permit 100% analysis of narrow locations such as nip areas or other visually limited zones.

Increased sensitivity of the highspeed and standard cameras gives improved image quality and can capture subtle changes in product or process. Pinhole cameras can also be installed in dirty areas of the machine or where it was impossible to install a camera before. Patented PerfectWash technology helps keep the cameras cleaner, says the company.

Current Honeywell customers can upgrade their existing system without having to replace the entire infrastructure. New cabling types are also supported including standard CAT5e/6- cabling, fiber optic cabling as well as wireless camera solutions. PI Honeywell International, www.honeywell.com.
Sino-Forest Secures Long-Term Wood Fibre Supply In Inner Mongolia

TORONTO, July 31 /PRNewswire-FirstCall/ - Sino-Forest Corporation ("Sino-Forest") (TSX:TRE and TRE.S), a leading commercial forestry plantation operator in China, announced today that one of its wholly-owned PRC subsidiaries has entered into a long-term Master Agreement with Inner Mongolia Forest and Timber Resources Company Ltd. (the "EJV"), an equity joint-venture company in the People's Republic of China (the "PRC"), and Erlianhot Lianhe Forestry Bureau in the Inner Mongolia Autonomous Region, to secure a long-term supply of wood fibre while managing a regeneration programme of secondary forests.

Under the Master Agreement, the EJV will supply to Sino-Forest's subsidiary an aggregate annual volume of at least 1.5 million cubic metres (m³) of wood fibre that it will acquire from the forestry bureau. Under certain circumstances where the EJV fails to comply with its obligations to deliver wood fibre in accordance with the terms set out in the Master Agreement, the forestry bureau will supply the indicated volume of wood fibre.

Sino-Forest has committed a US$10 million deposit which is refundable over the first 5 years of the contract. The annual volume of wood fibre will be in the form of logs and sawn timber for a period of 12 years, until 2018. The tree species to be supplied will be birch, larch or other species of similar grades. In view of the long-term nature of cooperation between the parties, the wood fibre will be sold to Sino-Forest at a fixed discount of RMB80 per cubic metre (currently equivalent to US$9.70) to the lowest price at the timber trading market under the administration of the forestry bureau. The parties intend that the EJV will manage the harvesting, which generally will take place between October 1 to May 31, and delivery of the fibre, which is anticipated to begin in the fourth quarter of 2006.

24 August 2006 Weyerhaeuser, Domtar reach $3.3 billion accord

Lumber giant Weyerhaeuser Co. reached a deal to combine its fine paper business with Domtar Inc. The deal calls for Federal Way, Wash.-based Weyerhaeuser to gain 55% ownership in the new company and includes a $1.35 billion cash payment. The cash payment, plus the stock valued at the closing price of Domtar stock Tuesday, results in a $3.3 billion deal. Domtar will retain 45% of the new company. Weyerhaeuser will then distribute the shares of the new company to its shareholders in either a spin-off or split-off transaction.

The deal will more than double Domtar's current paper production capacity. Domtar estimates the new company, also called Domtar, would generate about $6.5 billion in revenues and $730 million in earnings. "This transaction will create the North American market leader in fine paper, and we anticipate that the combination will generate approximately $200 million in annual synergies within the next two years," said Steven R. Rogel, Weyerhaeuser chairman, president, and chief executive. "This important milestone transforms Weyerhaeuser into a company with a more focused business portfolio and allows our team to concentrate its full attention on the execution of strategies in our core businesses," Rogel said.

Raymond Royer, Domtar president and chief executive, will lead the 14,000-employee company with a management team composed of executives from Weyerhaeuser paper operations and Domtar. The Domtar will keep its headquarters in Montreal, Quebec, while the main operations office will be in Fort Mill, S.C. "With this transaction, we are transforming Domtar into one of the world's leading paper companies, creating a strong company for shareholders and presenting new opportunities for employees and customers," Royer said.

Weyerhaeuser manufacturing assets included in the combination include:
- Eight paper mills and associated pulp mills in Dryden, Ontario; Hawesville, Ky.; Johnsonsburg, Pa.; Kingsport, Tenn.; Bennettsville, S.C.; Plymouth, N.C.; Prince Albert, Saskatchewan; and Rothschild, Wis.
- 14 converting centers in Brownsville, Tenn.; Cerritos, Calif.; Dallas, Tex.; DuBois, Pa.; Indianapolis, Ind.; Langhorne, Pa.; Mira Loma, Calif.; Owensboro, Ky.; Plymouth, N.C.; Prince Albert, Saskatchewan; Ridgefields, Tenn.; Rock Hill, S.C.; Tatums, S.C.; and Washington Court, Ohio
- The market pulp mill in Kamloops, British Columbia
- The coated groundwood mill in Columbus, Miss.
- Two softwood lumber mills in Big River, Saskatchewan and Ear Falls, Ontario.

The deal should close in the first quarter next year.
Where’s The Action? Who’s doin’ anything? (Continued)

Sino-Forest and the EJV intend to jointly manage the secondary regeneration programme with a goal of improving yield and ecological functions of the natural forest, while conserving species grown in the Inner Mongolia Autonomous Region.

Commenting on the deal, Sino-Forest Chairman and CEO, Allen Chan said, “This large-scale, long-term wood fibre agreement brings Sino-Forest an important step closer to reaching our strategic goal of 15 to 20 million m3 of annual fibre output in the PRC, compared to our current supply of 8 million m3 per annum. In this case, we will also look to assist the forestry bureau with professional harvesting and regeneration of secondary forests, to ensure that the regenerated areas will function better in terms of fibre production and ecological conservation. It will demonstrate our expertise and reinforce our leading position in sustainable forestry and plantation management in the PRC.”

Notes to readers:

Secondary Regeneration Forests

Secondary regeneration forests are an alternative source of wood fibre supply. In countries like Canada, Finland, Sweden and others, a significant amount of the productive forests are secondary regenerated and managed professionally. A forest regeneration programme that combines selective harvesting with professional post-harvest management can improve the recovery rate and performance of a forest (as measured by quality and growth rate) in the long term.

The northeastern part of Inner Mongolia Autonomous Region has large areas of secondary forests, and is anticipated to provide significant source of wood fibre in the PRC. Over the years, due to inadequate funding and limited resources for managing selective harvesting and post-harvesting programmes, and due to the logging ban imposed in 1998, large tracts of the secondary forests have become mature or over-mature, resulting in a lower growth rate and sick trees falling. The State Administration of Forestry of the PRC has therefore lifted the ban on the felling of mature and over-mature trees to improve the performance of these forests and biodiversity. The regeneration programme will also boost development of local wood processing, transportation and sapling cultivation sectors.

About Inner Mongolia Forest and Timber Resources Company Ltd

Inner Mongolia Forest and Timber Resources Company Ltd, the EJV is headquartered in Hohhot, Inner Mongolia Autonomous Region. One of its shareholders has a team of forestry experts which specialises in research and development and forestry environment, and includes the internationally renowned forestry expert, Han Yifan, who specialises in genetic improvement of poplars with superior insect resistance. This shareholder also manages approximately 800 hectares of nursery plantation in the Jiangsu and Hebei Provinces.

About Sino-Forest Corporation

Sino-Forest is the leading, foreign-owned, commercial forestry plantation operator in China in terms of plantation area. The corporation cultivates trees for sale as standing timber and wood chips, and is involved in the trading and manufacturing of wood chips, logs and engineered wood products for the pulp & paper, furniture, construction and decoration industries. Sino-Forest is a Canadian corporation with executive offices in Hong Kong and operations in southern China. It operates mainly through three wholly-owned subsidiaries - Sino-Wood Partners Limited, Sino-Panel Holdings Limited and Sino-Global Holdings Inc. The Corporation's common shares trade on the Toronto Stock Exchange under the symbol TRE since 1995.

Please note: This press release contains projections and forward-looking statements regarding future events. Such forward-looking statements are not guarantees of future performance of the Company and are subject to risks and uncertainties that could cause actual results and company plans and objectives to differ materially from those expressed in the forward-looking statements. Such risks and uncertainties include, but not limited to, changes in China and international economies; changes in currency exchange rates; changes in worldwide demand for the Company's products; changes in worldwide production and production capacity in the forest products industry; competitive pricing pressures for the Company’s products and changes in wood and timber costs.
**ELEVEN PINE HILL, ALABAMA GRADUATES EARN WEYERHAEUSER SCHOLARSHIPS**

**PINE HILL, Ala., July 7, 2006** — Eleven local high school graduates earned $26,000 in scholarships from Weyerhaeuser Company through local and national scholarship programs.

Weyerhaeuser Foundation scholarship winners for 2006 include Heather Robertson of Fulton, Rachel Tucker of Demopolis, Anna Twardy of Selma and Austin Wilson of Jackson, all recipients of Weyerhaeuser’s national awards for children of employees.

They were among 65 winners in North America and received scholarships ranging from $1,000 to $4,000 a year. The scholarships are renewable. The four were selected from more than 500 applicants by Scholarship America, the administering agency.

Two students received the Weyerhaeuser Pine Hill Scholarship for children of Pine Hill facility employees. The union-management project is funded by vending machine proceeds. The recipients are Amy Cannon and Selena Whitney, both of Thomasville. The Pine Hill awards provide recipients with $4,000 for college expenses, paid as $1,000 a year for four years. Winners are chosen by an employee scholarship committee. Finalists are ranked according to SAT/ACT scores, high school grades and career potential.

Five other students received one-time awards from the Pine Hill Weyerhaeuser Foundation Committee. The scholarships are given to top students at Wilcox Central High School and Thomasville High School.

Winners from Wilcox Central are Augusta Johnson, Marcus Powe and Michellia Shaw. Winners from Thomasville High are Jessica Sheffield and Mallory Mathers.

Weyerhaeuser Foundation national winners are:

**Heather Robertson**, daughter of Kevin and Carolyn Robertson of Fulton. Kevin Robertson is a woodyard operator at the Pine Hill facility. While attending Clarke Preparatory School, Miss Robertson was valedictorian of her senior class, president of the National Beta Club, a Wendy’s Heisman state finalist, homecoming queen and selected Most Valuable Player in state volleyball. She plans to attend the University of Alabama in Tuscaloosa and major in pre-medicine.

**Rachel Tucker**, daughter of Ken and Mary Tucker of Demopolis. Ken Tucker is director of Weyerhaeuser’s containerboard technical center at Bowling Green, Ky. While attending Demopolis High School, Miss Tucker won first place in the district science fair, published a poem in the Anthology of Young Americans, was the DECA state winner in Hospitality Services, was selected Marengo County Junior Miss and was salutatorian of her graduating class. She plans to attend the University of Alabama in Tuscaloosa and major in mathematics.

**Anna Twardy**, daughter of Joe and Claire Twardy of Selma. Joe Twardy is raw materials manager for the Pine Hill containerboard operation. While attending Morgan Academy, Miss Twardy was valedictorian of her graduating class, was named Dallas County’s Junior Miss, won the 2006 Harper Lee “To Kill a Mockingbird” state essay contest, served as senior class vice president, Interact Club president and was a member of the state champion Scholars’ Bowl team. She plans to attend Auburn University in Auburn and major in accounting.

**Austin Wilson**, son of Britt and Beverly Wilson of Jackson. Britt Wilson is an E&I mechanic in the paper machines area of the Pine Hill operation. While attending Jackson Academy, Wilson was valedictorian of his class, editor of the school newspaper, and a member of the National Honor Society, Beta Club, Scholar’s Bowl Team and Math
Team. He plans to attend the University of Alabama in Tuscaloosa and major in chemistry.

Weyerhaeuser Pine Hill scholarship winners are:

Amy Cannon, daughter of Kerry and Vanita Cannon of Thomasville. Kerry Cannon is a lab technician in Pine Hill’s containerboard operation. While attending Thomasville High School, Miss Cannon was chosen as the D.A.R.E. role model, was a member of the National Honor Society, Mu Alpha Theta math honorary, National Art Honor Society, the band color guard, and she competed in the National Cheerleading Competition. She plans to attend the University of Mobile and study nursing.

Selena Whitney, daughter of Allen and Dolores Whitney of Thomasville. Allen Whitney is a maintenance superintendent for the Pine Hill containerboard operation. While attending Thomasville High School, Miss Whitney received academic awards in geometry, history, business and foreign language, was dance team captain for the marching band, served as president of Mu Alpha Theta math honorary, president of Beta Club and was a member of Drama Club, the International Thespian Society and the National Honor Society. She plans to attend the University of Alabama in Tuscaloosa and major in chemical engineering.

Pine Hill Weyerhaeuser Foundation Committee scholarship winners for Wilcox Central High School are:

Augusta Johnson, daughter of Ms. Yvonne Johnson of Furman. While in high school, she was valedictorian of her class, senior class president, Health Occupations Students president, Junior Class vice president and a member of the National Honor Society, Student Government Association and school choir. Miss Johnson received a $1,000 award and plans to attend Alabama A&M University and major in engineering.

Marcus Powe, son of Mr. and Mrs. Frederick Powe of Camden. While in high school, Powe was co-salutatorian, a member of the football and basketball teams, a member of the Government Club and Beta Club. He received a $500 award and plans to attend Alabama A&M University.

Michellia Shaw, daughter of Mr. and Mrs. Leroy Shaw of Alberta. While in high school, she was co-salutatorian, a member of the marching band, Health Occupations Students, Government Club, Poetry Club, Spanish Club, Project Quest and Future Business Leaders of America. She received a $500 award. She plans to attend Wallace Community College Selma, then transfer to Auburn University at Montgomery where she will major in nursing.

Winners for Thomasville High School are:

Jessica Sheffield, daughter of Neal and Judy Sheffield. While in high school, she was valedictorian of her senior class, a member of the National Honor Society and National Art Honor Society, Beta Club, Mu Alpha Theta math honorary, was named a D.A.R.E. Role Model and participated in Alabama Youth Leadership and Girls’ State. She received a $1,000 award and plans to attend the University of South Alabama and major in nursing.

Mallory Mathers, daughter of Joey and Darlene Mathers. While in high school, she was salutatorian of her senior class, a cheerleader, secretary of the National Honor Society and National Art Honor Society, Beta Club, Mu Alpha Theta math honorary, and won an academic award in the Clarke County Junior Miss program. Miss Mathers received a $1,000 award and plans to attend the University of South Alabama and major in pre-medicine.

The Weyerhaeuser scholarship winners were honored with a Scholars Luncheon on May 15 at Weyerhaeuser’s Pine Hill training center.

The national and Pine Hill Foundation scholarships are funded through the Weyerhaeuser Company Foundation, which has a mission is to improve the quality of life in communities where Weyerhaeuser has a presence. Since 1948,
the Foundation has directed more than $183 million to the communities where Weyerhaeuser employees work, live and play. Nationwide, the Foundation's annual philanthropic budget totals $10 million.

Weyerhaeuser’s Pine Hill containerboard operation producer linerboard and corrugating medium – the strong, brown paper used to manufacture shipping boxes. Other Weyerhaeuser businesses at Pine Hill produce lumber and veneer, manage timberlands, and grow genetically improved tree seedlings. The Pine Hill complex employs more than 800 people in family-wage jobs and is Wilcox County’s largest employer.

Elsewhere in Alabama, Weyerhaeuser manages 588,000 acres of forest land, all certified to the Sustainable Forestry Initiative (SFI)™ standard, and operates an iLevel™ lumber operation in Millport, a Bardcor packaging operation in Huntsville, an iLevel services integrated building resources center in Tuscumbia, and an iLevel™ Trus Joist engineered lumber products operation near Evergreen.

Weyerhaeuser Company, one of the world's largest integrated forest products companies, was incorporated in 1900. In 2005, sales were $22.6 billion. It has offices or operations in 18 countries, with customers worldwide. Weyerhaeuser is principally engaged in the growing and harvesting of timber; the manufacture, distribution and sale of forest products; and real estate construction, development and related activities. Additional information about Weyerhaeuser's businesses, products and practices is available at http://www.weyerhaeuser.com.
**LETTERS TO THE EDITOR**

Just like many other mills in North America we are focusing our efforts to reduce costs and improve our bottom line. An initiative to improve equipment reliability is underway and the mill is working towards a competency based training program for our operators. A small improvement in reliability means in more pulp is produced and bigger profits. Major capital projects are also underway to improve washing and ultimately lower bleaching costs.

Brian Plamondon  
Production Superintendent  
Zellstoff Celgar Limited Partnership  
Castlegar, British Columbia, Canada

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

You can reach the site at http://216.27.72.194/shellcgi/lyris.pl?enter=pupid&text_mode=0&lang=english or by going to the PUPID or the main ISA websites and looking for the “ISA Technical Divisions”

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**WHY STAY IN ISA LONG ENOUGH TO BE A LIFE MEMBER?**

From Michael H. Waller, NEW Life Member, ISA

I have been an active member of ISA for more than 25 years. Forty years ago, I joined an un-named industrial company in the R&D department, initially assigned to developing infra-red moisture gauges. It would have been natural for me to join ISA then, but company policy frowned on joining an organization “close” to the subject of one’s job assignment because of secrecy concerns.

After about 15 years in industry, I accepted employment at Miami University and immediately joined ISA. I found it most beneficial to interact with other professionals in the field at conferences and expos, to easily stay abreast of the latest developments, and to have easy access to literature and information in areas of interest to me. I have taught instrumentation and process control for the entire time I have been at Miami, and I could not have been as effective as an instructor were it not for my membership in ISA. The students appreciate the relevant material I can bring to the classroom, much of it provided by my having been a member of ISA.

I would encourage anyone involved in the instrumentation or process control field to become an active member of ISA. To me this is a sign of professionalism in the field.

From Jack Tippett, NEW Life Member, ISA

My interest in the ISA goes back to early 1975 when I decided to take a process control course held in Montreal and, at the same time, combine the trip with my honeymoon. Yes, I have been happily married to my wife Irena (a certified Saint and true Life Member) for as long as I have been interested in the ISA! Early in my career as a Systems and Control Design Manager at Sentrol Systems (now Metso), I found information gleaned from InTech and from ISA conferences helpful. And now, as a Process Control Consultant in the EnTech Control Performance group of Emerson Process Management, I can still continue to benefit from my membership in ISA.
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.istp.kth.se
http://www.hut.fi/English/
HELSINKI UNIVERSITY OF TECHNOLOGY
http://www.istp.kth.se
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

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 youname@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
Ivan Ratkovcic, Head of Control Systems Maintenance Dept., Belisce d.d.; Croatia;ivan.ratkovicc@belisce.hr writes an overview of projects in Pulp & Paper Industry in Croatia, Bosnia and Herzegovina:

Our company has two paper machines:
- PM2 - producing 110 000 t of testliner, semi-chemical fluting, and waste-based fluting (Wellenstoff),
- PM3 - producing 95 000 t of semi-chemical fluting and waste-based fluting (Wellenstoff),

This year we will make several projects, which are supposed to result in better runnability of paper machine and better paper quality.

The projects are the following:
- We shall install paper web stabilizators in 1st drying section on both paper machines. Supplier of stabilizators is EV Group from Finnland, and project will be done by Slovenian company Tip95.
- On PM3 we shall replace the old Siemens Teleperm automation system with new ABB 800xA which will be connected to existing ABB QCS. Company which shall carry out these projects is Exor, Croatian system integrator located in Zagreb.
- In November we shall also install Air Water Sprays on both machines. Main goal is to achieve better moisture profile through integration with existing steam profiler. We chose Air-Water xP system from ABB.
- Also we shall revamp drive system for 1st drying section on PM2 with Siemens technology. Drives will be DC like rest of regulated machine drives on PM2. Exor shall carry out that project, including programming, cabinet mounting, startup etc.
- At the end in January next year we shall install a new pope roller and an unwind station. German company Bellmer has been chosen as the supplier. All automation including drives shall be done with Siemens technology (PCS7+Micromaster for brake generator for unwind station).

After that we are planning to revamp steam and condensate system on both machines. Systems automation will be done inside existing ABB AC450 on PM2 and future ABB 800xA on PM3. Our goal is to achieve energy savings and better runnability and therefore we are planning to include some kind of advanced control techniques into automation system.

Next company I want to talk about is Natron Maglaj d.d. (www.pksa.com.ba/natron) located in the northern part of Bosnia and Herzegovina. Company produces mainly sulphate pulp and sack kraft.

At beginning of this year and next year they shall make big revamping of their pulp mill and paper machines. Pulp mill will be reconstructed by two companies Andritz and GLW. Andritz also got job for paper machines revamping. All automation included in the project is based on ABB technology. Scope of supply which I got from Exor, main supplier of all automation technology for that project, includes the following systems:
- Electrification for pulp mill and one paper machine.
- DCS system – ABB 800xA – includes 15 AC 800 controllers.
- QCS system for 3 paper machines – 4 measuring platforms in total.
- Drives and motors for one paper machine – ABB motor and drives in AC technology.
Process Control Network Security

What, Why, and How To

Michael B. Leach
Partner
Control Systems Security

www.Control-Systems-Security.com
+1.302.379.9367
Topics

• Key objectives for process control security
• Methodology
• Findings
• Recommendations

p.s. SCADA means Supervisory Control and Data Acquisition
Process Control Network Security

Purpose

• A large natural resources company seeks to understand and improve security of process control systems through
  – Assessment of process control systems’ security
  – Recommended security improvements

• The company
  – Fortune 500
  – Global paper and related products
  – Formed by acquisition of mills over a number of years
Process Control Network Security

Why control systems are a security concern

- Process control environment moving from closed proprietary systems (e.g. Honeywell, Foxboro) to open systems (e.g. Windows, TCP/IP)

- Process control systems are connected to the corporate network, which in turn is connected to the Internet

- Increasing emphasis on remote access by vendors, supply chain partners, engineering and support

- External connections such as modems and wireless

- Dangers
  - Accident, injury
  - Sabotage, tampering -- damage to equipment
  - Down time
  - Unexpected security problems as a result of modernization
Process Control Network Security

The Past: Manual Information Flow

- Production Order
- Production Data
- Manual Coordination
- Manual Data Entry
- Process Area
- Print-outs

The Present: Automated Information Flow

- Production Order
- Production Data
- Enterprise Connection
- Manufacturing Execution
- Process Area

Air Gap

Chart courtesy of DuPont
The Changed Face of Control Systems

The Past
- Specialized technology
- Isolated from business computers
- Stand-alone
- Known only to the plant engineering staff and a small number of specialized vendors
- “Security by Obscurity”

The Present
- Industry standard computers and network
- Interconnected with business computers in sometimes unexpected ways
- Technology known to high school kids and hackers worldwide
- Vulnerable to viruses
Key Objectives

- Real-time prevention of safety, health, and environment incidents
- Ensure reliability and continuity of process operations
- Facilitate real-time interoperation of process and supply chain systems
- Secure operation of process control and monitoring systems and networks

We must protect our manufacturing processes, facilities, equipment, and people from physical harm
Methodology

• Reviewed each paper and saw mill over period of 2 years

• At each mill: formed team of control systems and IT for the assessment

• Duration: 1.5 to 3 days, depending on mill size

• Review topics:
  – Threat Profile: internal, external, collateral damage, environmental, single points of failure
  – Physical security: gates, fencing, access control, processes
  – Cyber security: architecture, infrastructure, systems, processes
  – Organization, skills, knowledge, labor-management relations

• Results of Review
  – Threat Assessment of all control systems and processes
  – Diagram of site network and systems: “as is” and “improved”
  – Findings
  – Recommendations: Immediate, Mid-Term, Multi-Mill/Corporate
**Maturity Model**

The Model is used to assess the current state and choose future goals for security.

- **Defined** (3-4): Building Blocks To Success. Capable processes and technology in routine operation.
- **Functional** (5-6): Generally Reasonable & Customary. Cross-functional approach in place from strategy through operations.
- **Institutionalized** (7-8): High Risk Capable. Differentiated Measures give Competitive Advantage.
- **Proactive** (9-10): Best-in-class Exemplars. Mobilizing

**Evaluation Methodology**
- Collect factual information
- Collect leadership’s perspectives
- Compare process and technology to state-of-the-art
  - ISO17799/27001
  - Industry Good Practices
  - Competitive Position
- Investigate findings
- Evaluate across multiple dimensions (policy, process, technology)
- Reviewed by stakeholders

The Model is used to assess the current state and choose future goals for security.
Maturity Model

Reactive
- Policies, Standards, and Compliance
- Threat & Risk Assessment
- Data Classification
- Education and Awareness
- Application Development Process
- Network & Architecture
- Identity and Access Administration
- Ingress & Egress Management

Defined

Functional

Institutionalized

Proactive

Both Are Important

PROCESS

TECHNOLOGY

Both Are Important
Threat Profile

• Commodity producer of forest products
• Little proprietary information content
• Production dependent on extensive automation
• Very small but growing B to B
• A modest activist target -- spotted owl, Greenpeace
• Nearby a nuclear power plant or below a dam in a few cases

→ Biggest Threat: PM shutdown due to virus, network problems, disgruntled employee, vendor
How Much Security Is Needed?

• Sufficient to maintain continuity of operation
• Sufficient to Prevent Casual Attack
• Sufficient to avoid charge of negligence
• Sufficient to convince a would-be attacker to look elsewhere
• Sufficient to develop a corporate core value for protection of assets
• Sufficient to avoid adverse impact on stakeholders: customers and suppliers, employees, environment, investors
During The Reviews: Security Incidents Happened

- Slammer Virus
- Password Change
- Intrusion
- Adbot.worm
- ...more
Findings - Overall

• Mills are highly mechanized and automated: some single points of failure

• Staff is motivated and tightly resource constrained

• Security measures at an early stage - details follow

• No catastrophic exposures found

• Security measures found
  – Restricted user accounts
  – Partial isolation of process control and IT networks
  – HW and SW backups
  – Few technical security measures in place
Findings - Overall

• A large number of low to medium exposures, taken together, constitute medium+ risk

• Threat Profile low

• Physical security
  – Fences, gates, lighting dated and partially effective
  – Access control non-existent or easily bypassed
  – Improvement projects contemplated

• Cyber Security
  – Limited security policy, strategy, architecture, goals
  – Security measures beginning to be implemented
  – Security knowledge and skills beginning to develop
Exposure - Overall

• It would not be difficult to stop PM operations for a day or more by attacking
  – Interfaces to commercial systems, especially production orders
  – In-line instruments and sensors
  – Process control network or IT network
  – Instruments and sub-systems and/or other systems managed by vendors

• The economic impact of a day’s lost production would be $400,000-$900,000
## Threat Analysis

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Scanning sys (Measurex/4 Valmet)</td>
<td>NT and Unix Consoles; and proprietary</td>
<td>1 Minute</td>
<td>Shutdown area</td>
<td>Up to $942,000 per day</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who / How</th>
<th>Their Aim</th>
<th>Prevent</th>
<th>Mitigate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virus; network event; modem; passwords</td>
<td>Mistake, virus, hacktivist, retribution</td>
<td>Proprietary technology</td>
<td>backup HW and SW, backup tapes</td>
</tr>
</tbody>
</table>
Findings - Threat Profile

- Exposures similar to a small chemical plant
- High pressures, temperatures, moving equipment
Process Control Network Security

Findings - Threat Profile

- Explosion potential
- Small quantity of hazardous chemicals in use
Findings - Threat Profile

- In-line instruments are the most sensitive single point
Findings - Threat Profile

• Control Systems on the network
Findings - Physical Access Control

- Fences, gates, lighting dated and ineffective
  - Gained access at all mills through social engineering, inadequate fencing and gating
  - Sawmills are wide open back door to paper mills and corporate network

- Access control non-existent or easily bypassed
  - No card access to sites or buildings
  - Buildings not locked
  - Control rooms, computer rooms and equipment rooms not locked or secure (one exception)
  - Equipment cabinets not locked

- Improvement projects contemplated
Findings - Physical Access Control

- Fences ineffective
- Gates permanently open
- Ineffective access controls to mills
- No building access controls
Racks Not Locked
Equipment Not Locked

- Rack rooms, motor control centers are not constantly attended
Why Defense In Depth is Important

- Physical security is first two or three layers of defense
- If perimeter is small enough to defend and secure, can have less security and greater productivity inside
Findings - Cyber Security Areas

- Scheduling and slitting systems vulnerable to destruction, tampering
- Inadequate user identification: weak passwords and no password checking
- No access control on dial-in and remote access
- Virus handling and security patch management on all systems not done reliably
- Key systems managed by vendors without adequate oversight in some mills
- Consoles and servers have local removable drives enabled
- Most process systems connected to the mill network with little isolation between systems and networks -- no defenses against intrusion and network upset
- Inconsistent backups and backup procedures
- “Risky software” in use without security measures – PCAnywhere, others
Findings - Architecture & Design

Process Control Network Security

Exposure

Internet

Router

Shiva

Workstations

IP21

CIMIO

Client

Prod

Sched

Term Server

DS700

stencilers

LOTZ

Printers

Paper Test

Robot

Site LAN

40 process related

Exposure

Wrapper

Segment

Finishing

Wrapper

PLC

talks to

Prod

Wonderware

Proprietary

Network

W

W

Wonderware

SOS

SOS

SOS

SOS

SOS

Valmet

Multiple
copies

Unix

NT

Not logged
into domain
No antivirus

Gateway

OPC

OPC

OPC

server

client

SOS

OPC

CIMIO

Server

PM4

PM4

HMX

HMX

PM 4 Segment

Other

Devices

Proprietary

OPC

Server

PLC

Forest

* Not all DCS
devices shown

Not logged
into domain
No antivirus

Feb 27, 2003

Site LAN

40 process related stencilers

Talks to

PTS

Wonderware

Proprietary Network

Dialin users

Thunder Bay

Dialin users

Site LAN

40 process related stencilers

Talks to

PTS

Wonderware

Proprietary Network

Dialin users

Thunder Bay
Findings - Cyber Access Control

- Dial-up connections into instruments and systems
Findings - Cyber Access Control

- Floppy, USB, and CD drives enabled
Process Control Network Security

Findings - Viruses

- Almost no anti-virus
- Confusion about DCS antivirus compatibility
Findings - Backups

- Inadequate backup methods - a hodge-podge of mechanisms and media
- Insecure storage -- not fireproof; easily accessible by a disgruntled employee
- No backups stored to recover from a disaster
- Few backups are restored regularly to test the backup’s viability
Findings - Backups

Adequate

Inadequate
Findings - Passwords & Authentication

- Dial-up uses no passwords, or a commonly-known vendor password
- Operator passwords are common knowledge – not a problem if other security was stronger
- Weak password formation rules
- No password format checking
- Sensitive users (engineers, E&I techs, network managers) passwords no stronger
Passwords alone are no longer adequate -- too easily guessed, stolen.
Findings - Education & Training

- Good working relationships between IT and process engineers
- Best practice: all staff under one leadership
- Little education, training, awareness
- Staff knowledge and skill beginning to grow
  » Remarkable security consciousness and not insignificant results with the limited resources available
Findings - Policy & Procedure

- No process control security policies
- No security procedures, job responsibilities
- No cyber incident handling process
Mill Security Assessment Results (2003 - Jan 2006)

Goals

Mills
So Many Gaps… So Few Resources!!
Recommendations - Short Term

• Short-term
  – Each Mill
    » Backup procedures
    » Tighten passwords
    » Disable USB, floppies and CDROM drives and unneeded services
    » Turn on security logging and inspect logs daily
    » Tighten/implement mill security procedures
    » Virus protect laptops, HMI, servers
    » Begin security patching consoles
    » Implement security features of PCAnywhere
Recommendations - Mid-Term

• Each mill:
  – Designate a “process security officer”
  – Implement cyber incident response process
  – Train a primary and backup security person at each site and corporate HQ
  – Tactically increase network separation (VLAN, LAN segmentation)

• Multi-Mill/Corporate
  – Form a process control network and security “center of excellence”
  – Develop and implement control system security policy
  – Develop “process security officer” roles and responsibilities
  – Create cyber incident response process, drills, teams
  – Create process for security patching systems (with vendors)
  – Increase use of anti-virus protection (with vendors)
Recommendations - Longer-term Multi Mill/Corporate

- Install an Access Control Point (firewall) at most mills to segregate control systems network from IT network (corporate funding)
- Install two-factor authentication for cyber identity checking and access control - begin with process control and dial-in (corporate funding)
- Develop a user awareness/education ongoing campaign
- Train mill and corporate staff in security
- Conduct regular penetration tests
- Replace dial-up with VPN technology (corporate project)
- Install intrusion detection sensors and monitoring (corporate project)
- Establish process control security strategy and program
Recommendation: Access Control Point

- Principle: Defense in Depth
- Isolate process control network and IT network
- Principle of self-sufficiency and survivability
- Identity and connection checking for those outside the process area only (engineers, vendors, management, support staff); does not impact operators

Features
- Integral hardened operating system (not Windows)
- Two-factor authentication
- Virtual Private Networks / Encryption
- Local/Remote Management
- Virus Protection
- Event logging
- Monitoring
Two-Year Cycle

- Measured progress at each mill during remediation
- Reports to mill and corporate leadership encouraged progress
- Re-assessment every two years
- Mills did a great job improving security
Mill Security Assessment

2nd Visit Results  (Sept 2005 - Jan 2006)

Assessment Score

Mills
Costs and Benefits

• Costs
  – Assessment cost $4K – $8K per mill
  – Firewall and rewiring - $25-90K per mill
  – All other remediation - $5-15K per mill
  – Corporate Funding

• Benefits
  – Control systems and IT organizations teaming more effectively
  – Lower cost for security measures
  – Prevented shutdowns that could have totaled $3,500K lost production 2004-2006 – an example
Shutdown Averted: March, 06: Firewall and A/V Kept ADBOT.WORM and two viruses/spyware out
• **Unexpected:**

  – High Degree of automation
  – Dependence on control systems and in-line instruments
  – Unnoticed change from secure proprietary technology to un-secure generic platforms, applications, networks
  – Security inconsistent with the level of risk
  – “Reasonable and customary” basics not being done

• **Parallels for the rest of us**

  – Threat assessment
  – Line management accountable
  – Get the basics in place first: simple measures were a quantum leap
  – Vilfredo Pareto

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The Moral Of This Story

1848-1923
QUESTIONS?
Comments?
Arguments?
What Factors are Pushing Businesses To Act on Security

- Increased threats to people, facilities, and business operations
- Inadequate security is expensive
- Security regulation is increasing
  - HIPAA, Gramm-Leach-Bliley (GLB), Patriot Act, Privacy Act
  - New reporting standards – e.g., American Chemical Council Cyber Responsible Care, SEC Audits, FFIEC, National Cyber Security Strategy
- Public trust of brand and image is under attack
  - Privacy concerns
  - Continuity of operations fears
- BOD, shareholders, customers, insurance agencies and partners now requiring an proof of preparedness
- Global enterprise scope and reach depend on secure e-Commerce services and web-enabled channels
- The impact of Homeland Security is just emerging
- Supply chain partner business continuity issues add indirect risks to company operations
- Trading partners and consumers voice concerns about protecting their privacy
- Security functions are dispersed in the Company

The sum of these forces is a “compelling event”
2006 Pulp & Paper Industry Division Officers

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

Past Director:
Steve Moon, P.E.
Documentation & Eng’g Services
stevemoon@desllc.net
(205) 822-8787
(205) 822-8637

Former Director:
John Murray
Mead Westvaco Paper
JM9@mead.com
(740) 772-3488

Secretary / Treasurer:
vacant

Standards & Practices:
vacant

Advisory Committee Chair
Larry E. Wells, P.E.
Georgia Pacific Corp.
lewells@gpae.com
(404) 652-4604
(404) 584-1466

Programs / H&A:
Marty Schweers, P.E.
Kellogg Brown and Root, Inc.
marty.schweers@halliburton.com
(251) 450-7721
(251) 450-7247

Education Co-Chairman
Michael H. Waller, P.E.
Miami (of Ohio) University
wallermh@muohio.edu
(513) 529-2205
(513) 529-3841

Education Co-Chairman
Kaichang Li
Oregon State University
kaichang.li@orst.edu
(541) 737-8421
(541) 737-3385

Paper Review Coordinator
Tommy Thompson, P.E.
Simons Engineering, Inc.
tommy.thompson@amec.com
(770) 370-3200
(770) 370-3646

Environmental Chairman
H. Pierce Rumph, P.E.
Orion CEM, Inc.
hprumph@compuserve.com
(770) 458-4535
(770) 451-1512

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

Newsletter Editor
Dr. Leoncio Estevez-Reyes, P.Eng.
Schweitzer-Mauduit – Spotswood Mill
(732) 723-6135
Leoncio.Estevez-Reyes@swm-us.com

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

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