



BLACK LIQUOR RECOVERY BOILER ADVISORY COMMITTEE

MINUTES OF MEETING Crowne Plaza Hotel/Atlanta Airport Atlanta, Georgia April 8, 9 & 10, 2013

OBJECTIVE

BLRBAC's objective is to promote improved safety of chemical recovery boilers and their auxiliaries through the interchange of technical knowledge, experience, and data on past and any future recovery boiler incidents.

Bylaws - 2.1

OFFICERS

Chairman: **Scott Moyer**
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Treasurer: **Len Olavessen**
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REGULAR MEMBERSHIP

Organizations operating, manufacturing, or insuring chemical recovery boilers are eligible.

ASSOCIATE MEMBERSHIP

Organizations having a direct interest or role in the safety of chemical recovery boilers are eligible.

CORRESPONDING MEMBERSHIP

A company residing outside of the United States which finds it impractical to attend meetings on a regular basis because of distance and expenses, but desires to be involved and informed of BLRBAC activities.

Bylaws - 3.1

**BLRBAC INTERNET ADDRESS: ---- www.blrbac.org
IRS Employer ID/Tax ID (IRS E.I.N.T./T.I.N) ---- #13-366-5137**

EXECUTIVE COMMITTEE

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BLRBAC SUBCOMMITTEES

<p>AUXILIARY FUEL Bruce Knowlen, Chairman Weyerhaeuser Company WTC 1B22 PO Box 9777 Federal Way, WA 98063 Tel: 253-924-6434 bruce.knowlen@weyerhaeuser.com</p>	<p>BLACK LIQUOR Mark Sargent, Chairman International Paper 6283 Tri-Ridge Boulevard Loveland, OH 45140-7910 Tel: 513-248-6086 mark.sargent@ipaper.com</p>
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<p>INSTRUMENTATION David Avery, Chairman Domtar Paper Company P. O. Box 678 Bennettsville, SC 29512 Tel: 843-454-8937 david.avery@domtar.com</p>	<p>MATERIALS & WELDING Dave Fuhrmann, Chairman International Paper 6285 TriRidge Blvd. Loveland, OH 45140 Tel: 513-248-6954 dave.fuhrmann@ipaper.com</p>
<p>PERSONNEL SAFETY Robert Zawistowski, Chairman Power Specialists Associates, Inc. 531 Main Street Somers, CT 06071 Tel: 860-763-3241, Ext. 135 bob.zawistowski@psaengineering.com</p>	<p>PUBLICITY & NEWS RELEASE Everett Hume, Chairman (NEW) FM Global 1151 Boston-Providence Turnpike Norwood, MA 02062 Tel: 781-255-4733 Cell: 413-323-6781 everett.hume@fmglobal.com</p>
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BLRBAC MEETING SCHEDULE

Fall	October	7, 8 & 9	--	2013
Spring	April	7, 8 & 9	--	2014
Fall	October	6, 7 & 8	--	2014
Spring	March-April	30, 31 & 1*	--	2015
Fall	October	5, 6 & 7	--	2015
Spring	April	4, 5 & 6	--	2016

"Bring Operator(s). Give them a chance to hear first hand!"

■ Past Chairman Lon Schroeder

*Changed by Executive Committee Member from previously posted dates due to religious holiday.

BLRBAC has established its own WEB Site which is: www.blrbac.org

At this WEB site you will find a copy of past Meeting Minutes and the next Meeting Notice. Therefore, each Representative and Associate Representative is asked to inform their people of this WEB site. This is where they can obtain the following BLRBAC documents:

BLRBAC MEETING NOTICE

COVER LETTER

General Information

REGISTRATION FORM

Print and mail to Said & Done with appropriate fees before the posted cut-off date.

CROWNE PLAZA HOTEL

Blocked room dates, pricing, address, hotel phone numbers

SCHEDULE

List of subcommittee activities on Monday and Tuesday

AGENDA

Reports given to Joint BLRBAC Meeting on Wednesday

OPERATING PROBLEMS QUESTIONNAIRE

Mail/e-mail completed questionnaires to Barbara Holich. These will be given to the Vice Chairman and he will see that your concerns are brought up and discussed during the Operating Problems session at the next meeting.

Mrs. Barbara Holich
BLRBAC Secretarial Services
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Frank's Cell Phone: 630-512-0144
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fhholich@aol.com

These are available at the **BLRBAC INTERNET ADDRESS:**

www.blrbac.org

BLRBAC Guidelines & Recommended Practices

-  *Waste Stream Incineration*
(Dated: February 2012)
-  *Emergency Shutdown Procedure*
(Dated: October 2012)
-  *Safe Firing of Black Liquor in Black Liquor Recovery Boilers*
(Dated: October 2012)
-  *Materials & Welding Guidelines*
(Dated: February 2012)
-  *Safe Firing of Auxiliary Fuel in Black Liquor Recovery Boilers*
(Dated: February 2012)
-  *Fire Protection in Direct Contact Evaporators and Associated Equipment*
(Dated: February 2012)
-  *Personnel Safety & Training*
(Dated: February 2012)
-  *Application of Rotork Actuators on Black Liquor Recovery Boilers*
(Dated: October 2005)
-  *Post ESP Water Level*
(Dated: January 2005)
-  *Checklist and Classification Guide for Instruments and Control Systems*
(Dated: February 2012)
-  *Post ESP Guidelines*
(Dated: October 2002)

If you have any questions, contact:

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<p>Allen L. Ray – Sec. Barron Industries, Inc. 105 19th Street South Birmingham, AL 35210 Tel: 205-956-3441 aray@processbarron.com</p>	<p>Tom DeBeer Chartis Insurance 5001 Willow Creek Drive Woodstock, GA 30188 Tel: (678) 494-6026 Cell: (404) 218-8613 thomas.debeer@chartisinsurancer.com</p>	<p>Lino DiLeonardo Zurich 400 University Ave., 16th Floor Toronto, ON M5G 1S7 Tel: 519-824-4548 lino.di.leonardo@zurich.com</p>
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Committee did not meet in the spring of 2013

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‡ Denotes expected attendance at meeting April 2013



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 Kulig MacIntire Morency Phillips Slagel Weikman

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* Everett Hume, FM Global was appointed Chairman effective following the Spring 2013 Meeting.

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SAFE FIRING OF BLACK LIQUOR SUBCOMMITTEE

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<p>Raul Das Buckeye Technologies One Buckeye Drive Perry, FL 32348 Tel: 850-584-1514 Cell: 850-672-2326 raul_das@bkitech.com raul_das@comcast.net</p>	<p>Mark Donahue Fossil Power Systems, Inc. 10 Mosher Drive Dartmouth, NS B3B 1N5 Canada Tel: 902-468-2743, Ext. 238 Cell: 902-468-2323 donahuem@fossil.ca</p>	<p>‡ Len Erickson Boise, Inc. P. O. Box 50 Boise, ID 83728-0001 Tel: 208-384-4933 lenerickson@boiseinc.com</p>
<p>Larry Hiner Babcock & Wilcox P. O. Box 351 Barberton, OH 44203-0351 Tel: 330-860-6525 lahiner@babcock.com</p>	<p>Majed Ja'arah Verso Paper 6775 Lenox Center Court Suite 400 Memphis, TN 38115 Tel: 901-317-5589 majed.jaarah@versopaper.com</p>	<p>Guy Labonte FM Global 600 de la Guachetiere Ouest Montreal, Que H3B 4L8 Canada Tel: 514-876-7412 Cell: 514-942-3651 guy.labonte@fmglobal.com</p>
<p>‡ Scott Moyer RockTenn 9469-I Eastport Road Jacksonville, FL 32218 Tel: 904-531-9394 Cell: 386-227-8991 smoyer@rocktenn.com</p>	<p>‡ Doug Murch MeadWestvaco 11013 West Broad Street Glen Allen, VA 23060-5937 Tel: 804-327-5245 Cell: 513-288-5750 douglas.murch@meadwestvaco.com</p>	<p>Bob Phelps Extra Hand, Plant Support Services 5440 Karma Road Chester, VA 23831 Ph. (804) 921-7374 Cell: 804-748-4391 robert.pheleps1@verison.net</p>
<p>Alvaro Timotheo Andritz Pulp & Paper 1115 Northmeadow Parkway Roswell, GA 30076-3857 Tel: 770-640-2642 Cell: 770-630-4577 alvaro.timotheo@andritz.com</p>		

‡ Denotes attendance at meeting in April of 2013

WASTE STREAMS SUBCOMMITTEE

‡ Paul Seefeld

A.H. Lundberg Associates Inc.
6174 Kissengen Springs Ct.
Jacksonville, FL 32258
Tel: 904-614-6492

paul.seefeld@lundbergassociates.com

<p>‡ Mark E. Cooper FM Global 550Birmard St., Ste. 1788 Bentall 5 Vancouver, BC V6C2B5 Tel: 604-694-8262 Cell: 425-877-9735 mark.cooper@fmglobal.com</p>	<p>Wendy Coyle International Paper 7600 Highway 10 West Pine Hill, AL 36769 Office: 334-963-2362 Cell: 541-285-1867 wendy.coyle@ipaper.com</p>	<p>‡ Meville Hedges Babcock & Wilcox 2302 Parklake Drive, NE Suite 300 Atlanta, GA 30345 Tel: 770 621 3907 mhedges@babcock.com</p>
<p>Arnie Iwanick Harris Group Inc 1750 NW Naito Parkway Portland, OR 97209-2530 Tel: 503 345-4516 Fax: 503 228-0422 arnie.iwanick@harrisgroup.com</p>	<p>‡ Olli Kujanpaa Andritz 10745 Westside Parkway Alpharetta, GA 30004 Tel: 770-640-2571 olli.kujanpaa@andritz.com</p>	<p>‡ John Lewis Fluor Daniel Forest Products 100 Fluor Daniel Drive Greenville, SC 29607-2762 Tel: 864 517-1683 john.lewis@fluor.com</p>
<p>Steven L. Osborne Babcock & Wilcox 20 S. Van Buren Avenue Barberton, OH 44203 Tel: 330.860.1686 slosborne@babcock.com</p>	<p>‡ Michael D. Sides XL GAPS 1360 Olympia Park Circle Ocoee, FL 34761 Tel: 407-656-4275 Mobile: 407-462-4622 michael.sides@xlgroup.com</p>	<p>John Veltre Chartis 2565 Mohawk Trail Acworth, GA 30102 Tel: 678-347-5406 john.veltre@chartis.com</p>
<p>Arie Verloop Jansen Combustion and Boiler Technologies 12025 115th Avenue N.E., Ste 250 Kirkland, WA 98034-6935 Tel: 425-952-2825 arie.verloop@jansenboiler.com</p>	<p>Marla Weinberg International Paper Corporate Technology Center 6285 Tri-Ridge Blvd. Loveland, OH 45140 Tel: 513-248-6789 marla.weinberg@ipaper.com</p>	<p>‡ Roger Lawton Jansen Boiler 220 Fieldstone Court Alpharetta, GA 30009 Tel: 770-797-5527 Cell: 425-736-0172 roger.lawton@jansenboiler.com</p>
<p>‡ Bentley Sherlock Georgia Pacific Corp. Atlanta, GA Tel: 404-652-4608 Cell: 404-884-4872 bentley.sherlock@gapac.com</p>		

‡ Denotes attendance at meeting in April 2013.

WATER TREATMENT SUBCOMMITTEE

‡ Tom Madersky

Power Specialists Assoc., Inc.
531 Main Street, Somers, CT 06071
Tel: 860.763.3241
tom.madersky@psaengineering.com

<p>‡ Craig Aderman Sappi Fine Paper NA 89 Cumberland Street P.O. Box 5000 Westbrook, ME 04098-1597 Tel: 207-856-3517 Cell: 207-831-2472 craig.aderman@sappi.com</p>	<p>Robert Bartholomew, P.E. Sheppard T. Powell Associates, LLC 1915 Aliceanna Street Baltimore, MD 21231 Voice: 410-327-3500 rdb@stpa.com</p>	<p>‡ Kelli Bastarache Power Specialists Assoc., Inc. 531 Main Street Somers, CT 06071 Tel: 860-763-3241 kelli.bastarache@psaengineering.com</p>
<p>‡ * Wayne Bucher Process Consultant NORAM Engineering Birmingham, AL Tel: 205-408-1874 Cell: 205-368-9396 wayne.bucher@gmail.com</p>	<p>Susan Childress Staff Engineer IP Technology Power Mfg. Solutions 5870 Anderson Road Grovetown, GA 30813 Tel: 706-339-1631 susan.childress@ipaper.com</p>	<p>Clark Conley Metso Power 3430 Toringdon Way, Suite 201 Charlotte, NC 28277 Tel: 704-414-3468 Cell: 704-936-7408 clark.conley@metso.com</p>
<p>‡ Frank DeStefano The Purolite Company 500 Locust Grove Spartanburg, SC 29303 Cell: 864-617-0881 fdestefano@puroliteusa.com</p>	<p>‡ Buck Dunton ChemTreat, Inc. 4301 Dominion Blvd. Glen Allen, VA 23060 Tel: 804-935-2000 buckd@chemtreat.com</p>	<p>‡ Don Flach Georgia-Pacific Corporation 133 Peachtree Street Atlanta, GA 30303 Tel: 386-336-5584 don.flach@gapac.com</p>
<p>‡ * Steve Hoefs Nalco Company 1601 W. Diehl Road Naperville, IL 60563-1198 Tel: 630-305-1461 Cell: Tel: 262-313-8036 jmorgan@nalco.com</p>	<p>‡ Claude Gauthier, P.E. The Purolite Company P.O. Box 308, Paris, Ontario Canada N3L 3G2 Tel: 800-461-1500 Cell: 519-448-4512 cgauthier@puroliteUSA.com</p>	<p>‡ John Gray Rayonier Performance Fibers, LLC 4470 Savannah Hwy. Jesup, GA 31545 Tel: 912-588-8213 Cell: 912-432-2921 john.p.gray@rayonier.com</p>
<p>‡ Ken Hansen Babcock & Wilcox Company 20 South Van Buren Avenue Barberton, OH 44203 Tel: 330-860-6443 kehansen@babcock.com</p>	<p>‡ Norris Johnston Ashland Hercules Water Technologies 37 Hough Road Lacey's Spring, AL 35754 Tel: 256-650-0049 Cell: 256-520-1011 njohnston@ashland.com</p>	<p>Dave Kittel Metso Power 3430 Toringdon Way, Suite 101 Charlotte, NC 28277 Tel: 704-414-3434 Cell: 912-342-9711 david.kittel@metso.com</p>

‡ Denotes attendance at meeting in April 2013.

WATER TREATMENT SUBCOMMITTEE - (Cont.)

<p>‡ Sam Lewis Delta Training Partners, Inc. 4020 Oleander Drive Wilmington, NC 28403 (910) 790-1988 slewis@deltatraining.com</p>	<p>*Michael Lykins Packaging Corporation of America 1061 Woodcliff Drive South Elgin, IL 60177 Cell: (630) 659-7115 mlykins@packagingcorp.com</p>	<p>Mitch Morgan Nalco Company 1601 W. Diehl Road Naperville, IL 60563-1198 (630) 305-1000 jmorgan@nalco.com</p>
<p>‡ Rick Morgan FM Global Granite Pkwy. Plano, TX 75024 (972) 731-1869 rick.morgan@FMGlobal.com</p>	<p>Richard Morris Metso Power 3430 Toringdon Way, Suite 101 Charlotte, NC 28277 (704) 281-4703 richard.morris@metso.com</p>	<p>Fred Neubauer Ashland Hercules Water Technologies 1600 Sugar Creek Drive East Mobile, AL 36695 (251) 633-5566 Cell: (251) 591-2297 faneubauer@ashland.com</p>
<p>‡ Kurt Parks Packaging Corporation of America 5495 Lake Park-Clyattville Road Valdosta, GA 31601 (229) 559-2257 Cell: (229) 415-8557 kparks@packagingcorp.com</p>	<p>‡ Tom Przybylski Boise Inc. 400 Second Street Int'l Falls, MN 56649 -2327 (218) 285-5011 TomPrzybylski@boisepaper.com</p>	<p>Jim Robinson GE (Infra, Water) 4636 Somerton Rd. Trevose, PA 19053 (215) 942-3381 james.robinson@ge.com</p>
<p>Alarick Tavares Georgia-Pacific Corporation 133 Peachtree Street Atlanta, GA 30303 (404) 652-4000 ajtavare@gapac.com</p>	<p>‡ Alvaro Timotheo Andritz 1115 N. Meadow Pkwy. Roswell, GA 30076-3857 (770) 640-2500 alvaro.timotheo@andritz.com</p>	

‡ Denotes attendance at meeting in April 2013.

Registered for the meeting were:

A.H. Lundberg Associates

Lewis, Marshall, Birmingham, AL
Patel, Jean-Claude, Naperville, IL
Seefeld, Paul, Jacksonville, FL

Acuren Inspection

Burgett, Nicholas, Bessemer, AL
Harley, Todd, Bessemer, AL
Spires, L. P, Augusta, GA

AirTek Construction

Baines, Troy, Neptune Beach, FL
Bringman, Lewis, Linthicum, MD
Moore, Ronnie, Troy, AL

Alabama River Cellulose

Browning, John, Perdue Hill, AL

Alstom Power

Bush, Joe, Chattanooga, TN
Harmon, John, Windsor, CT
Hollenbach, Dennis, Windsor, CT

American Forest & Paper Association

Grant, Tom, Yonkers, NY

Andritz

Bunner, Ben, Roswell, GA
Immonen, Janne, Roswell, GA
Kujanpaa, Olli, Roswell, GA
LeBel, Mark, Roswell, GA
Oinonen, Toni, Roswell, GA
Phillips, John, Roswell, GA
Soderlund, Harri, Roswell, GA
Timotheo, Alvaro, Roswell, GA
Vanchugova, Deirdre, Roswell, GA

Aquilex

Li, Bingtao, Norcross, GA
Nugent, Mike, Manasquan, NJ
Power, Stacy, Norcross, GA

Ashland

Johnston, Norris, Lacey's Spring, AL
Matheson, Ken, Quispamsis, NB
Roof, David, Raleigh, NC
Roof, Lee, Wake Forest, NC

Atlantic Combustion Technologies

Digdon, David, Amherst, NS, Canada
Krygsveld, David, Amherst, NS, Canada

AXA Matrix Risk Consultants

Garfield, Michael, Lowell, ME

Babcock & Wilcox

Blazer, Phil, Charlotte, NC
Garner, Tom, Atlanta, GA
Hansen, Kenneth, Barberton, OH
Hedges, Meville, Atlanta, GA
Hicks, Timothy, Barberton, OH
Hovinga, Mark, Barberton, OH
Kornaker, Greg, Barberton, OH
Kulig, John, Barberton, OH
Lombardi, Randy, Barberton, OH
Schwartz, Eric, Barberton, OH
Yash, John, Atlanta, GA

Boise, Inc.

Bethune, Larry, Jackson, AL
Breau, Bob, Jackson, AL
Davis, Grey, Jackson, AL
Erickson, Leonard, Boise, ID
Holm, Ralf, Boise, ID
Miller, Jason, Deridder, LA
Przybylski, Tom, International Falls, MN

Buckeye Technologies

Baker, Randy, Perry, FL

Chalmers & Kubeck

Gattis, Clayton, Watkinsville, GA
Richardson, Curt, Watkinsville, GA

Registered for the meeting were:

ChemTreat

Graham, Jim, Collierville, TN

Chicago Tube & Iron

Kershner, Rex, Locust, NC
Morgan, Preston, Locust, NC

Cianbro

Birney, Bill, Pittsfield, ME
Bragdon, Dana, Pittsfield, ME
Lerch, Jeff, Pittsfield, ME
Tapley, Charles, Pittsfield, ME

Clearwater Paper

Curran, Cindy, Lewiston, ID
Kaplan, Melissa, Lewiston, ID

Delta Training Partners

Lewis, Sam, Wilmington, NC

Diamond Power

Edwards, Tom, Lancaster, OH

Domtar

Avery, David, Bennettsville, SC
Worsham, Jesse, Bennettsville, SC

Electron Machine Corp., The

Osborne, Brad, Umatilla, FL
Vossberg, C. A., Umatilla, FL

Extra Hand Plant Support Services

Phelps, Bob, Chester, VA

Fluor

Lewis, John, Greenville, SC

FM Global

Cooke, Craig, Oconomowoc, WI
Cooper, Mark, Woodinville, WA
Crysel, Scott, Plano, TX
Hoffman, Daryl, Kirkland, WA
Huelsbeck, Kevin, Menasha, WI

FM Global (Cont.)

Hume, Everett, Norwood, MA
Matarrese, Rick, Alpharetta, GA
Moberg, Eric, Plano, TX
Morgan, Rick, Plano, TX
Onstead, Jimmy, Plano, TX
Whitehurst, Joseph, Dayton, ME

George H. Bodman, Inc.

Bodman, George, Kingwood, TX

Georgia-Pacific

Flach, Don, Maricopa, AZ
Morency, Karl, Atlanta, GA
Sherlock, H. Bentley, Atlanta, GA
Tavares, Alarick, Atlanta, GA
Tjaarda, David, Clatskanie, OR

Glatfelter

Corpus, Jason, Chillicothe, OH
Free, Roger, Chillicothe, OH
Masters, Ralph, Chillicothe, OH
Plappert, William, Spring Grove, PA
Wildey, Nick, Chillicothe, OH

Global Risk Consultants

Smith, Andy, Woodstock, GA

GommiTech

Gommi, Julius, Maple Valley, WA

GP Cellulose, LLC

Meadows, Tom, Brunswick, GA
Miller, W. Keith, Brunswick, GA

Graphic Packaging International

Hutchison, Frank "Hutch", Macon, GA
Murphy, Don, Pine Hill, AL
Taylor, Jim, Pine Hill, AL
Thein, Johnny, Atlanta, GA

Greif

Markham, Donald, Amherst, VA
Mozingo, Mike, Amherst, VA
Richeda, Brian, Amherst, VA

Registered for the meeting were:

Howe Sound Pulp & Paper

Casey, Shawn, Port Mellon, BC

International Paper

Blackard, Vernon, Loveland, OH
Camp, William, Prattville, AL
Fuhrmann, Dave, Loveland, OH
Kiper, Mike, Loveland, OH
MacIntire, Wayne, Loveland, OH
Navojosky, Frank, Loveland, OH
Sargent, Mark, Loveland, OH
Walker, Steve, Rome, GA

Interstate Paper Corporation

Stapleton, David, Riceboro, GA

Intertek

Freeman, Matt, Sunnyvale, CA

Irving Pulp & Paper

Mott, Dan, Saint John, NB, Canada
Smith, Jason, Saint John, NB, Canada

Jacobs Engineering

Rickard, John , Greenville, SC

Jansen Combustion & Boiler Technologies

La Fond, John , Kirkland, WA
Lawton, Roger, Alpharetta, GA

John E. Cover Engineering

Cover, John, Birmingham, AL

Kapstone Paper

Coyne, Joe, Roanoke Rapids, NC
Nesmith, Daniel, Charleston, SC
Skorton, Chris , Charleston, SC
Walker, Steven, Roanoke Rapids, NC

K-Patents, Inc.

Bennett, Erick, Naperville, IL
Hamalainen, Arto, Naperville, IL
Miller, Adam, Naperville, IL

LENRO, Inc.

Olavessen, Len, Humble, TX

Lincoln Paper & Tissue

Jipson, Erika, Lincoln, ME
LaFlamme, Alan, Lincoln, ME

Liquid Solids Control

Sweeney, Michael, Upton, MA
Vandenburg, Gordie, Upton, MA

Longview Fibre

Killett, Bob, Longview, WA
Sinsel, Brian, Longview, WA

MeadWestvaco

Andrews, John, Charleston, SC
Jones, Jesse, Phenix City, AL
McManious, Jeffrey, Cottonton, AL
Murch, Douglas, Richmond, VA

Metso Power

Asselin, Mike, Baxter, MN
Conley, Clark, Charlotte, NC
Cross, Tom, Charlotte, NC
Farmer, Bob, Charlotte, NC
Gantt, Melissa, Charlotte, NC
Martin, James, Charlotte, NC
Morrison, Dan, Charlotte, NC
Nichols, Jody, Charlotte, NC
Sechrist, Dick, Charlotte, NC
Ulrich, Jim, Charlotte, NC
Weikmann, John, Charlotte, NC

Nalco

Hoefs, Steve, Naperville, IL
Morgan, Mitch, Naperville, IL

National Boiler Service, Inc.

Mesamore, Mike, Trenton, GA

Nautilus Loss Control

Jackson, Christopher, Fox Island, WA

NORAM Engineering

Bucher, Wayne, Birmingham, AL

Registered for the meeting were:

Northern Pulp

Fry, Robert, New Glasgow, Nova Scotia
MacLeod, Kevin, New Glasgow, Nova Scotia

Packaging Corp. of America

Lykins, Michael, South Elgin, IL
Parks, Kurt, Valdosta, GA

Port Townsend Paper Corporation

Reandeau, Dan, Port Townsend, WA

Power Specialists Assoc. Inc.

Bastarache, Kelli, Somers, CT
Madersky, Tom, Somers, CT
Zawistowski, Bob, Somers, CT

Purolite

Baumann, Oliver, Bala Cynwyd, PA
Destefano, Frank, Bala Cynwyd, PA
Gauthier, Claude, Bala Cynwyd, PA
Hosler, Jeremy, Bala Cynwyd, PA
McGraw, Bob, Bala Cynwyd, PA

Rayonier

Gray, John, Jesup, GA
Porter, Daniel, Jesup, GA

RMR Mechanical

Roy, Bob, Cumming, GA

RockTenn

Baker, Kevin, Florence, SC
Campbell, Bob, West Point, VA
Eaves, Richard, Demopolis, AL
Hagins, Hank, Fernandina Beach, FL
Harkness, Henry, Demopolis, AL
Hewitt, Mike, Demopolis, AL
Hoffman, Jeffrey, Hodge, LA
Holland, Fred, Florence, SC
House, Ray, Demopolis, AL
Moyer, Scott, Jacksonville, FL
Spencer, James, Demopolis, AL
Tarpley, Donn, Demopolis, AL
Tucker, Leonard, Demopolis, AL
Von Oepen, David, Demopolis, AL

SAPPI

Boudreau, David, Hinckley, ME
Aderman, Craig, Westbrook, ME

Simpson Tacoma Kraft Company

Zemke, Richard, Tacoma, WA

Smurfit Kappa Carton de Colombia

Guerrero, Alexander, Cali, Colombia

Southern Environmental

Johnson, Michael, Pensacola, FL

Swiss Re

Moran, Jose, Vancouver, BC

Thilmany, LLC

Glasheen, Mike, Kaukauna, WI
McCarty, Matthew, Kaukauna, WI
Sherman, Joan, Kaukauna, WI

Thompson Industrial Services

Goodson, Mike, Odum, GA
Harry, Todd, Sumter, SC
Jackson, Dwayne, Sumter, SC
Watson, Mike, Sumter, SC

Wausau Paper

Osterberg, Jeffrey, Mosinee, WI

Weyerhaeuser

Barreca, Clif, Vanceboro, NC
Cousins, Robert, Oglethorpe, GA
Harmon, Charlie, Columbus, MS
Hinman, James, Federal Way, WA
Hutcherson, Steve, Columbus, MS
Knowlen, Bruce, Federal Way, WA
Parsch, Mike, Grande Prairie, AB
Sharpe, Greg, Oglethorpe, GA
Smith, Kevin, Columbus, MS
Vandermeer, Robert, Grande Prairie, AB

XL GAPS

Franks, James, Somerville, TN
Goddard, Robert, Tupelo, MS
Sides, Michael, Ocoee, FL

MAIN COMMITTEE MEETING

INTRODUCTION – Scott Moyer – Chairman. Welcome to the spring 2013 BLRBAC Main Committee Meeting! The meeting is now open. Thank you for your time away from your paying job and family to travel to Atlanta to participate in BLRBAC. Your efforts make BLRBAC work and we appreciate them. There were several themes that came up yesterday that I would like to emphasize:

- Leak investigation: We are continuing to see operating personnel spend quite a bit of time investigating exactly where a leak is and begin making repair plans while the boiler is on line. There are two hazards here. One, if water is indeed entering the furnace, it may delay initiating a needed ESP. Two, if it is an external leak, there is a possibility of the leak “opening up” and injuring the person investigating. These hazards should be reviewed regularly with operating crews and maintenance personnel
- We continue to see failures that could be related to SAC. As our fleet of boilers age, this becomes more of a risk. Make sure your inspection plans include the areas susceptible to SAC
- We had one dissolving tank explosion and one heavy smelt runoff that damaged a spout. The SFBL Guidelines regarding smelt rushes and plugged spouts should be reviewed and appropriate Operating Procedures and training should be in place. This needs to be emphasized on a regular basis and production pressures removed from these decisions.

I would like to remind you that the BLRBAC name badge is your proof of registration for the meeting. These should be worn to all meetings, including lunch and activity night.

OLD BUSINESS

ACCEPTANCE OF THE FALL 2012 MEETING MINUTES – Scott Moyer

Meeting Minutes have been posted on the BLRBAC WEB site. Are there any corrections or modifications? Do I have a motion to approve those Minutes as posted? So moved. Second? All in favor? All opposed? The fall 2012 Meeting Minutes have been accepted unanimously.

NEW BUSINESS

1. **NEW MEMBERS/REPRESENTATIVE CHANGES REPORT** – Scott Moyer for Mike Polagye

NEW REGULAR MEMBERSHIP - None

NEW ASSOCIATE MEMBERSHIPS

Chicago Tube and Iron (CTI) has been accepted as an Associate member. I would like to welcome CTI to our organization and invite them to attend meetings regularly and to participate in our Subcommittees.

Peter Nance is the designated Associate Representative

Preston Morgan is the designated Alternate Associate Representative

NEW CORRESPONDING MEMBERSHIPS – None Reported

1. **NEW MEMBERS/REPRESENTATIVE CHANGES REPORT - (Cont.)**

REGULAR REPRESENTATIVE CHANGES

Kapstone

Ben White remains the designated Representative

Chris Skorton replaced Phil Ramsey as the designated Alternate Representative

KPAQ Industries

Carl Terrell remains the designated Representative

Van Strahan replaced Bruce Pease as the designated Alternate Representative

Port Townsend Paper Corporation

Dan Reandeau remains the designated Representative

Designated Alternate Representative still needs to be named.

Simpson Tacoma Kraft

Bruce Martin replaced Mike Fay as the designated Representative

Richard Zemke replaced Jim Hilton as the designated Alternate Representative

ASSOCIATE REPRESENTATIVE CHANGES

AXA Matrix Risk Consultants

Michael Garfield replaced Fred Abel as the designated Associate Representative

Michael Hayes replaced Philippe Busser as the designated Alternate Associate Representative

Jacobs Engineering

John Rickard replaced Harold Stokes as the designated Associate Representative

John Carpenter replaced John Rickard as the designated Alternate Associate Representative

Starr Technical Rick Agency

Donald Pease remains the designated Associate Representative

Kevin Mooney replaced Peter Anderson as the designated Alternate Associate Representative

CORRESPONDING MEMBERSHIP CHANGES - None Reported

MEMBERSHIP COMPANY NAME CHANGES

Chartis is currently d/b/a AIG

{Secretary's Note: The Company Membership List posted on the BLRBAC website is out of date, not reflecting all the mergers, acquisitions, and name changes that have occurred. Anyone who sees something that needs changing should bring it to the attention of the BLRBAC Secretary via fhholich@aol.com}

2. **EXECUTIVE COMMITTEE REPORT** – Scott Moyer

The Executive Committee met in closed session Tuesday night with five members present and one absent. We have two new members on the Executive Committee starting this meeting and I would like to thank Don Flach and John Gray for their participation. The Executive Committee discussed various issues that were raised during the subcommittee meetings.

3. **TREASURER’S REPORT** – Len Olavessen

Checking Account balance as of yesterday afternoon:	\$75,227.00
Certificate of Deposit balance as of yesterday afternoon:	\$15,091.49
Revenue from this meeting for registrations:	\$32,100.00
Estimated checking balance after the related spring meeting costs at the Crowne Plaza, etc., I anticipate being a little over:	\$55,000.00.

We had Advance Registration of 204 and At Door of 33 which is a slight increase over the past few years. So that is good. We had 25 paper companies represented, five boiler companies, five insurance companies, 29 Associate member companies, three guests of members and one off-shore attendee from Colombia.

Our 50th Anniversary celebration costs amounted to: \$23,516.51

The vast majority of that was spent on dinner and then the souvenir glasses and freight costs in getting some materials here.

So financially we are in good shape. Moving forward we anticipate remaining that way.

4. **SECRETARY’S REPORT** – Scott Moyer reporting for Mike Polagye

Just a reminder to continue to look at and keep track of updates on the BLRBAC WEB site as that is how we communicate with you. Meeting Minutes will be posted there in a couple of months. As you will see with the Subcommittee's presentations, there will be several documents ready for your review and comments for voting on next fall. Again, that is the opportunity for you guys to look at and make comments on the stuff that is going to affect your day-to-day lives in the future. It really helps the Subcommittees when they get comments from the folks that are really going to use their documents. When you get that e-mail from Barbara telling you documents are available for review and comment, take some time to review those documents.

SECRETARIAL SERVICES REPORT – Barbara Holich

It is required that each regular member company (boiler insurers, boiler operators and boiler manufacturers – voting members) keep me advised of names and e-mail addresses of their designated Representative and designated Alternate Representative. Preferably they will be someone who regularly attends BLRBAC. It is the member company’s responsibility to keep me informed of any changes in representation by e-mailing me. **A “Representative Change Form” is posted on the BLRBAC website to make it easier for management to submit the changes in responsibility and/or any e-mail address changes.**

4. **SECRETARY'S REPORT – (Cont.)**
SECRETARIAL SERVICES REPORT – (Cont.)

Anyone who wishes to be added or deleted from the BLRBAC e-mail list, please e-mail me (fhholich@aol.com) your intentions. Include your name, company and your e-mail address. Someone is needed to take the initiative (in the best case scenario, this should be the designated Representative or Associate Representative) to keep me advised of any member company name changes, mergers, etc. so that the BLRBAC database can be properly maintained.

No changes are made to the database until written notification is received (letter or e-mail are acceptable). I keep a file folder for each member company that includes correspondence naming the Representative and Alternate for each organization. These letters usually contain the e-mail addresses I must have in order to maintain the BLRBAC database.

Therefore, be sure that I have your current working e-mail address. BLRBAC notice of meetings and meeting minutes will only be sent via e-mail. If an e-mailed notice is returned to me as "undeliverable," that e-mail address will be deleted from the BLRBAC database after a second attempt has been made.

If you are a designated Representative or Alternate Representative for your organization and something happens wherein you will no longer be functioning in this capacity, such as, retirement, occupational change, downsizing, etc., please let me know (fhholich@aol.com) and supply me with the name and e-mail address of whomever will fill your vacated position within BLRBAC.

Per BLRBAC's policy, BLRBAC's Secretarial Services will verify receipt of meeting registrations and checks via e-mail when appropriate e-mail addresses are given on the registration form. Sometimes e-mails pop back as "undeliverable." This may be due to the fact that the e-mail box is full, incorrectly typed due to not being able to decipher attendee handwriting, etc. I will do my best to see that all e-mails are properly received at the posted e-mail address.

All Advance Registration attendees are recorded, given a registration number and sent a verification e-mail on the same day checks are received. This notification is sent to the e-mail address listed on the Registration Form. If you have not received a confirmation notification from me, you are not registered for BLRBAC!

I am again requesting that all Meeting Registration Forms be completed in their entirety. This form is the only way I can confirm the accuracy of the BLRBAC database and e-mail address book.

Finally, if you know from past experience that your Accounting Department takes weeks to issue a requested check for registration purposes, just send me your completed Registration Form and a personal check before the posted cut-off date. Then you can get reimbursed from your company at a later date. This will guarantee you are registered at the Advance registration fee. There are no exceptions when paying after the cut-off date, your organization will be required to pay the higher At Door fee.

5. SUBCOMMITTEE REPORTS

5.1 AUXILIARY FUEL REPORT – Bruce Knowlen

No report given at this meeting. The subcommittee did not meet

5.2 BLACK LIQUOR REPORT – Mark Sargent

Eight members were present at the closed morning meeting and approximately 55 guests attending the open afternoon meeting along with the eight members.

The BLRBAC Anti Trust statement was reviewed at both the closed and open meeting.

The fall 2012 meeting minutes were approved in closed meeting.

A proposed change to the Safe Firing of Black Liquor RP was submitted to our subcommittee as follows: “We have a recommended addition in the guidelines for the Safe firing of Black Liquor Committee to consider in Chapter 8 for “Black Liquor and Water Piping Systems” and that is: “Operations should lock/tag in the open position any manual block valves located in the liquor divert piping.”

The SFBL Subcommittee reviewed this topic between the fall 2012 and spring 2013 meetings and have drafted language to be added to the document regarding this comment.

We agreed to submit the following change to the Executive Committee.

Manual valves in the Black Liquor Divert system piping should be secured in the open position prior to and during liquor firing. These valves should be part of a managed system.

The SFBL document was reviewed as it relates to the recommendation to replace spouts and cut open one spout once per year. We recognize that mills may be running longer than one year between outages so we will review this section of Chapter 9 and the entire SFBL document to see if language changes are needed to reflect major outage intervals rather than an annual requirement. (Review task assigned to “All”; Vernon Blackard and Majed Ja’arah for Chapter 9)

The SFBL Subcommittee is concerned that a condition based evaluation system should be in place when going beyond the traditional one year operating period. Language will be drafted to add to the SFBL RP on what a major outage consists of and perhaps language on what a condition based system could look like when extending beyond the traditional one year service interval between outages.

We reviewed the balance of our Figures (Figures 6-15) to determine if explanatory Tables were needed. Figures 1-5, dealing with safe firing logic, have explanation tables that identify the hazards being protected against and our review was done to see if this is warranted for any of the other figures. After discussing at both the open and closed meetings it was agreed that no additional explanatory tables were needed.

5. **SUBCOMMITTEE REPORTS - (Cont.)**

5.2 **BLACK LIQUOR REPORT – (Cont.)**

Figures 6 – 15 are schematic drawings. The notes on Figure 9 (pg 46) are considered adequate for explanation.

A question was raised in the afternoon meeting regarding whether or not our document covers reviewing smelt spout design as boiler throughput is increased. Following discussion, it was agreed to revise wording as shown below and to submit to the Executive Committee.

Chapter 9, Paragraph 9.1.2 Bullet No 12;

12. As Recovery boilers are upgraded, a thorough review of the smelt spout(s) system capacity and smelt spout cooling water system design should be completed.

A question was sent to the subcommittee prior to the meeting regarding whether or not to have the dissolving tank agitator operating as a permissive interlock for black liquor header purge based on a recent industry incident.

This was discussed during both the closed (morning) and open (afternoon) meetings and it was agreed no changes to the document are needed.

One question for future work was considered:

The Safe Firing of Black Liquor Subcommittee will work with the Auxiliary Fuel Firing Subcommittee between the spring 2013 and fall 2013 meetings to draft a new definition for “managed system”.

One example of the use of “managed system” is:

- **Any manual valves installed in Black Liquor Recovery Boiler safety systems- i.e. Rapid Drain, Black Liquor Divert, Soot blower, Smelt Spout Cooling, Dissolving tank, etc., should be part of a managed system and secured in the proper position so as not to impede the proper operation of the safety system.**

5. SUBCOMMITTEE REPORTS - (Cont.)

5.3 **ESP SUBCOMMITTEE REPORT** – John Andrews
(See **Appendix A** – *Incident List*)

The ESP Subcommittee met in closed session on Monday April 8th with 12 of 13 members represented. The Subcommittee met in open session on Tuesday morning April 9th with 12 members represented and about 190 guests.

During the open session, the Subcommittee reviewed 14 incident reports from North America. We will probably make up for this low number of incidents in the fall since several incident reports have just come in. Of the 14 incidents, there were no Smelt Water Explosions but there was one Dissolving Tank Explosion reported. Of the remaining incidents, 4 leaks were classified as critical incidents and 7 were non-critical incidents. One of the reported incidents was for a spout failure and one was for an ESP that was conducted but no leak was found. An Emergency Shutdown Procedure (ESP) was performed in 7 of the incidents including all 4 of the critical incidents representing 100% of the critical incidents that should have been ESP'd. There were some leaks that were found on a hydrostatic test and an ESP was not necessary.

Three International Incidents were reviewed. The international incidents are not classified or included in the BLRBAC data but are reviewed to gain any learnings from the reports.

The basic definitions of Explosions, Critical Incidents and Non-Critical Incidents were re-established by the Executive Committee in September 1999. They are summarized as follows:

Explosions: Only if discernible damage has occurred. This does not include incidents where there is only evidence of puffs or blowback alone. With the new emphasis on damage, more attention will be given to the extent of damage and the amount of downtime for the damage repair (as opposed to total downtime that includes other activities).

Critical Incidents: All cases where water in any amount entered the recovery unit forward of isolating baffles (and therefore would be a similar criterion to the need to perform an ESP). This includes leaks of pressure parts of all sizes. Since small leaks often wash adjacent tubes to failure, this category is important to our learnings. This new definition will result in more entries for the Critical Incident list.

Non-Critical Incidents: Those cases that did not admit water to the boiler cavity defined above.

Appendix A contains a summary of the incidents reviewed during the meeting.

5. **SUBCOMMITTEE REPORTS - (Cont.)**
5.3 **ESP SUBCOMMITTEE REPORT – (Cont.)**

Incident Locations

The general locations of the leaks for boilers in North America are shown in Figure 1, which displays a typical boiler, not representing any particular style or model. The yellow marks are the non-critical incidents and the red marks indicate the location of the critical incidents. The spout failure is indicated by green dot at the spout level and the blue dot is for the ESP with no leak. The general location for those represents an estimate of where the suspected leak was located. The black dot under the spout indicates the Dissolving Tank Explosion

The leaks locations are summarized as follows:

- 2 – Economizer
- 3 – Superheater
- 3 – Upper Furnace
- 1 – Screen
- 2 – Lower Furnace
- 1 – ESP with no leak found
- 1 – Smelt Spout Failure
- 1 – Dissolving Tank Explosion

Leaks by Boiler Type

The leaks by the number of drums and the back end arrangement were reviewed. There were 3 leaks reported in a single drum unit and 11 leaks reported in two drum units. None of the incidents involved units with three drums.

Five of the leaks were in boilers with Direct Contact Evaporators and 9 were from units with extended economizers. It is clear that there are still DCE units in operation.

Root Cause

The determination of the root cause is somewhat of a subjective determination by the Subcommittee based on information in the reports. The breakdown is listed below:

- 3 – Thermal or Mechanical Fatigue
- 3 - Weld Failure
- 1 - Erosion or Corrosion Thinning
- 2 – Unknown
- 1 - Stress Assisted Corrosion or Corrosion Fatigue
- 1 – Overheat

5. **SUBCOMMITTEE REPORTS - (Cont.)**
5.3 **ESP SUBCOMMITTEE REPORT – (Cont.)**

How Discovered

Operator observations during boiler walkdowns continue to be the prevalent method of detecting leaks and accounted for identification of 9 of the leaks (64%) and shows that operators are continuing to be diligent in looking for leaks. Two of the leaks were identified by the control room and 1 leak was initially indicated by the leak detection system installed. Two leaks were found during a hydrostatic test during an outage.

Leak detection systems were reported to be installed on units in 7 of the incidents (78%). The leak detection systems were credited with providing the initial indication of 1 leak and confirmed 2 additional leaks. The leak detection system provided the initial indication for 1 economizer leak which have traditionally been difficult to detect with the leak detection systems.

The Subcommittee has been looking at the time between the initial indication of the leak and the initiation of the ESP. All the incidents that reported an ESP provided sufficient information to get a good idea of the time from the first indication of a leak until the ESP was initiated. The incidents reviewed showed that the time between initial indication of the leak and the initiation of the ESP ranged from about 5 minutes to 1 hour 52 minutes. The median time to initiate the ESP was about 15 minutes which is an improvement over recent history. The fact that an ESP was initiated without finding a leak is somewhat to be expected and indicates that operators are using reasonable diligence in determining the need for an ESP. The absence of these incidents would be an indication that operations are being overly cautious in initiating the ESP and taking too long to confirm that there is truly a leak.

Incident Review

Figure 2 shows the critical incidents reported each year. The bar for 2013 only represents half a year and several incident reports have just been received that will be reported in the fall. Figure 3 shows the history of Recovery Boiler Explosions showing the smelt water explosion reported last year.

Figure 4 shows the effect of last years smelt water explosion on the five year rolling average which is back to 0.2. Maybe in another four years we can get back down to zero!

Figure 5 shows the history of dissolving tank explosions and we broke the string of no dissolving tank explosions for the last couple of years. Following the recommendations from Section 10 of the Safe Firing of Black Liquor document would prevent many of the reported dissolving than incidents that have occurred in the past.

Figure 6 is a plot of explosion history per 100-boiler operating years. This is a statistical summary of the experience across the industry. The smelt water explosion experience is continuing to trend down over time and is down to 0.5 explosions per 100 boiler operating years, and the total explosions, which includes all boiler explosions and dissolving tank explosions, decreased to under 0.9 explosions per 100 boiler years since no dissolving tank explosions were reported last year.

5. **SUBCOMMITTEE REPORTS - (Cont.)**
5.3 **ESP SUBCOMMITTEE REPORT – (Cont.)**

The factor is calculated by a summation of all reported explosions since 1948 divided by a summation of the number of boilers reported in service each year during the same period. We all need to continue to keep that trending down.

Learnings

There are several learnings that come from review of the incident reports that may be of value for the industry. This is not a complete list but a few items that stand out.

As we have said before, it is not recommended to expose leaks with pressure still on the boiler. There have been several incidents over the years where small leaks have turned into big leaks and it is not a good idea to have personnel exposed to that risk. There were no reports of removing casing or insulation to investigate leaks this meeting so maybe the word is getting out.

Leak detection trends should be readily available on the DCS for the operators to quickly access. Preferably, the key trends such as steam/feedwater differential, drum level, furnace pressure and blowdown conductivity should be grouped on one page for quick comparison.

The quality of bed camera images tends to degrade over time so mills should consider periodic repair or replacement to maintain the best image for the operators.

One incident noted the potential for corrosion of superheater tubes inside the crown seal box. This could especially be a problem for those units that are subject to frequent water washes.

It is important to emphasize leak detection and appropriate action, including empowerment to authorize an ESP during the training of new Recovery Supervision.

It is important for operators and supervision to avoid any management pressure to support the mill operation if it puts the boiler at risk, whether or not this pressure is real or just perceived.

Operators should look for smelt pools in the furnace if the spouts are not running properly, especially after a startup after an upset condition. Even if you can see light through one or more open spouts, there may be a blockage or dam holding back a significant accumulation of smelt that could suddenly release.

Post ESP Guidelines

The Subcommittee has published a document on Post ESP Guidelines that covers the actions that should take place after the ESP has been initiated. We have maintained it as a separate document with the ESP Recommended Good Practice document covering the design and functionality of the ESP system as well as when the system should be utilized and the Post ESP Guideline covering actions that should be considered after the ESP has occurred.

5. **SUBCOMMITTEE REPORTS - (Cont.)**
5.3 **ESP SUBCOMMITTEE REPORT – (Cont.)**

That document has not been revised since 2009 so the committee will be reviewing the document prior to the fall meeting.

During the meeting, we discussed if those documents should be combined into one document. Any thoughts or comments from the general membership on revisions to the document or if there would be value in combining the two documents would be appreciated.

List of Operating Boilers

On the BLRBAC WEB site we have a list of operating boilers in the US and Canada that Jules Gommi maintains. He does the best he can in trying to keep up with who owns what and what the company name is and if there have been any significant changes to the boiler. So again I urge you that if you have a chance, look at your units, see if they are up to date, and if there are any corrections that need to be made, get those to Jules.

Incident Questionnaires

Finally, the Incident questionnaires are key to the operation of the ESP Subcommittee. We appreciate the good job that the mills have done in filling them out for their incidents. From time to time the questionnaire is updated and there are currently some proposed changes to be made on the section covering dissolving tank explosions. Anytime you have an incident that needs to be reported, I know it is very tempting to just go back in the file and pull out the report from a couple of years ago and just fill in the new information, but we really urge you to go and get the most recent version of that off the WEB site and use that for the report.

Again, a further reminder that especially when you're copying and pasting pictures into a Word document, it can very quickly get to a massive file size. Jules still has a 10MB limit on his e-mail system, so when you prepare a report, look at the file size and if it is above 10 meg., cut it down into separate files. The best thing would be to send in the pictures separately as .JPG files.

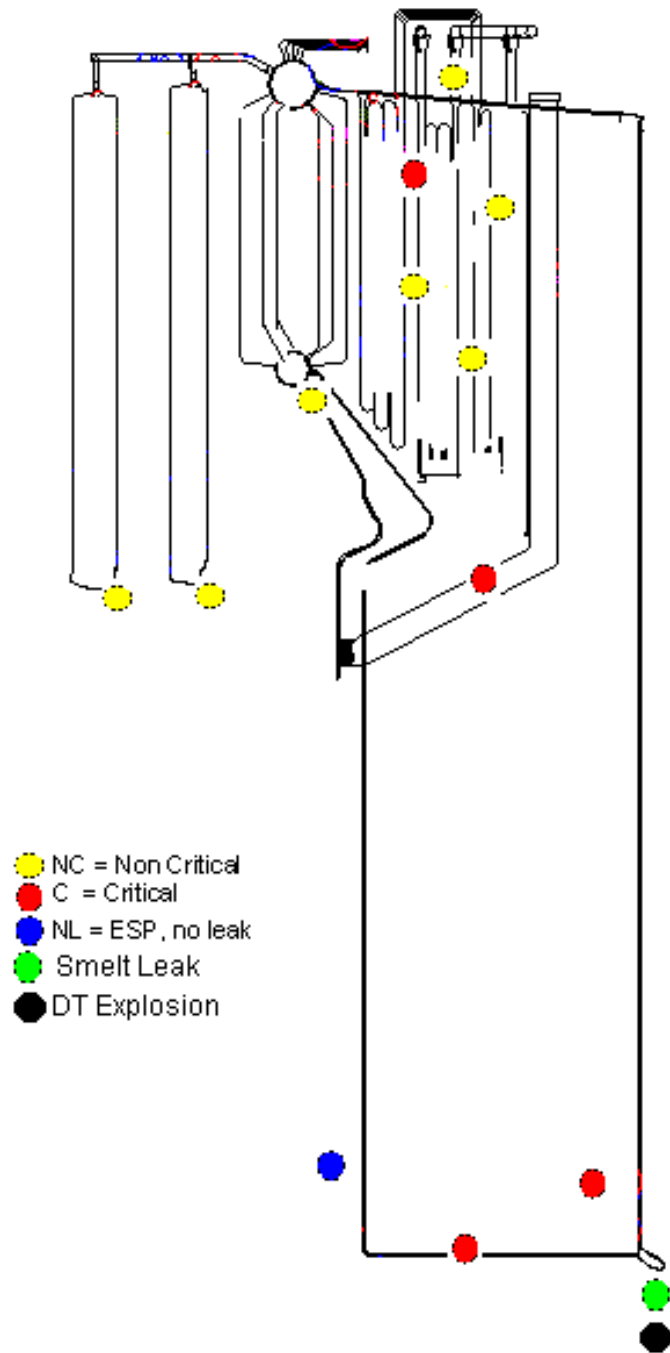
Jules will send out an e-mail confirmation to the mill any time he receives a questionnaire. If the mill does not receive that confirmation within a couple of weeks of submitting the form, please contact Jules to see if there is a problem.

Are there any questions or comments?

Thank you.

Figure 1

Spring 2013 Incidents



KRAFT RECOVERY BOILER CRITICAL INCIDENTS North America Pulp and Paper Industry

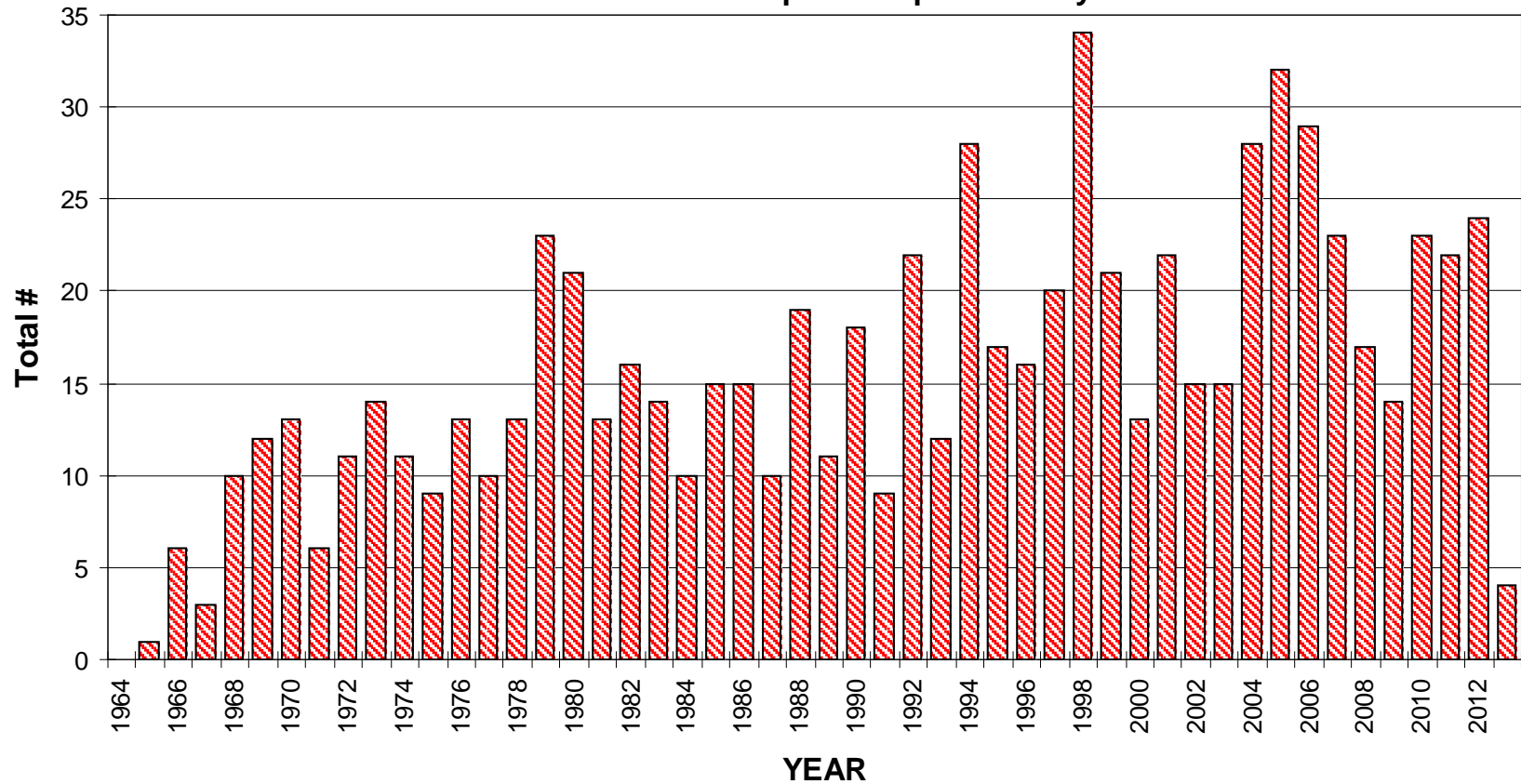


Figure 2
(Critical Exposure Classification Began in 1965, Changed to Critical Incident in 1999)

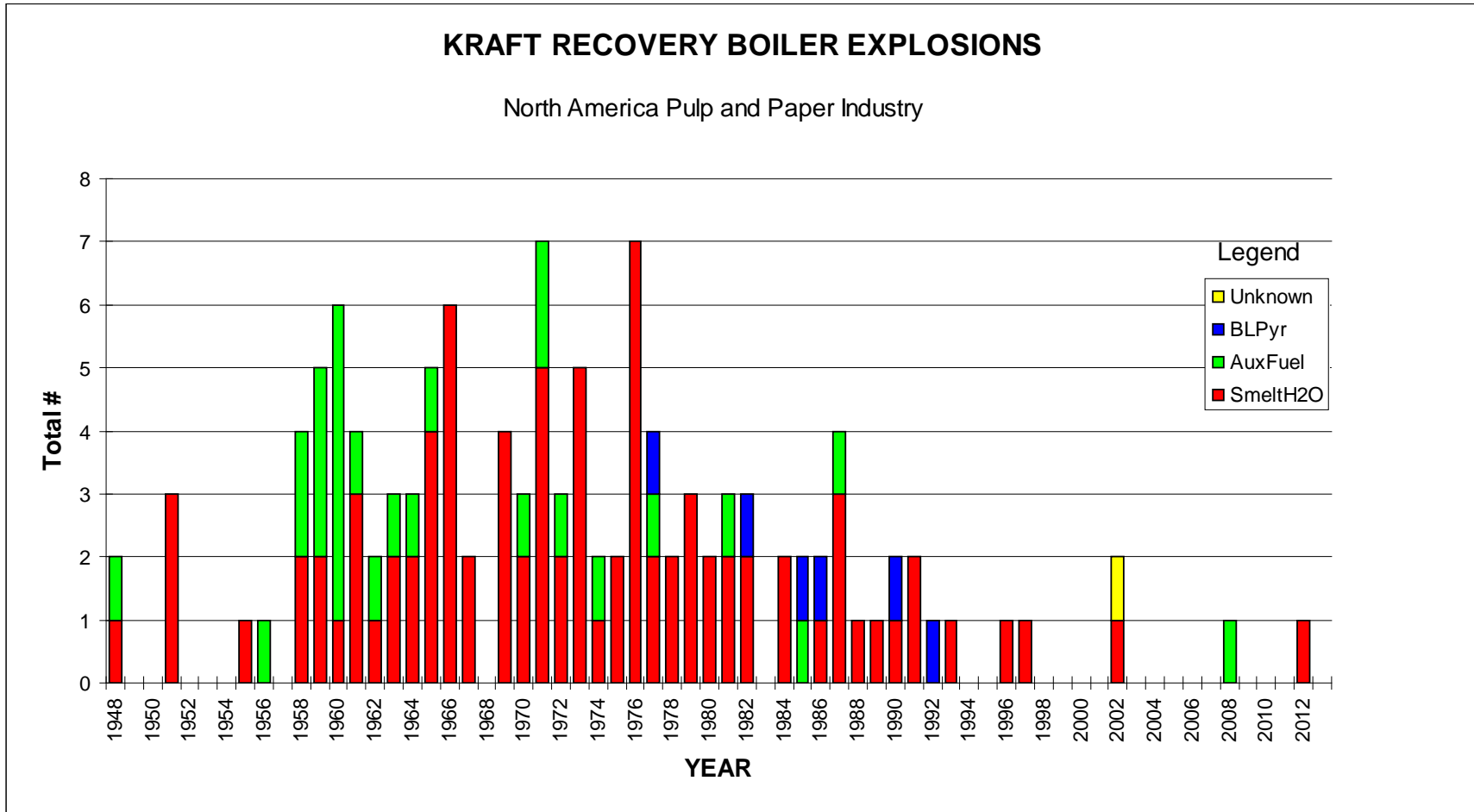


Figure 3

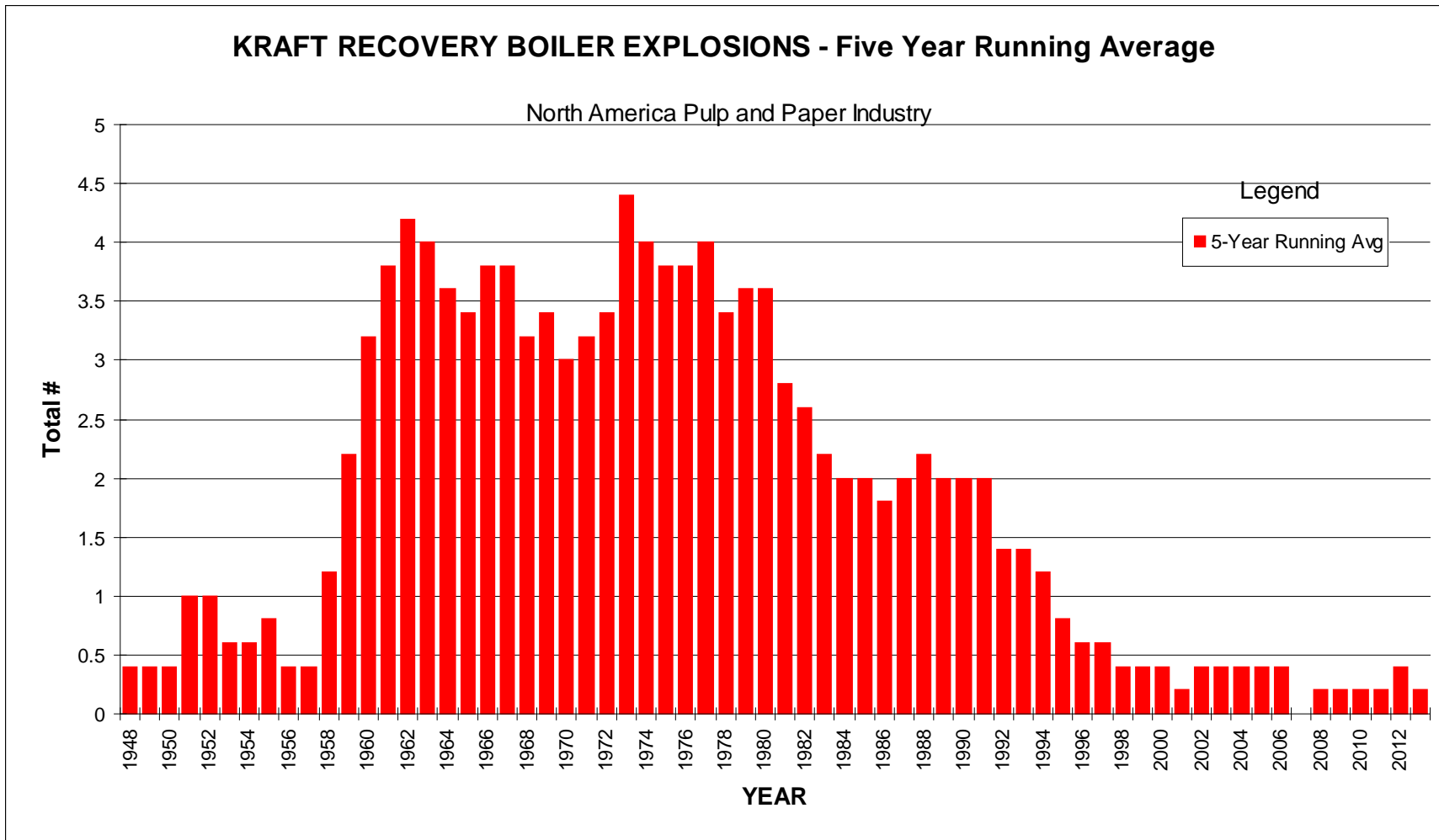


Figure 4

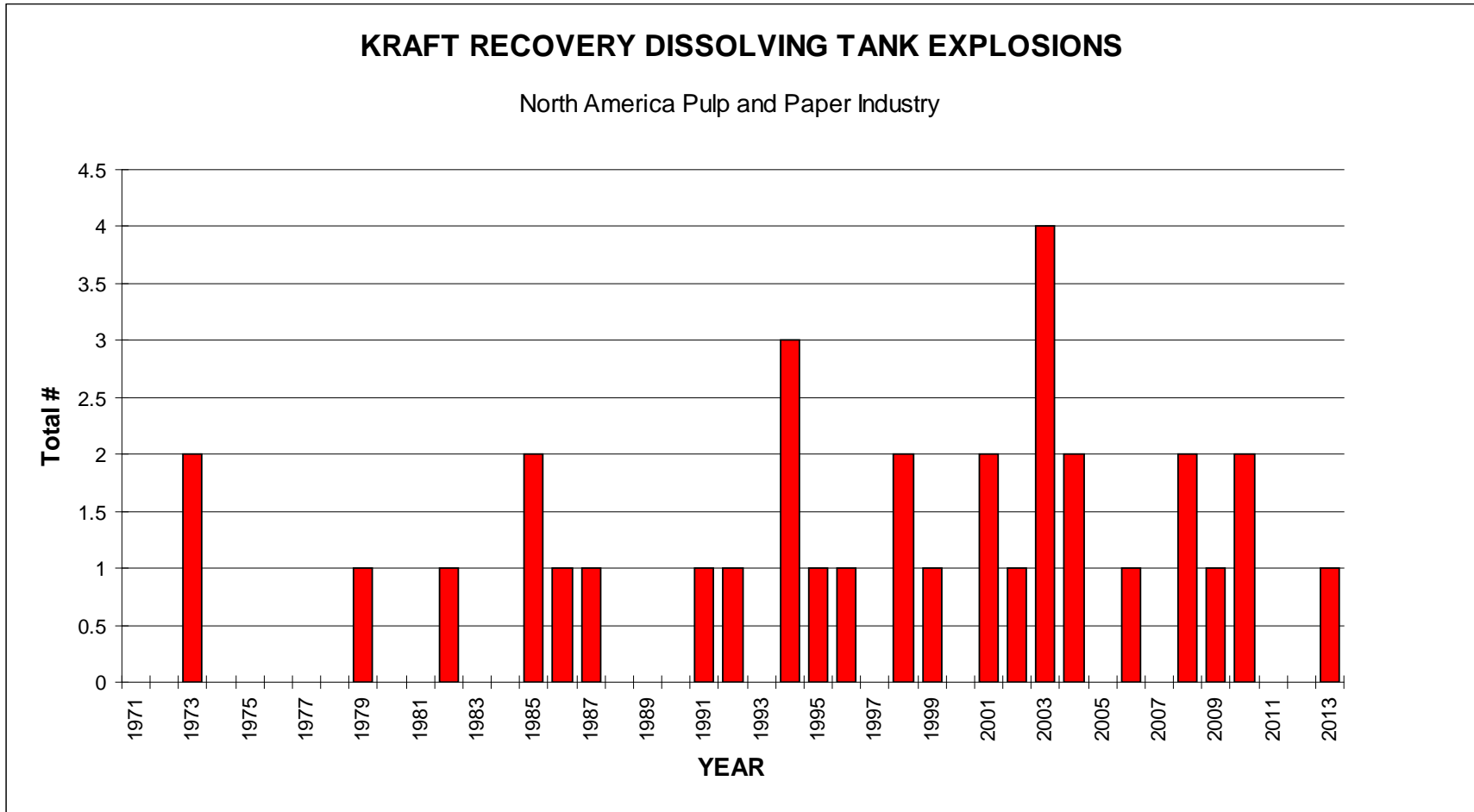


Figure 5

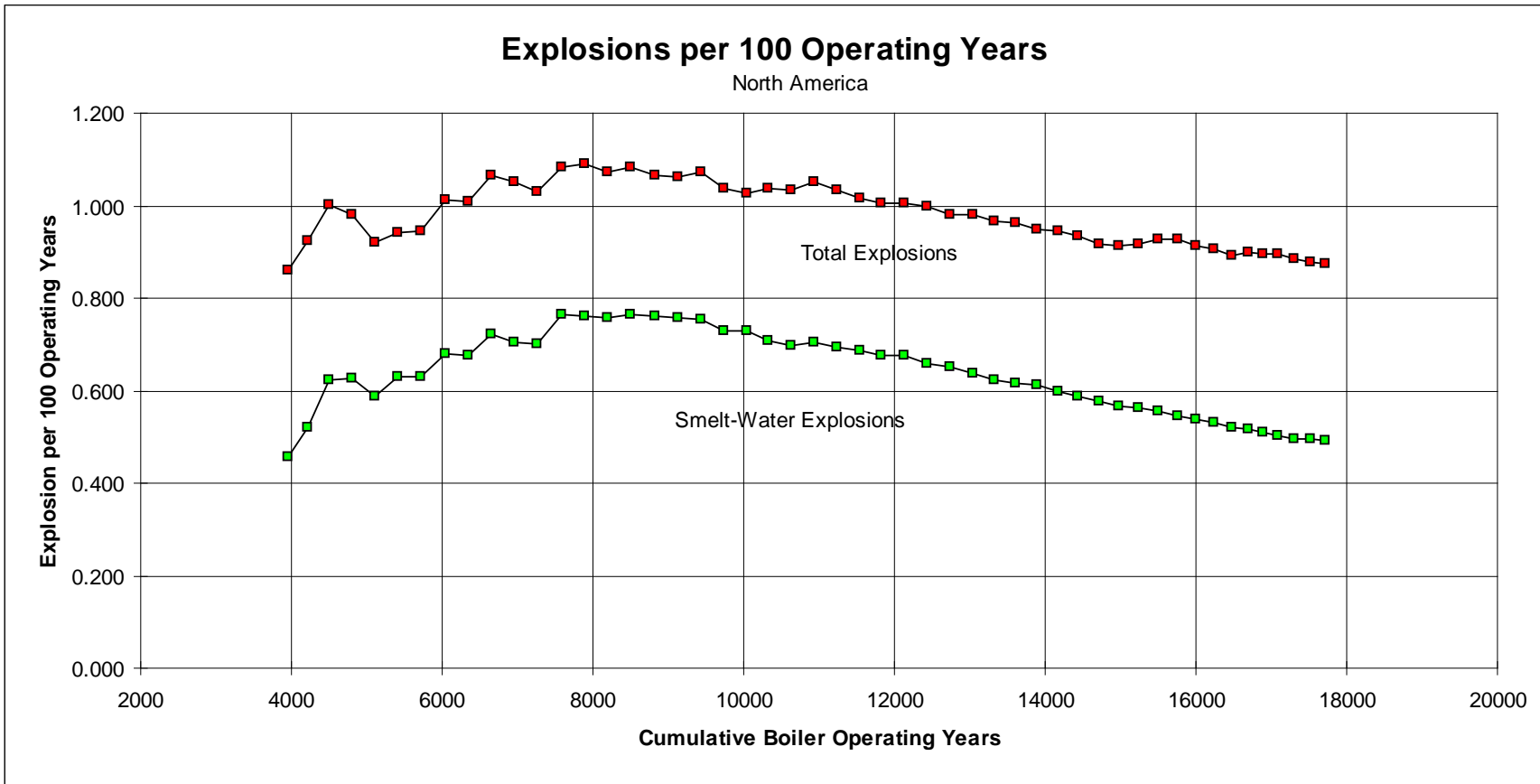


Figure 6

5. SUBCOMMITTEE REPORTS – (Cont.)

5.4 FIRE PROTECTION IN DIRECT CONTACT EVAPORATORS REPORT – Craig Cooke

Good morning. The Fire Protection in Direct Contact Evaporators Subcommittee met Monday morning in open session. There were a total of nine in attendance; eight of which were members of the committee (five as returning members and three were new recruits to the committee). We always welcome new members and the perspectives they bring to our group. The Antitrust policy was reviewed and the April 2012 Minutes were reviewed and accepted. We meet on an annual basis in April. (However, we do plan an October 2013 meeting for reasons I will explain later.)

There was one new fire incident March 3, 2013, at Carter Holt Harvey Kinleith Mill in New Zealand. It is a two drum cascade with a dry bottom precipitator. The ID fan is after the precipitator (clean ID). The unit has a history of liquor buildups at the outlet; however there has been no previous history of fires. There was no damage to equipment and the unit was off liquor 15.9 hours, and off header 13 hours. The recovery boiler was in normal operation. After a short period of time where outlet temperatures were slightly lower than normal, cascade outlet temperatures rose dramatically. Steam fire protection is provided and tripped automatically with high outlet temperature. Some key points:

- They are planning on annual clean out of the cascade outlets and ducts.
- There will be further checks for buildups whenever boiler is off-liquor.
- Mill should consider permanently piped, water wash nozzles installed at outlet and duct areas that are prone to buildups. These are inexpensive and easy to install and can be used during routine cascade washes.
- The first reaction to high temperature alarm was to speculate that the probe had malfunctioned. First reaction should assume there is a fire. The incorrect assumption resulted in a delay of closing precipitator dampers and the fire flaring up and steam being reactivated. If fire had gotten to the precipitator, this event might have been much more serious.
- Although steam controlled the fire, in large part, operators used a spray nozzle attached to a water hose for final extinguishment. Earlier, there had been some molten smelt noted in the ducts. Water is the BEST extinguisher of a fire. A permanently piped system may be a safer and more efficient way to provide water to the fire.
- We have a few questions for the mill and also hope they might be able to attend the October meeting so that we could meet with them.
- Our sincere thanks to the Kinleith Mill for submitting this incident quickly and their openness in sharing key information with us.

5. SUBCOMMITTEE REPORTS – (Cont.)

5.4 FIRE PROTECTION IN DIRECT CONTACT EVAPORATORS REPORT – (Cont.)

Overall our document, mainly generated in 2002, is good in providing needed direction; however, there is the need for some further direction related to upset conditions, especially some specifics related to preventing fires that occur when there is an upset. Much of the motivation for these revisions came from an incident that in February 2011 and was precipitated by an ESP event.

We have been working on those revisions and additions for the last couple meetings and we should have finalized revisions to the Executive Committee by October.

Some of the suggested changes include:

- Adding ESP to the list of upset conditions that might cause a fire.
- Consider adding automatic dilution water during an ESP.
- Damper activation is automatic or manual (now); we are suggesting to change that to automatic or **remotely activated from a safe location.**
- Closer monitoring of cascade amps and cyclone flow.
- A couple revisions to the Instrumentation Checklist: a cascade amp alarm to help assure rotation can be maintained; and low flow alarms on cyclone wall wash.

Please remember to complete a Direct Contact Evaporator Incident Questionnaire for any and all fires. Thanks again to the Kinleith Mill for submitting their incident so quickly. These lessons are helpful to all who operate direct contact evaporators. Even minor incidents can help us learn some lessons; so please report them all! We are considering some revisions to our Incident Questionnaire.

All are welcome to attend our meetings and we are always looking for new members.

As previously mentioned we meet every April, however we do plan to meet October 2013, Monday in the afternoon. We need this extra meeting to finalize the document changes we are working on and also hope to have further follow-up on the March 2013 fire incident at the Kinleith Mill.

5.5 INSTRUMENTATION REPORT – Dave Avery

The instrumentation subcommittee met in open session on Monday morning with 16 members and 11 guests. Our session began with introductions of members and guest.

We read the antitrust statement and continued on with a review of last October's minutes and the minutes were accepted

5. SUBCOMMITTEE REPORTS – (Cont.)

5.5 INSTRUMENTATION REPORT – (Cont.)

Our goal since fall 2008 has been to update the Instrumentation Checklist and Classification Guide with the other recommended good practices. The morning session began assembling the frontend of the document. It took the balance of the morning to go from the introduction through Chapter Three along with most of the checklist.

The afternoon session had 12 members and 12 guest in attendance. Work continued on reviewing the scope left to complete the package. We expect to have the document ready at the October meeting for submittal to executive committee for posting.

The afternoon session became a closed meeting at 2:00 pm.

Several needs were brought up to the subcommittee for addressing:

- We need to elect a vice-chair
- We need a central location to post our current work where the subcommittee membership can have access to it. This way we are all working off the same documents making the changes easier to follow. Several suggestions have been made and several folks have volunteered to help evaluate these possible solutions.
- Communications – we are receiving more questions from the membership between meetings. What is the best way to effectively answer these questions based on BLRBAC recommended good practices?
- The changes in technology are rapidly advancing with many more choices for the end user. Where do we need to position ourselves on these advances as it pertains to Recovery Boiler Recommended Good Practices (i.e. wireless, smart technologies, multiple networks etc., etc....)?

The group was asked to work on these items over the summer and bring their suggested resolutions to our next meeting in October.

Finally, we still have a lot of work before us. I want to thank our guests for working very well with the subcommittee. We were able to accomplish more together than alone.

5.6 MATERIALS & WELDING REPORT – Dave Fuhrmann

Review BLRBAC Anti Trust Statement

"This meeting, as are all BLRBAC meetings, is being held in accordance with BLRBAC Anti-Trust Guidelines"

5. **SUBCOMMITTEE REPORTS** – (Cont.)5.6 **MATERIALS & WELDING REPORT** – – (Cont.)**Attendance**

- The morning meeting of the Materials and Welding Subcommittee met in open session on Monday, April 8, 2013, with nine of 20 members represented and 6 guests.

Old Business

- Minutes of last meeting reviewed and approved.
- Changes posted for member review.
 - Document changes are posted to reflect changes for approval this session.
- Dave Crowe has not participated in several years and cannot be reached after multiple attempts. He was agreed he should be dropped from our subcommittee membership.

New Business:

- New members:
 - Doug Keiley (KB Engineering and Inspection) and Billy Jones (Kapstone) were considered and approved for membership.
- Communications:
 - Michael Lykins, Packaging Corp. of America, submitted a question on the Materials and Welding document wording regarding the use of thermal spray coatings and ASME minimum thickness and on document review and approval process (Section 3.4 **Thermal Spray Coatings (Initial) for Boiler Fire Side Waterwall Tubes**). Recent developments of ASME were referenced (ASME PCC-2 Repair of Pressure Equipment and Piping).

The response was that the document verbiage was reviewed in the meeting and approved by a quorum of the subcommittee for review by the Executive Committee, and posted for general membership review and approval. If ASME changes occurred, the code is still in play, even if ASME minimum thickness is calculated in another way. No action was taken on changing verbiage in the document.

- Document development was continued on a Technical Bulletin for **Plugging Tubes in Drums And Headers**

Afternoon Session:

The open afternoon session met in an open meeting with nine members present and 17 guests.

- Call to order and review of the BLRBAC Anti Trust statement.
- Review of Morning Meeting Activities

5. SUBCOMMITTEE REPORTS – (Cont.)

5.6 MATERIALS & WELDING REPORT – (Cont.)

- A presentation was provided by Matt Freeman (Intertek) on "**Asset Integrity Management**" by **managing and connecting inspection data**.
- Continued development of the Technical Bulletin on **Plugging Tubes in Drums And Headers**

Plans for the next meeting may include:

- Review references for commercialization concerns.
- Development of a document for the Technical Bulletin on **Plugging Tubes in Drums And Headers**
- Continued development of the procedure for **Plugging Tubes in Drums And Headers**
- Development of documents for SH ties
- Development of procedures for closure plate repairs.
- Continue work on Technical Bulletins for Materials –
 - The format for Materials Bulletins must be developed as the welding bulletin format does not apply
- Presentations of experiences that may be of interest to this group.
 - Welding Research Council
 - Repairs of cracks in the tube to header weld of economizer mini-headers
 - Inspection methodologies

SCOTT MOYER: Dave is going to give a summary review of the changes to the Materials & Welding Guidelines that we will be voting on. They have been posted since this winter. Just a reminder, each regular member company gets one vote. You should have a red ribbon on your name badge. But also remember that the Alternates also have a red ribbon, but there is only one vote per company. So if you are the alternate representative and the primary representative is here, the primary representative would be the voting member.

DAVE FUHRMANN: Should we do this one vote? There are three sections being changed?

SCOTT M OYER: Are there any objections to voting for all of these changes as one block? Are there any specific items that should be voted on separately?

DAVE FUHRMANN: As a very quick summary, we have Section 3.4 **Thermal Spray Coatings (Initial) for Boiler Fire Side Waterwall Tubes**. The next one is the Smelt Spout Traveler, which is just a suggested guideline on our check list. Then the last one is Definitions & Abbreviations which is several pages long.

5. **SUBCOMMITTEE REPORTS** – (Cont.)
5.6 **MATERIALS & WELDING REPORT** – (Cont.)

SCOTT MOYER: Again I would prefer to vote one time, unless there is an objection requiring voting separately. Okay, Dave. Go ahead with the review and then we will vote.

DAVE FUHRMANN: This again is a technical bulletin. It is intended to be a very general in description to emphasize the attention that should be given to this sort of work, but not getting into the details of the procedure. So this is for initial thermal spray coating for boiler fireside water wall tubes and it is intended for when you don't have it in there and you are going to do a mass covering of tubes. This is not for any repairs of thermal spray coatings. The potential for exposure depends upon the area that you are in. It may be "critical" or "non-critical." It details causes for why you might need it, which could be any number of things; mechanical erosion, water site deposit conditions, general and localized corrosion; also, boiler areas where effected that include any areas where tubes are subjected to the erosive conditions, or a wastage environment, usually in the lower furnace.

Recommended inspection is initial visual, followed by UT inspection. Here the tube wall thickness should be above the minimum by sufficient amount to account for loss of material during surface preparation or blasting. The coating thickness measurement should be performed after installation of the thermal spray to ensure desired coating thickness.

Recommended actions: I'll let you read through that. I'm not sure if you can read it from the back of the room; but again, as mentioned, it has been posted. Recommended actions are: compare current thickness data versus historical tube thickness data and determine the timeline for reaching the minimum wall thickness, make sure there is enough base material there, and typical coatings have about half chromium-half nickel. There are various applications. We do have a reference or two cited at the end.

That is for the thermal spray coatings.

Smelt spout insulation traveler: This is just an example of a traveler that documents the progress of the work, removal of the old spouts including the hoods, referencing spout positions, the preparations needed, and then installing new spouts and what needs to be done to ensure a good spout installation with final buy-off and approval.

The traveler identifies whether there is a hold point or not, then signatures when somebody has inspected and found that the line has actually been completed properly,

Definitions: There are quite a number of definitions and abbreviations. We think that this is in line with the general one that we are considering for the overall documents within BLRBAC. There are some things that we use that maybe aren't generally used in the BLRBAC document. Any questions?

5. **SUBCOMMITTEE REPORTS** – (Cont.)
5.6 **MATERIALS & WELDING REPORT** – (Cont.)

KARL MORENCY: One comment and I don't know if it necessarily impacts that first section, but one of the issues that has come up with us is that when you have a lower furnace with thermal spray coating and you go in there periodically to renew it, typically what happens is the contractor goes in, strips the coating off and there is always some loss of base material when you do that. Then they don't want you going back in there doing UT testing to see what you have for base wall thickness because then they have to go back and clean it again. So typically you are going in, stripping it off, putting a new coating on, and you may be down somewhere near minimum wall and there is no measurements taken on the thickness of the base material. So you may end up with a base material that is below minimum wall at some point in time and not be aware of it. I don't know if you are addressing that in a different section or if that is something that needs to be addressed separately.

DAVE FUHRMANN: Well it is not addressed in this section because this is for the initial application. I know that what we do at International Paper is that when we see that there is a bare spot that is going to have to be repaired, we take a reading then. So we do make some assumptions about how much remaining wall thickness there is before you put the thermal spray coating on. So you are right. You really don't know that. We will probably address it as a group a little bit later on.

SCOTT MOYER: Good point! Thank you, Karl. Are there any other comments or questions?

All right, would all voting members please rise. All in favor of the proposed changes please raise your hand. All opposed? Thank you. The change has passed unanimously.

5.7 **PERSONNEL SAFETY REPORT** – Daryl Hoffman reporting for Robert Zawistowski

The Personnel Safety Subcommittee met in an "open" session on Monday, April 8, 2013. There were eight members (out of 18) plus 41 guests in attendance during the meeting.

Representation at our meeting by regular members and guests included original equipment manufacturers Andritz (US), Babcock & Wilcox, and Diamond Power. Representation from insurance and insurance service companies was by FM-Global. Operating company representation included Boise, Clearwater Paper, Georgia-Pacific, Glatfelter, Graphic Packaging, Greif, International Paper, Irving Pulp & Paper, Kapstone, Longview, Northern Pulp – Nova Scotia, Port Townsend Paper Corp., Recovery Boiler of Flint River, Rock-Tenn, Smurfit-Kappa Group, Thilmany Pulp & Paper, LLC, Wausau and Weyerhaeuser. Consultant representation included Fuel Tech, Inc., Power Specialists Assoc., Inc. and Zoeygroup.

The BLRBAC anti-trust statement was reviewed. The minutes of the last meeting were read and accepted.

A list of projects, many completed, was reviewed to update the subcommittee on the progress we have made over the past number of years. Updates were provided on the status of the outstanding projects, most of which were carried forward in this meeting.

5. SUBCOMMITTEE REPORTS – (Cont.)**5.7 PERSONNEL SAFETY REPORT – (Cont.)**

One of the outstanding projects relates to blowdown lines. There was interest in the group to better define inspection of these lines. A number of mills indicated they have had the lines blow open due to corrosion under lagging and insulation. One user commented that blowdown lines can be connected to multiple boilers. Language will be developed for review during the October 2013 meeting.

There was a report about a supply tube from the mud drum to the screen tube inlet header on an older B&W boiler that had a failure at the junction of a generating section hopper. There is no service bulletin from B&W at this point but it is considered prudent to inspect these supply tubes periodically. The tubes tend to fail from the water side outward and initial indications can be visible by boroscope. Tubes at these locations can also be boroscoped and waterside indications may be visible.

The comments from the Executive Committee with regard to our pending documents, “Common Practices” were reviewed. Several slight additions were made since the last review by the subcommittee and this language was edited.

A “Forward” was written for the Common Practices section. This “Forward” was written with the intention of explaining that BLRBAC has not tested or reviewed, formally or informally, the information presented. Feedback from the Executive Committee pointed out to us there was redundancy. The “Forward” was edited with an attempt to remove this redundancy and resubmitted to the Executive Committee for additional review.

With regard to obtaining permission to use photographs one of the guests said the inquiry should go to the Mill Manager for approval. This will be reviewed with the Executive Committee. If they agree, a form will be developed and the process of obtaining permission will be started.

Language in our primary document was added with reference to Explosion Corners. The information added to our document heavily quotes the November 2001 “Phase II, Investigation of the Relationship Between Recovery Boiler Furnace Design and Explosion Damage” report by Thomas M. Grace and John L. Clement. In our new language we suggest using this report as a reference resource when deciding if a new or rebuilt boiler should or should not incorporate explosion corners. The Personnel Safety Subcommittee is not recommending the installation of explosion corners on new or existing installations. The decision to include or exclude explosion corners will reside with the mill and person(s) responsible for the recovery boiler operation. This new paragraph is 2.2.5 in the main Personnel Safety document.

A new paragraph was added to our main document with reference to “Management of Change.” In this paragraph we are recommending mills establish a “Management of Change” policy in either hard or electronic copy. This new paragraph is 2.10.6

5. SUBCOMMITTEE REPORTS – (Cont.)**5.7 PERSONNEL SAFETY REPORT – (Cont.)**

A new paragraph was added to our main document recommending mills develop a set of Recovery Boiler Safety Guidelines. The intent is improving safety and establishing a more formalized guideline process. In our document we do not specify the extent of the guidelines but do provide a list of suggested topics to consider.

A discussion was initiated about how mills clear condensate from atomizing steam systems for oil guns. Most mills indicated condensate was blown from a drain near the oil gun. One mill also blew condensate from an uncoupled oil gun to clear the flexible line from the hard piping to the oil gun. Of the mills participating in the discussion no immediate safety concerns were raised. One member of the subcommittee suggested that ball valves not be used on these blow down lines because they can be opened so quickly. A valve that opens slower is safer because condensate will first dribble out of the drain.

The topic of clearing plugged hoppers (generating bank, economizer and precipitator) was initially discussed. It was noted sometimes the hoppers bridge and when the ash is knocked down the hopper can go positive pushing hot ash out the access door into the operator(s). This will be researched in greater detail and we will start developing language for initial review during the October 2013 meeting.

A presentation was done by Robert Fry of Northern Pulp, Nova Scotia with reference to a smelt spout failure on a vacuum cooling system. All four spouts on the boiler had been replaced as part of a scheduled outage two days earlier. This system did not have a conductivity meter on the cooling water. A hole developed in the bottom of the trough and water flow in the spout dropped from 21 gpm to zero within a couple of minutes. Robert explained the series of events leading up to the failure. As a result of this event, two of the four spouts were replaced, the one that failed and a second one. The second spout had worn severely in the trough, but had not yet failed.

Toward the end of the meeting there was a discussion about “Unsafe Acts,” a theme we use to discuss near misses and accidents in mills.

Between the October 2012 and April 2013 meetings there were no requests for clarification or document interpretation.

In closing, we are always welcome to new committee members who can participate in any capacity even if you can only attend meeting intermittently.

KARL MORENCY: I have one comment and one question. I will start with the question. Is the committee actively looking at guidelines for inspection of leaks on pressure parts? That is kind of a recurring theme here.

SCOTT MOYER: That is on my list to talk to Bobby about.

5. **SUBCOMMITTEE REPORTS** – (Cont.)
5.7 **PERSONNEL SAFETY REPORT** – (Cont.)

KARL MORENCY: My second comment, I know that at the last meeting a question came up about installation of explosion corners on boilers and that had been covered in an AF&PA study maybe ten years ago. We went back and had Tom Grace review that and summarize the conclusions of that study at the last AF&PA meeting That would probably be a good Technical Presentation maybe for the next session.

DARYL HOFFMAN: Yes, that study was being referenced in our comments.

SCOTT MOYER: Next up we have a new Committee Chairman. I would like to introduce you to him and thank him for volunteering. Everett Hume is Publicity & News Release.

5.8 **PUBLICITY & NEWS REPORT** – Everett Hume **(NEW)**

As you might have noticed I'm not Dave Parrish. Anyway, I have just a short briefing. We continue to send out or post on some of the publications and event calendars for both this fall and the spring meetings. The spring meeting was posted in Pulp & Paper of Canada, Paper Age Magazine, Paper Industry Magazine, and TAPPI. We will continue to do that for the fall meeting, which will be sent out in June. So if anybody has anything they would like added to that announcement, please let me know and we will get that taken care of.

5.9 **WASTE STREAMS REPORT** – Paul Seefeld
(See Appendix B for PowerPoint slides used during this report)

On April 8, 2013 the Waste Streams Subcommittee met in a closed session at 9:00 AM with nine members/alternates present. There were five excused absences due to spring outage commitments. We are (re)adding Bently Sherlock of Georgia Pacific as a subcommittee member. He was previously on the committee as a representative of B&W.

At the start of both the morning and afternoon sessions the BLRBAC antitrust statement was reviewed. The October 2012 meeting's minutes were reviewed.

The existing waste streams document was submitted for approval by the executive committee and review for comment(s) by the general committee this past January. Because of this, we decided not to submit any proposed document changes until the autumn 2013 meeting.

Throughout the document we are going to replace the word “explosion” in the references of LEL and UEL to “explosive”. This is to be consistent with the NFPA and OSHA documentation.

Continued next page

5. SUBCOMMITTEE REPORTS – (Cont.)**5.9 WASTE STREAMS REPORT – (Cont.)**

The subcommittee recognized three topics that are of interest in our document to the operating companies: (1) the permissive definition of stable liquor firing; (2) the mandatory use of the continuous igniter during normal boiler operation; and (3) the requirement of an operator to manually start the waste stream igniter as a permissive to burning CNCG/SOG in the recovery boiler. The committee discussed these points and began to offer alternatives to the existing permissive/interlock statements in the documentation. These are found within the PowerPoint slides attached as Appendix B of these meeting minutes. The PowerPoint file was presented to the executive committee and the general committee for comment.

In the course of working through the proposed changes, we discovered that we need some help from the Safe Firing of Black Liquor Committee in regard to the definition of what stable liquor firing entails and exactly how that definition would apply to safely burning CNCG/SOG in the recovery boiler.

We reviewed the portion of the Finnish safe firing document to determine their position regarding the use of the continuous igniter. As the document dates from 2005, we are going to try to contact one of their members to see if they have made any updates to the existing paragraph in the document.

The committee discussed the possibility of moving to an autumn only meeting schedule. It was decided that we would work through the three above issues before we made the transition.

The subcommittee needs to name a Vice-Chairman of record as requested by the Executive Committee during their meeting with the Subcommittee chairs.

The afternoon open meeting started at 1 PM with 9 members and 14 guests present. The three major topics were discussed and we presented our initial recommendations. Also, the use of the term “explosion” was presented to the guests for comment. Some clarifications to the proposed changes were made to reflect the need to fully reduce the NCG component at whatever time it is added to the recovery boiler. This concern is reflected on the PowerPoint slides.

One visitor asked if wind-box pressure monitoring could be a substitute for the operator assist for starting the continuous igniter. The important point, made in tandem with this request, was that there is no requirement to inspect the igniter and NCG port after initial start-up.

There was a question if routing the smelt tank vent gasses to the recovery boiler was possible and if that source was addressed in the waste streams document. Reference to this is in chapter 4 of the current document.

5. SUBCOMMITTEE REPORTS – (Cont.)**5.9 WASTE STREAMS REPORT – (Cont.)**October 2013 meeting goals:

- Vote in a vice chairman.
- Review subcommittee member list and update.
- Update list of mills routing NCGs to the recovery boiler and discuss making the list public.
- Continue work on the three major topics from the April 2013 meeting. This includes clarification of the definition of safe firing as well as discussion of comment from the Finnish committee on their position regarding the continuous igniter. As shown in Appendix B, we are considering once stable liquor firing is established and the temperature in the furnace is above 1650°F, the igniter may be disengaged.
- Apply minor improvements to document (i.e. word-smithing).

CRAIG ADERMAN: That truly is 1650°F at the point of injection?

PAUL SEEFELD: It is in the injection zone. Yes.

CRAIG ADERMAN: Does that need to be clarified?

PAUL SEEFELD: Probably. Again, this is the first pass. We are going to get there. These statements will be going back and forth on the Internet over the next six months to committee members, Executive Committee members, or anybody who would like to comment. I'll send one to you! That was a good question.

SCOTT MOYER: Just one comment. these proposals present some pretty significant, strategic or philosophical changes on how we handle NCG's. So the committee is looking for feedback from the mills that are operating these systems. If our guidelines change, some of the changes may give you more flexibility. We need to be careful to make sure we are working in the safest manner possible. So any feedback the operating mills can give the committee will be appreciated so we can get the best document possible.

Again, proposed changes were posted on the WEB sites several months ago for membership review and comment.

PAUL SEEFELD: In terms of what we will be voting on this morning, there are a lot of little changes in just cleaning up/word-smithing. It is throughout the document and is the result of about two years worth of word-smithing; trying to clarify what we really mean based upon the questions that came back to the committee over time. The only major thing we added was the "Notice of Disclaimer of Liability" t.

5. SUBCOMMITTEE REPORTS – (Cont.)**5.9 WASTE STREAMS REPORT – (Cont.)**

Technical changes are as follows (extracted from the Summary of Changes Section of the draft document):

Section 3.5 (Corrosion): The last paragraph stating “the Waste Streams Subcommittee is not aware of any boilers that have suffered pressure part corrosion due to admission of liquid or gaseous waste streams to the furnace” has been deleted.

Section 4.4.2 (Safety systems for thermal oxidation of DNCG): The “shut-off valve to alternative control device not closed (if applicable)” has been deleted as one of the conditions that will disallow introduction of DNCG to the recovery furnace. This change was also made to Figure 3, *DNCG Injection Protective Tripping Logic* and Table 4, *Logic Explanation Chart for Figure 3*.

Section 5.2 (Collection and transfer of CNCG and SOG): Clarification was made that rupture disks are an example of pressure relief devices that may be found on CNCG and SOG collection and transfer systems.

Section 5.4 (Safety systems for the incineration of CNCG and SOG): “Stable liquor firing” has been added as an alternative to the permissive and tripping interlock of “steam flow greater than 50% of the steam flow at MCR”. This change was also made to Figures 7 (Waste system burner permissive starting logic for CNCG), 8 (Waste stream burner protective tripping logic for CNCG), 9 (Waste stream burner permissive starting logic for SOG), and 10 (Waste stream burner protective tripping logic for SOG) and their respective logic explanations charts (Tables 6, 7, 8, and 9).

Section 6.2 (Methanol)

- Clarification has been added regarding blending methanol into black liquor systems with partial recirculation.
- Guidance has been added on the use of an injection quill for blending methanol into black liquor.
- The recommendation on how to isolate methanol feed to black liquor has been revised from shutting down the pump and closing two isolation valves to permitting the use of two isolation valves or one isolation valve with shutting down the pump.

Section 6.4 (Soap): Clarification has been added regarding blending soap into black liquor systems with partial recirculation.

Section 6.5 (Spent acid from ClO₂ and tall oil brine): The recommendation on how to isolate spent acid from ClO₂ and tall oil brine feed to black liquor has been revised from shutting down the pump and closing two isolation valves to permitting the use of two isolation valves or one isolation valve with shutting down the pump.

Section 6.6 (Tall oil): Clarification has been added regarding blending tall oil into black liquor systems with partial recirculation.

5. SUBCOMMITTEE REPORTS – (Cont.)**5.9 WASTE STREAMS REPORT – (Cont.)**

Section 6.7 (Turpentine)

- Clarification has been added regarding blending turpentine into black liquor systems with partial recirculation.
- Guidance has been added on the use of an injection quill for blending turpentine into black liquor.
- The recommendation on how to isolate turpentine feed to black liquor has been revised to allow the shutting of two isolation valves in addition to shutting down the pump and closing the downstream isolation valve.

Section 7.2 (Safety when injecting liquid waste streams through dedicated burners): “Stable liquor firing” has been added as an alternative to the permissive and tripping interlock of “steam flow greater than 50% of the steam flow at MCR”.

Figures 1, 4, 5, 6, 21, 22, and 23 (process flow schematics) • Replaced the note: “This Drawing is Included For Information Purposes Only” with “This figure is for general reference only. It is not intended to be used as a basis for design.”

Regarding corrosion -- we took out some statements that we couldn't prove that had been kind of in the documentation for some time. That is Section 3.5.

Are there any questions on the document or where we are going with the document?

SCOTT MOYER: Okay. If there are no questions or comments, would the voting members please rise. All in favor of the proposed changes to the documents? All in favor? All opposed? Motion passes unanimously. Thank you.

KARL MORENCY: I do have one comment on the proposed changes shown on the Power Point that you talked about before. One of them was the location of the CNCG burner relative to the liquor guns. I guess I don't necessarily agree with burner having to be above the liquor guns because really when you stop and think about it there isn't any combustion going on at the liquor guns. That is a reducing atmosphere and you almost have to think about the reverse of a normal boiler that the combustion occurs where you are introducing air into a fuel rich environment. So the combustion is going on where the air ports are and I think that burner location with respect to the location of the liquor guns is irrelevant.

PAUL SEEFELD: The guidance to locate the burner above the liquor guns is to keep slag away from the injection port. That came right out of the finished document where they said, "Hey, if you want to put it above there, you still have to guarantee time and temperature." That's why we added that as a possibility. If you could guarantee time and temperature, if you are running the recovery full out, we are assuming that just above the liquor guns you are going to be at least 1650°F.

KARL MORENCY: Okay.

5. SUBCOMMITTEE REPORTS – (Cont.)**5.9 WASTE STREAMS REPORT – (Cont.)**

PAUL SEEFELD: So if you are at 1650°F, and again, the NCG flows we are talking about are small; 1200 to 3000 CFM. 3000 being max. So 3/4ths of a second for that small flow is readily achievable in a large recovery boiler; but with that being said, you still need 1650°F for the entire volume where the incineration is occurring

5.10 WATER TREATMENT REPORT – Tom Madersky

The water treatment subcommittee met Monday morning and Monday afternoon in open sessions.

Sixteen (16) subcommittee members and 10 guests attended both sessions of the meeting. The subcommittee membership profile for those in attendance was as follows:

- Two (2) OEMs
- Six (6) mill representatives
- One (1) FM Global representative
- Seven (7) BLRBAC Associate Members (4 of the 7 in attendance represented water treatment companies).

The spring meeting activities were as follows:

- In the morning session, the BLRBAC Antitrust Policy was reviewed; the membership lists updated and key line items from the fall 2012 subcommittee meeting were discussed.
- The subcommittee was provided an update regarding the status of resources developed to date. For the benefit of the entire membership that update is summarized as follows:
 - The subcommittee has completed four sections.
 - The four sections were posted in February 2013 for BLRBAC membership review.
 - To date, we have not received any feedback regarding those documents
 - In all likelihood, one or two of those four sections will undergo a final edit over the summer and will be re-posted in August 2013 in anticipation of a membership vote in the fall.
 - We encourage the membership to get back to the subcommittee with your suggestions and comments prior to the re-post in August. We will take any suggested changes under advisement.

5. SUBCOMMITTEE REPORTS – (Cont.)**5.10 WATER TREATMENT REPORT – (Cont.)**

- We also reviewed the status of the Recovery Boiler **Drum, Tube & Header Circuitry** and the **Chemical Cleaning** sections; both resources are currently in the production phase.
- In the fall 2012 session, we hadn't decided on how best to incorporate and then acknowledge some of the TAPPI Water Treatment TIPs that might be referenced in those resources and other resources we provide.
 - Over the winter, we received approval from TAPPI to reference their TIPs. Based upon that preliminary approval, the TIPs were then merged into our draft documents with the pertinent acknowledgments.
 - During the spring 2013 session, the subcommittee reviewed how the TIPs were integrated into the Drum, Tube & Header Circuitry document and then suggested that we send a draft version of the wording to TAPPI in an effort to solicit their approval prior to our submitting that resource (our 5th resource) to the Executive Committee for their approval to post.
- We spent the entire morning session re-editing the Drum, Tube & Header Circuitry document and discussing how best to reference other industry guidelines within the body of our document.
- In the afternoon session we focused upon boiler water monitoring, sampling, and testing guidelines.
- The afternoon session concluded with a review of action items going forward.
- On a final note, last year we started production of the Chemical Cleaning section (our 6th section). Subcommittee members continue to provide their input regarding content and formatting. We choose to delay working on this section until the fall of 2013.
- We adjourned at 3:00 p.m.

We would, again, like to thank all of the subcommittee members and guests for their participation and valued contributions.

6. AMERICAN FOREST & PAPER ASSOCIATION RECOVERY BOILER REPORT – Tom Grant

The AF&PA Recovery Boiler Program is continuing in its efforts to produce greater awareness of safe practices and improvement in the operation, maintenance, safety and efficiency of recovery boilers.

Membership

Currently, 31 companies participate in the Program. There are 3 other companies (Clearwater Paper [formerly Potlatch], Evergreen [Pine Bluff AR mill], and Woodland Pulp [formerly Domtar's mill] operating recovery boilers that are not in the Program. We continue to encourage the other 3 companies to join with the current members in the cooperative efforts for the safe operation and research to improve the reliability of the recovery boilers. All companies operating recovery boilers benefit directly from the Program's activities, including the research. The present Program members represent over 95% of the total production of sulphate pulp in the U. S.

Operational Safety Seminars

Last year we had a record number of people attend the two seminars in Atlanta, we had 59 attendees in April and 77 in May. They represented 17 companies from 32 mills. This year we will hold two seminars in Atlanta – April 23 and 24th and May 14 and 15th. At this time, we have a total of 42 people registered for the April seminar and 40 registered for the May seminar. We are looking for another successful result from these.

The seminars have also been reformatted to further improve the discussions and “preaching and teaching” the information available. Having the two half day sessions instead of the day and one-half day sessions, at the request of a number of companies, avoids additional time away from the mill. We continue to receive excellent reviews from the attendees who get valuable information from the dialogue among the attendees and the monitors of the seminars. The committee asks that all companies seriously consider sending people to these valuable seminars.

Review of the AF&PA Recovery Boiler Safety Audit Guidelines

The Operation and Maintenance Subcommittee reviewed and approved the final revision of the AF&PA Recovery Boiler Safety Audit Guidelines at its February meeting. It was last revised in 2004. It has been distributed to member companies and made available on the AF&PA website.

Study on Smelt Dissolving Tank Explosions

The Operations and Maintenance Subcommittee is looking to develop best practices around dissolving tank related issues, but avoiding any overlap of work by the R & D Subcommittee. The O & M Subcommittee prepared a questionnaire of 68 questions that was sent to all company representatives and mill superintendents to solicit input to develop best practices in operating dissolving tanks safely. As of this date, information has been received from 90 mills. All information will be treated in a strict confidential manner. Copies of the summary of replies will only be distributed to those mills that submitted information. Dr. Grace has agreed to summarize the results of the questionnaires. He reviewed his proposal for this study at the annual Conference in February and presented a brief outline of the results at that time. The Committee approved of the proposed study and Dr. Grace will present a preliminary report at the October meeting of the Committee.

6. AMERICAN FOREST & PAPER ASSOCIATION RECOVERY BOILER REPORT – Tom Grant

The O & M Subcommittee also discussed input for potential new projects, including work on developing guidelines on functional trip testing procedures on recovery boilers. These will include how to conduct testing and proposed sequencing of testing interlocks. The Committee also will work on identifying best practices for clearing and preventing plugged/bridged ash hoppers.

Updating “Kraft Recovery Boilers” Blue Book

The revision of the “Kraft Recovery Boilers” blue book is nearing completion. Most chapters have been completed and reviewed. The remaining chapters are expected to be completed by the end of the year. The final draft will be reviewed by members of the Subcommittee

Proposal for Research of Protective Clothing and Equipment

The R & D Subcommittee reviewed a proposal to launch a critical review of the materials that are available for use for personnel protection around black liquor recovery boilers. The BLRBAC Personnel Safety Subcommittee was contacted for suggestions for this proposal. The R & D Subcommittee discussed possible materials testing groups that might take on the study, but without success. Other groups are being contacted for this study.

Other Research Projects Under Review

The Committee discussed possible new research projects related to recovery boiler safety including: shatter jet design improvements; the use of infrared (IR) scanners for monitoring superheater inlet gas temperature during recovery boiler start-ups; methanol burning; energizing precipitator prior to starting fans up; ash hopper pluggage/level indication; exclusion areas around liquor guns; tube clearing; developing procedures for investigation of steam leaks; and boiler inspection protocols looking for SAC and FAC.

Annual Meetings and Conference

AF&PA’s annual Recovery Boiler meetings and Conference were held in Atlanta in February and was very successful. As usual, the Conference was open to all operating companies, insurers, vendors and manufacturers. The presentations included reports on the projects currently sponsored by the AF&PA Recovery Boiler Program and subcommittee reports on their accomplishments, reports from Sweden, Norway and Finland on their recovery boiler committees’ activities, as well as other research being done outside of AF&PA related to recovery boilers. The object of the Conference is to keep not only the members advised, but also the remainder of the recovery boiler community, as well. We hope that many of you will plan to attend next year’s Conference which will be held in Atlanta in February.

7. NATIONAL BOARD OF BOILER AND PRESSURE VESSEL INSPECTORS REPORT - Terry Parks

No report given at this meeting.

8. TAPPI REPORT – Alarick Tavaris

(See Appendix C for *"TAPPI Power and Recovery Boiler Subcommittee Update"*)

9. WESTERN CANADA BLRBAC REPORT – Shawn Casey

The last Western Canada BLRBAC meeting was held in March, there was good attendance 97 people made up of Mill Reps, Boiler Manufacturers and Suppliers. The meeting format was changed to allow a full for Technical Papers to be presented with a full attendance of guests. Last Atlanta meeting I made a mistake on our 50th Anniversary it is in fact this November and we will be having a cruise to honor this memorable event, if any of you would like to attend please contact myself we would welcome guests.

During the meeting we discussed submitted incidents as well as operating issues and good results to help the membership with their problems in the Mills.

The Boiler Manufactures again presented what they are doing to help the industry become better a lot of focus again on reducing energy.

I would like to again personally thank the Atlanta membership for the learning a I bring back to our membership this is very beneficial to helping us in Canada your web site is the best resource we have and thank all of you thru the years who have continued to make it better.

Lastly I would like to thank the ESP Committee in the last 5 years the amount I have learned from them and the great friendships I now have, this like the others is a very special subcommittee who work very hard and never complain; so thanks.

10. ACTIVITIES OUTSIDE NORTH AMERICA REPORTS

No reports given at this meeting.

11. OPERATING PROBLEMS SESSION REPORT – John Gray (NEW)

The Operating Problems session was conducted during the afternoon of Tuesday, April 9th and encompassed two technical presentations and group discussion of 32 membership-submitted questions.

The first technical presentation explored the causes of recovery boiler ash buildup and ways to inhibit boiler pluggage, and was presented by David Krygsveld of Atlantic Combustion Technologies.

The second technical presentation encompassed a detailed review of combustion air system changes that can be made to reduce NoX levels and was given by John LaFond of Jansen Combustion Technologies.

The 32 submitted operating problem questions were explored via a question & answer session within BLRBAC membership. Major topics covered included, but were not limited to:

- Discussions around the interval between boiler outages (12 months versus 18 months and beyond) and how decisions are made to extend this interval
- Precipitator trip requirements

11. OPERATING PROBLEMS SESSION REPORT – John Gray (NEW) (Cont.)

- Smelt spout cooling water system design criteria
- Post ESP Procedure usage.

VICE CHAIRMAN JOHN GRAY:

Immediately following this meeting, we have one additional brief Technical Presentation. Michael Curtis from Georgia-Pacific is going to give us an update on where we stand around MACT compliance developments - "*Pulp & Paper Industry MACT Update*"

Once Michael's presentation is complete, the TAPPI Steam & Power Division will kick off their Spring meeting with a TIP presentation.

CHAIRMAN SCOTT MOYER:

Are there any other questions or comments? If not, can I have a motion to adjourn the meeting? Second? All in favor? Opposed? The business meeting of spring 2012 BLRBAC is concluded. Thank you much for your participation. Everyone have a safe trip home!

NEXT MEETING – October 7, 8 & 9, 2013, Crowne Plaza Hotel, Atlanta, GA.

ESP ONLY – No Leak

SPRING 2013-01	
Classification:	Non-Critical
Location:	Domtar, Ashdown, AR
Unit:	#2 RU, 1979 CE, contract 27477, 2-drum, large econ, decanting hearth
Unit Size:	4.2 MM lb ds/day; 600,000 lb/hr steam at 850 psig, 850°F, 1075 psig design
Incident Date:	January 12, 2013
Downtime hrs, leak/total:	60/60
ESP?	YES
Leak/Incident Loc:	ESP Only, No Leak
How discovered:	Bed cameras showed disturbance near hearth
Wash adjacent tube:	N/A
Root cause:	Unknown
Leak detection:	Yes:
Bed cooling enhanc	Yes:
Last full inspection:	Oct 2012
Sequence of events:	12Jan: 17:40 Unit at about 85% load. Operator saw bed camera showing disturbance near hearth that looked like fan of spray just above bed. Check found no visible noise. ID fan had picked up 4% in short time. 17:55 Initiated ESP. Cleared 12 hours. 13Jan: Unit locked out, doors opened. 10:00 Southland began cooling the bed with sodium bicarbonate 20:00 TC's below 800F. 22:00 Began water wash. Unit hydro'd 3 hours. Top of SH's scaffolded to check for dangerous salt cake lumps and upper furnace leaks No leaks found. Lower furnace inspected. No leaks found. 14Jan: Unit unlocked. 20:30 Fired gas. 15Jan: 06:30 Fired liquor.
Repair procedure:	N/A
Future prevention:	Working on improved leak trend variables display and improved resolution bed cameras [Ed.: Good idea to check resolution of aging czmera video tubes and CRT's.]

ECONOMIZER HANDHOLE

SPRING 2013-02	
Classification:	Non-Critical
Location:	RockTenn, Florence, SC
Unit:	1973 B&W PR159, 2-drum, 1991 Large economizer , rear-sloped hearth
Unit Size:	3.8 MM lb ds/day; 595,000 lb/hr steam at 650 psig, 750°F, 950 psig design
Incident Date:	November 28, 2012
Downtime hrs, leak/total:	25.1/30.3
ESP?	No
Leak/Incident Loc:	Crack in economizer hand hole cap weld, lower header, front (hot) module
How discovered:	Econ hopper drag chain tripped. Walk down. Saw wet saltcake in
Wash adjacent tube:	No
Root cause:	-
Leak detection:	No
Bed cooling enhanc	No
Last full inspection:	Feb 2012
Sequence of events:	28Nov: Econ hopper drag chain tripped. Reset chain. Walk down. Saw wet saltcake in hopper. Did orderly shutdown. Started bed burn-out on oil. 29Nov: 09:00 Liquor out.. 13:00 Bed burned out. Fire out. 19:00 unit drained. 22:20 Repairs complete and PT'd. 30Nov: 07:30 Hydro OK..08:50 Fired unit.14:15 On line.16:55 On liquor.
Repair procedure:	Remove handhole cap and installed new handhole by B&W procedure
Future prevention:	Previous hand hole leaks.

ECONOMIZER

SPRING 2013-03	
Classification:	Non-Critical
Location:	International Paper, Pensacola, FL
Unit:	RB1, 1975 B&W, PR171A, 2-drum, rear-sloped hearth, 1996 Tampella Economizer
Unit Size:	2.89 MM lb ds/day; 450,000 lb/hr steam at 850 psig, 850°F, 1000 psig design
Incident Date:	January 8, 2013
Downtime hrs, leak/total:	23.6
ESP?	No
Leak/Incident Loc:	Shop weld in bottom center of 4" mini header feed to fin tubes near lower econ, Tube 36
How discovered:	Leak detection system
Wash adjacent tube:	No
Root cause:	Weld porosity
Leak detection:	YES. IP internal mass balance
Bed cooling enhanc	No
Last full inspection:	April 2012
Sequence of events:	8Jan: 05:15 Leak detection system alarmed. Investigated. 05:30 Saw water in wet hopper. 06:05 Dry hopper dry. 06:25 Confirmed leak in econ. Began orderly shutdown. 06:54 Pulled liquor, started bed burn-out. 07:30 Confirmed leak location. 09:41 Unit shut down. Made repairs. 9Jan: Did hydro OK. 09:22 Unit on line. 12:29 Liquor fired.
Repair procedure:	Ground out, no indication with ndt, welded, and good ndt. Checked for thinning nearby.
Future prevention:	4 similar leaks in this and same design replacement econ of #2 RB. Review previous Xrays, reshoot any suspect places,

SUPERHEATER

SPRING 2013-04	
Classification:	Non-Critical
Location:	Alberta Pacific Forest Industries (Alpac), Boyle, Alberta, Canada
Unit:	1993 B&W Can, #134-7634, 1-drum rear-sloped, large economizer
Unit Size:	7.3 MM lb ds/day; 1,029,000 lb/hr steam at 900 psig, 849°F, 1150 psig design
Incident Date:	Aug 29, 2012
Downtime hrs, leak/total:	0/48
ESP?	No
Leak/Incident Loc:	Sheared-off tube 30 platen #2, trailing side of Secondary Superheater first pass (rear bank) at lower level crossover "D" link repad, over arch
How discovered:	Walk down. Heard noise.
Wash adjacent tube:	No
Root cause:	Stress crack initiated at toe of repad weld attachment & rapidly progressed until tube sheared
Leak detection:	Yes
Bed cooling enhanc	No
Last full inspection:	May 2012
Sequence of events:	During walk down, heard loud noise. Confirmed superheater leak. Pulled liquor, burned bed on gas, orderly shutdown.
Repair procedure:	Removed & replaced failed section & "D"-link, using CIMS weld with RT ndt, then hydro.
Future prevention:	In 2005, had eleven repairs made. Now removing crossover links and installing straight tube sections to minimize the high stress locations

SUPERHEATER

SPRING 2013-05	
Classification:	Non-Critical
Location:	Weyerhaeuser, Port Wentworth, GA
Unit:	Unit 24370, 1979 B&W, PR-190, 2-drum Large Economizer, rear-sloped hearth
Unit Size:	4.7 MM lb ds/day; 699,000 lb/hr steam at 600 psig, 750°F, 1700 psig design
Incident Date:	October 5, 2012
Downtime hrs, leak/total:	0/12
ESP?	No
Leak/Incident Loc:	1/8" pinhole in Primary Superheater. Platen 17, Tube 6. at D-Link Tie; front platen
How discovered:	Saw leak during hydro following annual shutdown
Wash adjacent tube:	No
Root cause:	Old D-link failures
Leak detection:	No
Bed cooling enhanc	No
Last full inspection:	May 2011
Sequence of events:	Saw leak during hydro following annual shutdown. Inspected to locate source of the water seen in the furnace. Repairs completed with a Dutchman in 12 hours
Repair procedure:	Repairs completed with a 6' section Dutchman
Future prevention:	Cut off all remaining D-Links that have been replaced with hand cuffs March 2013

SUPERHEATER

SPRING 2013-06	
Classification:	Non-Critical
Location:	Glatfelter, Spring Grove, PA
Unit:	#3 RB, 1993 Ahlstrom, Ser # 6019, 1-drum Decanting hearth, Large economizer
Unit Size:	2.67 MM lb ds/day; 434,500 lb/hr steam at 880 psig, 835°F, 1120 psig design
Incident Date:	November 14, 2012
Downtime hrs, leak/total:	18
ESP?	No
Leak/Incident Loc:	Pinhole leak in a superheater bend just above roof under crown seal in 3d of 4 superheater sections.
How discovered:	During hydro.
Wash adjacent tube:	No
Root cause:	Tube corrosion in the crown seal area, most likely due to build-up of ash in the area and the number of water washes of the boiler.
Leak detection:	No
Bed cooling enhanc	No
Last full inspection:	May 2012
Sequence of events:	Unit was down for semi-annual outage for water washing. During hydro of unit, water was detected running down the nose. Tracing water back, we found that it was coming from the 2nd platen in the II superheater section. The crown seal was opened up and the pinhole leak was found.
Repair procedure:	A pad weld was applied to the leak.
Future prevention:	Thorough inspection of the crown seals will be conducted during the next outage. This will be destructive testing as it will require that we cut into the crown seal to inspect the tubes.

FURNACE SCREEN

SPRING 2013-07	
Classification:	Critical Incident
Location:	Boise Inc., Jackson, AL
Unit:	No. 2 Recovery, CE contract 24272, startup 1974. NB # 21487. Two drum decanting bed design with DCE Cascade Evaporator
Unit Size:	1.7/2.5 MM lb ds/day; 300,000 lb/hr steam at 650 psig, 750°F, 750 psig design
Incident Date:	August 2, 2012
Downtime hrs, leak/total:	44/58
ESP?	Yes
Leak/Incident Loc:	Screen, sloped section, pendant 5 (of 22), between tubes 10 and 11 (of 13)
How discovered:	Walk down. Visual inspection during chill and blow. Saw leak
Wash adjacent tube:	No
Root cause:	SAC / Corrosion fatigue
Leak detection:	Yes. Triple 5
Bed cooling enhanc	No
Last full inspection:	Nov 2011
Sequence of events:	Boiler was off line for Cascade boil / Chill and Blow. Superintendent inspecting the superheater noted odd deposit pattern, inspected further from the furnace manways and spotted the leak. Boiler was ESP'd from the control room button.
Repair procedure:	Dutchman
Future prevention:	Replaced Screen October 2012

UPPER FURNACE

SPRING 2013-08	
Classification:	Non-Critical
Location:	Domtar Paper Marlboro, Bennettsville, SC
Unit:	#1 RB, 1990 Ahlstrom #5904, 1-drum Large economizer, Decanting hearth
Unit Size:	4.4 MM lb ds/day; 635,000 lb/hr steam at 1080 psig, 850°F, 1550 psig design
Incident Date:	September 21, 2012
Downtime hrs, leak/total:	94 hrs
ESP?	Yes
Leak/Incident Loc:	2" circumferential crack in tube bend inside of 8th floor manway door wall box (west side) (lower superheater section slightly above nose arch)
How discovered:	Walkdown.
Wash adjacent tube:	No
Root cause:	Unknown
Leak detection:	Yes. In-house mass balance, in DCS, 2010. Very small leak – undetectable by system.
Bed cooling enhanc	No
Last full inspection:	2011
Sequence of events:	21Sep: 07:10 During walk down, saw small steam vapor coming from behind the casing/boiler lagging of a manway door on the west side of 8th floor. Lagging/insulation removed to determine location. Steam/water vapor exiting manway door wall box refractory "weep" holes at the 3 and 6 o'clock positions. Couldn't determine if tube leak was external to furnace. 09:02 ESP'd the boiler. Waited full 24 hours (mill's policy) for re-entry, due to smelt bed conditions and hearth/floor temperature readings. 22Sep: No damage found at re-entry inspection. Smelt bed probing satisfactory. Waterwash begun. Found leak - a 2" circumferential crack at tube bend. external to the furnace outside of wall box seal weld to furnace, with poured refractory. Repairs made. The X-ray and hydro were good. 25Sep: 04:56 Boiler was back on line 07:10 back on liquor.
Repair procedure:	With no bent tube stock on hand, the tube was cut out of the wall box, pad-weld repaired and re-installed. The X-ray and hydro were good.
Future prevention:	We will replace this entire wall box since mechanism of failure not known.

UPPER FURNACE

SPRING 2013-09	
Classification:	Critical Incident
Location:	International Paper, Vicksburg, MS
Unit:	22062, 1967, 2008 rebuild B&W, PR-105, 2-drum, front sloped hearth, DCE Cyclonee
Unit Size:	3.5 MM lb ds/day; 495,000 lb/hr steam at 1000 psig, 800°F, 1150 psig design
Incident Date:	September 24, 2012
Downtime hrs, leak/total:	74/74
ESP?	YES
Leak/Incident Loc:	Crack in 9 th floor IK opening tube at lower crotch plate wrap-around weld
How discovered:	Walk down. Saw condensate at IK opening and heard whistling noise
Wash adjacent tube:	YES. One side had a leak and washed out the other tube causing another leak.
Root cause:	Thermal fatigue
Leak detection:	Yes (IP inhouse mass balance)
Bed cooling enhanc	Yes NaHCO ₃ by N ₂ injection
Last full inspection:	Jan 2012
Sequence of events:	During walk down IK inspection, saw condensate at IK opening and heard whistling noise. Valved out IK's and noise still there. Opened nearby inspection door and saw water below IK. Unit conditions all normal. Did ESP (20 min after 1st indication). Inspected leak, replaced tubes, X-rayed new tubes, started up on curve.
Repair procedure:	Two tubes surrounding the soot blower opening were replaced. X-rayed tubes after welding was complete. Membrane welds were PT inspected.
Future prevention:	Had similar leaks. Reviewed Sootblower drawings. Found incorrect seal air piping going to Soot blower wall boxes. Adjusting PM route & operator rounds to check for leaking poppet valves. The lower crotch plate wrap-around weld is also a weak point that cannot handle condensate leakage Will remove lower crotch plates on all IK openings and inspect/replace suspect tubes on the annual outage

UPPER FURNACE

SPRING 2013-10	
Classification:	Non-Critical
Location:	Verso Paper, Quinnesec MI
Unit:	#1 RU, 1985 B&W PR-203, 2-drum Large economizer, rear-sloped hearth
Unit Size:	4.20 MM lb ds/day; 620,000 lb/hr steam at 600 psig, 752°F, 800 psig design
Incident Date:	October 6, 2012
Downtime hrs, leak/total:	21.15 hr
ESP?	No
Leak/Incident Loc:	½" crack at weld joint at interior side of water wall tube surface at casing attachment to side wall tube near top of arch & boiler hopper
How discovered:	Walk down. Saw water on 8 th floor insulation.
Wash adjacent tube:	No
Root cause:	Fatigue cracking.
Leak detection:	Yes Acoustic. Triple-5 AAI
Bed cooling enhanc	No
Last full inspection:	Oct 2012
Sequence of events:	6Oct12. During startup after maintenance shutdown, saw water on 8 th floor insulation. Confirmed as unit leak. Since firing only natural gas, only 435 psig of startup, did orderly shut down. 7Oct12 Made repairs. Dry hydro. Started unit.
Repair procedure:	Ground out crack. Weld repair
Future prevention:	Inspected opposite side., saw start of fatigue crack. Ground out and weld repaired.

LOWER FURNACE

SPRING 2013-11	
Classification:	Critical Incident
Location:	Rock-Tenn, La Tuque, Quebec, CAN
Unit:	#4 RU, 1966 CESL, CA 64134, 2-drum decanting heart, DCE Cascade
Unit Size:	1.16 MM lb ds/day; 178,000 lb/hr steam at 320 psig, 850°F, 725 psig design
Incident Date:	Jun 26, 2012
Downtime hrs, leak/total:	70/112
ESP?	Yes
Leak/Incident Loc:	6 small pinholes, < 1/8", in 1" diam circle at crotch plate replacement weld of thinned tube, .200" below orig t; left sidewall 8" below primary airports
How discovered:	During refractory repair at hearth manhole door saw water spraying into furnace at primary ports
Wash adjacent tube:	Yes. 2 adjacent tubes thinned
Root cause:	Likely tube weld defect
Leak detection:	No
Bed cooling enhanc	No
Last full inspection:	Oct 2011
Sequence of events:	26Jun: 11:45 Unit shut down to repair refractory on hearth manhole door. 14:20 With manhole door removed, saw small spray of water 14:30 ESP'd unit. 27Jun: 11:30 Bed probed 450°F 13:50 Start waterwash 28Jun: 00:50 Waterwash done, then lockout Repairs made 29Jun: 13:00 Hydro OK 30Jun: 17:00 unit on liquor.
Repair procedure:	Replaced 3' section and replaced 3' section of 1 adj thinned tube and overlay welded thin area of other thinned tube.
Future prevention:	All primary air level crotch plates were inspected for defects cracks, poor quality welds and previous repairs such as drilled cracks. Magnetic particle NDT was done on 124 crotch plates. Repaired & retested 28 with small cracks not yet in tubes.

FLOOR

SPRING 2013-12	
Classification:	Critical Incident
Location:	Tolko Manitoba Kraft, LePas, Manitoba, CAN
Unit:	1969 CESL, CA-69108, 2-drum Decanting hearth, Cascade DCE
Unit Size:	1.75 MM lb ds/day; 219,000 lb/hr steam at 750 psig, 825°F, 800 psig design
Incident Date:	September 18, 2012
Downtime hrs, leak/total:	103.75 hrs
ESP?	Yes
Leak/Incident Loc:	Rupture in floor tube, 1 st from left wall
How discovered:	Bed camera saw bubbling in bed.
Wash adjacent tube:	No
Root cause:	Overheat [Ed: Possibly due to: Weld push-through, Poor circulation, High smelt flux, I.D. scale (1987 chem clean)]
Leak detection:	No
Bed cooling enhanc	Yes Operators used steam lances.
Last full inspection:	August 2011
Sequence of events:	18Sep: Operator saw in bed camera that bed was bubbling up on left wall. The primary air ports were plugging off with very hard char/smelt that was splashing into ports. Welders shield used to check bed but bed was too bright. Bed checked using bed camera and smelt could be seen bubbling up like a mushroom. ESP was activated.
Repair procedure:	
Future prevention:	A first leak in this tube May 2, 2012 also was caused by over heating. This tube and 5 others, 3 on each side wall, will be changed in the annual shutdown. We will do a complete survey of the rest of the floor tubes.

SPOUT

SPRING 2013-13	
Classification:	Non-Critical (MDT Risk)
Location:	Port Townsend Paper Corp, Port Townsend, WA
Unit:	#1 RU, 1969 CE, Contract 5667, 2-drum Decanting hearth, LAH
Unit Size:	2.17 MM lb ds/day; 354,000 lb/hr steam at 375 psig, 745°F
Incident Date:	Jan 9, 2013
Downtime hrs, leak/total:	76
ESP?	Yes
Leak/Incident Loc:	Damaged smelt spout
How discovered:	Walk down. Smelt pouring over and damaging spout
Wash adjacent tube:	no
Root cause:	Excess smelt run-off allowed smelt to burn away spout retaining bolts. Possibly insufficient bolt connection weld design contributed to bolt failure.
Leak detection:	
Bed cooling enhanc	
Last full inspection:	
Sequence of events:	9Jan: 20:00 – 21:00 During a start-up, with some plugged spouts, smelt pool was growing. #2 spout started to flow, but in 5 minutes, spout totally full and running over top of spout. Took oil gun out of unit and turned on weak wash to tank. After extended period, #2 spout was leaning forward with smelt running behind it. Pulled liquor. Spout broke away from holding bolts, and smelt pouring directly out of furnace opening. 23:09 ESP'd unit . Followed procedure with 12 hour wait. 10Jan: 11:36 Started water wash. Consultant retained to analyze spout failure.
Repair procedure:	
Future prevention:	Review of SOP's and ESP procedures.

DISSOLVING TANK EXPLOSION

SPRING 2013-14	
Classification:	Main Dissolving Tank Explosion
Location:	Thilmany, Kaukauna, WI
Unit:	#10 RB, 1962 B&W, PR-63, 2-drum, Sloped to front hearth, Large economizer.
Unit Size:	1.17 MM lb ds/day; 187,700 lb/hr steam at 600 psig, 830°F, 700 psig design
Incident Date:	July 7, 2012
Downtime hrs, leak/total:	120
ESP?	No
Leak/Incident Loc:	Smelt run-off damage to main dissolving tank
How discovered:	Heard a large rumble, most likely small explosions in the Tank
Wash adjacent tube:	no
Root cause:	Uncontrolled smelt run-off
Leak detection:	No
Bed cooling enhanc	No
Last full inspection:	-
Sequence of events:	<p>Saturday 7Jul: 13:20. Largest power boiler #11 tripped due to severe boiler tube leak. The 182 lb mill steam header dropped to 36 psi. This caused both # 8 and # 10 boilers to trip off of black liquor. Operators report that both smelt spouts were open and running during the initial liquor trip. Lost purge steam flow to both boilers LSC solids meters. Both boilers were brought back up on line successfully with auxiliary fuel. 14:40: 2 auxiliary fuel burners were put in. 14:49: 4 auxiliary fuel burners were put in. 14:50: 5 auxiliary fuel burners were put in. 15:57: one of the burners tripped out. 15:59: burner put back in. After they initially got the auxiliary fuel in the boiler, during the upset conditions with the burners tripping out, the smelt spouts plugged up. Heavy smelt spool formed in the boiler while there was a heavy load on the boiler with auxiliary fuel attempting to support utilities with the steam load for the entire mill.</p> <p>16:04: another burner tripped. 16:07: burner put back in. 16:10: 7 burners total in service. Soot blower equence started earlier was now running, IK 4, 3, 2, 1 and 5 over the furnace section contributing to plugging up the spout openings. 16:52: Operator had the procedure out for plugged spouts and was just about to trip the fuel out of the boiler. The assistant boiler operator and the utility person were in the process of getting the right spout unplugged with a smelt spout torch when the right spout let loose causing a very heavy smelt run off. The dissolving tank emitted a large rumble, most likely small explosions in the tank with dissolving tank damage. The operators involved left the area immediately to get out of harms way.. Auxiliary fuel was tripped out of boiler on account of the heavy smelt run off into the dissolving tank. Tank was displaced about one inch.</p> <p>Tuesday morning July 10 Chill and blow was performed.</p> <p>Wednesday July 11: All maintenance work was performed Also scheduled and did wash up.</p> <p>Thursday 7/12/12 at 17:24 Fired liquor in unit.</p>
Repair procedure:	Damage included making repairs on both dissolving tank agitators, repairing some refractory in the tank, replacing the right side spout box, removing the right spout, inspecting the spout for any damage, performing a hydro on the boiler, hydro was performed and no leaks in the entire boiler and around the spout area were found.
Future prevention:	<p>Recovery department trainer held 2 continuous improvement problem solving sessions with crew that was involved.</p> <p>It was determined that we had too much auxiliary fuel in the boiler attempting to support utilities in getting the mill back up and running. We were also running soot blowers into the super heater section of the boiler directly over the spouts. Along with the auxiliary burners tripping off it did not allow the utility person and the assistant boiler operator to properly maintain keeping both spouts opened up during this time period.</p> <p>With input from them and other crew members, procedures were revised, especially plugged spout procedure. The procedure revisions were communicated to all of the crews by the trainer.</p>

INTERNATIONAL INCIDENTS**SUPERHEATER**

SPRING 2013-Intl 1130	
Classification:	Not Cassified (Non-Critical)
Location:	International Paper, Mogi Guaçu, Sao Paulo, Brazil
Unit:	94001 RB, 1985 rebuilt B&W, OC-00002, 2-drum Front sloped hearth, DCE cyclone (no econ)
Unit Size:	.803 MM lb ds/day; 93,500 lb/hr steam at 450 psig, 680°F, 525 psig design
Incident Date:	Sept 14, 2012
Downtime hrs, leak/total:	/178.5
ESP?	YES
Leak/Incident Loc:	Rupture of SH tube right below roof, top of hot outlet run toward header
How discovered:	Steam drum level and feedwater flow disturbances and a loud noise heard by the operator.
Wash adjacent tube:	No
Root cause:	Mechanical fatigue of the SH tube at the roof penetration.
Leak detection:	No
Bed cooling enhanc	Yes. CO ₂ applied by lance directly to bed
Last full inspection:	Sept 2011
Sequence of events:	14Sep: 18:30 , Unit tripped due to low steam generation. Right after trip, steam drum level decreased abruptly and although feedwater valve was opened 100%, level couldn't be recovered. Field operator also heard a loud noise coming from superheater area . 18:38 ESP was performed.
Repair procedure:	Ruptured tube was replaced with a 3.58 ft dutchman
Future prevention:	The distance between plates and tubes was increased to 0.39 inches. Amount of concrete over the plate was increased. Inspections of that area will be reinforced in next outages. Sootblower poppet pressures were checked and found to be normal and not excessive.

INTERNATIONAL INCIDENTS cont'd**ECONOMIZER**

SPRING 2013-Intl 1131	
Classification:	Not Cassified (Critical)
Location:	Carter Holt Harvey Pulp & Paper Ltd, Kinleith, New Zealand
Unit:	#5 RB, 1987 CESL Contract CA-84102, 2-drum, Decanting hearth, Large economizer
Unit Size:	3.2 MM lb ds/day; 481,000 lb/hr steam at 650 psig, 750°F, ? psig design
Incident Date:	June 7, 2012
Downtime hrs, leak/total:	60
ESP?	No
Leak/Incident Loc:	2 pinholes, both sides of economizer tube located approx 8" below start of tube fin, approx 5 ft down from top header
How discovered:	Walk down. Saw large slabby wet looking saltcake build-ups in the south side of the economizer ash hopper. Operator burned down bed prior to pulling liquor.
Wash adjacent tube:	No
Root cause:	Unknown. Initially thought pin holes were associated with weld stop/starts (machine welded fin stop & manual welding start to complete fin welds). It seems unlikely that two leaks would appear at the same time and elevation at both sides of tube after 25 years. Now think likely explanation is that the two leaks seen are the ends of a 180 degree ID circumferential crack in the tube., possibly caused by tube vibration due to sootblowing (sootblower 40 is very close to failure). Although some tubes are closer to sootblowing lane, they are more rigid than failed tube, and failed tube may have had more vibration. Sootblower flows were checked, and adjustments made.
Leak detection:	Yes. In-house steam-water differential. Showed start of leak almost a month before, but was not recognized.
Bed cooling enhanc	No
Last full inspection:	Sept 2011
Sequence of events:	During walk down, saw saltcake build-up. Tried to wash them away with hot water (see initial steep drop in firing solids). Inspected further and found leak.
Repair procedure:	The failed tube was removed from the top and bottom tube bundles and the headers stubs were plugged. The plugged tubes were MPI tested. A full hydro (@ 1.25times working pressure) was carried out with inspection and sign off OK.
Future Prevention, and Safety Issue:	<p>The steam and feedwater differential definitely showed clear evidence of a leak. (See chart attached). Looking back over chart, leak may have started close to a month prior to its detection by the operators. If there is one very clear learning for us it is that our monitoring of the steam and feedwater differential definitely needs to improve.</p> <p>NOTE: When this boiler was taken down for maintenance in September we had a dangerous near miss incident to share. A scaffold was under erection in bottom of the south side precipitator inlet duct. A large saltcake hang-up tumbled down the duct and smashed into the scaffold. Inspection showed south inlet ductwork was coated with a thick and hard saltcake buildup in places. There was no buildup in north precipitator inlet ductwork.</p> <p>Buildup was likely a direct result of this month-long economizer leak. The misty spray from leak likely wetted saltcake fly ash. Wetted ash likely did not dry out before it entered outlet duct on south side, same side as leak.</p> <p>A future leak in upper third of this economizer will lead to carefully inspecting of precipitator inlet ducting for hang-ups, either during repair or before any annual shut work starts in the precipitator inlet ductwork.</p>

ECONOMIZER

SPRING 2013-Intl 1132	
Classification:	Not Cassified (Non-Critical)
Location:	International Paper, Svetogorsk, Russia
Unit:	RB#1, 1974 Tampella Contract 10\13555-133, 2-drum, decanting hearth, with 1996 Ahlstrom (Andritz) large econ
Unit Size:	1.4 MM lb ds/day; 264,000 lb/hr steam at 550 psig, 824°F, 711 psig design
Incident Date:	February 5, 2013
Downtime hrs, leak/total:	39
ESP?	No
Leak/Incident Loc:	Pinhole leak from ID of economizer tube, 2nd from front, 2" above lower miniheader, platen 44.
How discovered:	Walk down. Saw wet salt cake in economizer hopper.
Wash adjacent tube:	No
Root cause:	Leak caused by dissolved oxygen pitting. Fireside corrosion pitting also a factor.
Leak detection:	Yes. IP in-house, mass balance: feed water-steam differential. Did not detect nor confirm leak.
Bed cooling enhanc	No
Last full inspection:	June 2012
Sequence of events:	Tuesday, 5 Feb: 15:00 Operator making rounds. Saw wet saltcake in the rear (cold) economizer hopper. Confirmed leak was low in rear (cold) economizer module so no possibility of water getting into the furnace. Believed leak was not impinging upon adjacent tubes. Continued to run boiler to support the mill. 11Feb: 01:00 Began orderly shut down. Pulled liquor. Cooled unit. Made separate repair to feedwater line. Did hydro test to pinpoint leak. Drained economizer. When smelt bed was cool, did waterwash on cold economizer module. Removed leaking platen from service by plugging header to miniheader tube. 12Feb: 07:30 start-up. 16:10 firing liquor.
Repair procedure:	Platen was removed from service by plugging the inlet and outlet tubes to & from the miniheader.
Future prevention:	The deaerator is operating within specification and oxygen scavenger is in use. Oxygen uptake at the boiler feedwater pumps is being addressed. Plan to control dissolved oxygen to 0.0. The economizer was installed in 1996 because of oxygen pitting problems and the deaerator was replaced in 2000. A new economizer (both modules) will be installed in 2013.

WASTE STREAMS COMMITTEE APRIL 2013 MEETING

- 9 members in closed session, 23 attendees in the open session.
- We discussed three permissive/interlock issues of concern to operating facilities (following slides).
- Further improvement and editing of the document will be delayed until the latest revisions have been approved.
- Voting on updated document!

1

NEW DEFINITION: PERMISSIVE TO ADD CNCG TO RB

Existing: Liquor firing stably or steam flow greater than 50% of the steam flow at MCR

Proposed: Stable liquor firing (per safe firing guidelines) or **(and)** sufficient temperature to fully combust CNCG.

2

CNCG IGNITER RULES

Existing: Use is required at all times when burning CNCG or SOG.

Loss of igniter will result in diverting the gasses.

Proposed: The igniter will be engaged during start-up. Once stable liquor firing is established and the temperature in the furnace is above 1650F, the igniter may be disengaged.

Liquor divert will result in diverting the gasses.

3

POSITION ON OPERATOR-ATTENDED IGNITER ENGAGEMENT

The requirement for the manual engagement of the igniter will remain. The intent of this permissive is to ensure that the burner port is not blocked or partially blocked by slag when adding the waste stream .

If there is slag build-up, the possible consequence is CNCG migration and infiltration into the wind-box or other undesirable locations.

Possible Alternative:

Can this be detected by the use of pressure transmitters on the wind-box? Therefore an interlock could be added.

4

“WHAT IF?” SCENARIO

- The recovery boiler is at “Stable liquor firing” per the safe firing guidelines.
- The temperature in the combustion zone is able to fully combust CNCG.
- The CNCG nozzle is above the liquor nozzles.

5

NOMENCLATURE CLEAN UP

Throughout the document, the terms UEL and LEL are used. The E is defined/stated as “explosion”. This is to be changed to “explosive” to adhere to the definitions from NFPA and OSHA.

6

Objectives:

To develop & disseminate information, and provide best practice guidelines related to:

- Design & operation of recovery boilers, evaporators, NCG systems & related equipment
- Steam generation from solid fuels, such as coal, bark, wood refuse and MSW
- Thermal and electric power cycle design, operating performance and energy policy considerations
- Design requirements for boiler feedwater systems, monitoring requirements for boiler feedwater and condensate systems and response to feedwater contamination.
- Design, application and operation of gasification technologies for biomass and black liquor.

Activities:

- Develop TIP's (Tech. Info. Papers/Proc.)
- Support TAPPI Conferences with technical program items, coordination

1

Recovery Boiler – Released TIP's

- Specification for Procurement of Recovery Boiler Economizer (2009)
Developed from AF&PA Economizer Study
- Recommended Test Procedures for Black Liquor Evaporators (2008)
Documents test procedures for evaporators
- Recovery Boiler Sootblowers (2009)
Two TIP's – "The Basics" and "Practical Guidelines"
- Recovery Boiler Performance Calculation Forms
Long Form/in publication form - Short Form/includes spreadsheet

2

Recovery Boiler – Released TIP's

- Stripping of Kraft Pulping Process Condensates—Regulations, Design & Operations (2008)
- Collection and Burning of Concentrated NCG's – Regulations, Design, Operation (2008)
- Recovery Boiler Energy Efficiency Improvements (2008)
- Estimating the First Melting Temperature of Fireside Deposits in Recovery Boilers (2004)

3

Recovery Boiler – Released TIP's:

- Chloride and Potassium Measurement and Control in the Pulping and Chemical Recovery Cycle (2005)
- Guidelines for Replacement of Generating Bank Tubes with Expanded Joints in Two-drum Boilers (2009)
- Guidelines for Operating and Maintenance Impacting Recovery Boiler Economizers (2009)
 - Appendix 2 from recent AF&PA economizer study

4

Water Treatment Activities

- Keys to Successful Cleaning of Boilers
- Water Quality and Monitoring Requirements for Paper Mill Boilers Operating on High Purity Feedwater
- Water Quality Guidelines and Monitoring Requirements for Paper Mill Boilers Operating with Softened Make-up Water
- The A-B-C's of Ion Exchange
- Steam Purity

5

Meetings:

- Meetings are held twice per year
 - Next Meeting
 - Spring, Following BLRBAC Meeting
 - Wednesday April 10, 2013; 1:00 pm – 4:00 pm
- PEERS Conference September 16, 2013
Green Bay, WI

6