BLACK LIQUOR RECOVERY BOILER
ADVISORY COMMITTEE

MINUTES OF MEETING
October 9, 2024

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:	**David von Oepen** WestRock Demopolis, AL	Tel: 334-341-7900 david.vonoepen@westrock.com
Vice-Chair:	**Frank Navojosky** International Paper Loveland, OH	Cell: (513) 334-9999 frank.navojosky@ipaper.com
Secretary:	**Everett Hume** FM Johnston, RI	Tel: 401-415-2272 Cell: 413-265-9562 everett.hume@fmglobal.com
Treasurer:	**Brad Osbourne** Electron Machine Umatilla, FL 32784	Cell: 352-267-0118 brad@electronmachine.com

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

Companies 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.net
IRS Employer ID/Tax ID (IRS E.I.N.T./T.I.N.) ---- #13-366-5137

EXECUTIVE COMMITTEE

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BLRBAC SUBCOMMITTEES

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WASTE STREAMS **Paul Seefeld, Chairman** A.H. Lundberg Associates, Inc. Jacksonville, FL Tel: 904-614-6492 paul.seefeld@lundberg-us.com	**WATER TREATMENT** **Tom Przybylski, Chairman** Power Specialists Associates Somers, CT Tel: 860-763-3241 tom.@psaengineering.com

FUTURE BLRBAC MEETINGS

Spring	**April**	**7,8,9**	**2025**
Fall	**October**	**6, 7, 8**	**2025**

"Bring Operator(s). Give them a chance to hear firsthand!"
Past Chairman Lon Schroeder
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* **NOTE:** For varying reasons, the previously published meeting dates have been changed at the discretion of the Executive Committee.

BLRBAC has established its own website at: www.blrbac.net

At this website 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	Will be available on the website with a link to register and pay on line.
HILTON Airport	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	Mail/e-mail completed questionnaires to Frank Navojosky
QUESTIONNAIRE	The Vice Chairman and he will see that your concerns are brought up and discussed during the Operating Problems session at the next meeting.

These are available at the **BLRBAC INTERNET ADDRESS**: **www.blrbac.net**

BLRBAC Guidelines & Recommended Practices

LEGAL NOTICE

Recommended Good Practice For Design, Operation, and Testing of the Emergency Shutdown System for Black Liquor Recovery Boilers
(Dated: October 2024)

Safe Firing of Black Liquor in Black Liquor Recovery Boilers
(Dated: October 2023)

Materials & Welding Guidelines
(Dated: April 2013)

Safe Firing of Auxiliary Fuel in Black Liquor Recovery Boilers
(Dated: February 2012)

Fire Protection in Direct Contact Evaporators and Associated Equipment
(Dated: February 2024)

Personnel Safety & Training
(Dated: April 2018)

Application of Rotork Actuators on Black Liquor Recovery Boilers
(Dated: October 2005)

Boiler Water Management Guidelines for Black Liquor Recovery Boiler
(Dated: April 2023)

Instrumentation Checklist and Classification Guide for Instruments and Control Systems Used in the Operation of Black 9Liquor Recovery Boilers (Dated: April 2023)

Thermal Oxidation of Waste Streams in Black Liquor Recovery Boilers
(Dated: April 2021)

If you have any questions, contact:

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Greg Imig‡ Andritz 5405 Windward Pkwy, Suite 100W Alpharetta, GA 30004 Tel: (770) 640-2633 Cell: (404) 545-9076 greg.imig@andritz.com	**Carlos Rojas** Smurfit Kappa (Colombia) (TBD) Columbia, S. America Phone: (TBD) carlos.rojas@smurfitkappa.com.co	**Ivan Semyanko‡** General Electric -- RETIRING 200 Great Pond Dr. Windsor, CT 06095 Tel: (860) 285-3953

‡ = Denotes attendance at last meeting, October 9, 2024
*** = Denotes a new/replacing member**

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‡ Denotes attendance in Fall 2024 meeting

PUBLICITY & NEWS RELEASE SUBCOMMITTEE

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Fall 2024 members and attendance

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‡ Attended New Member ~~Leaving Member~~

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Todd	Harley	Acuren Inspection
David	Dunn	Acuren Inspection
Wayne	Grilliot	AF&PA
Douglas	Mathias	AFRY
John	Sackellares	AFRY
Jens	Kohlmann	AFRY Finland Oy
Ronald	Payne	AIS WSI LLC
Ben	Fredrick	Allnorth Americas
Dennis	Delmastro	AMETEK Land
Samuel	Miller	Andritz
Markku	Paeaekkoenen	Andritz Inc
Zachary	Payne	Andritz Inc.
Pasi	Miikkulainen	Andritz Inc.
Antti	Pulkka	Andritz Inc.
Preston	Morgan	Andritz Inc.
Mark	Lebel	Andritz Inc.
Ben	Bunner	Andritz Inc.
Scott	Lowrie	Andritz Inc.
Greg	Swayne	Andritz Inc.
John	Phillips	Andritz Inc.
Greg	Imig	Andritz Inc.
John	Hornsby	Andritz Inc.
Laura	Nicol	B&W
Nicholas	Folster	B&W
Tom	Edwards	B&W
Evangelos	Townsend	Babcock & Wilcox
Greg	Sallee	Babcock & Wilcox
John	DeFusco	Babcock & Wilcox
Maxwell	McCann	Babcock & Wilcox
Brett	Gushue	Babcock & Wilcox FPS Inc.
Tim	Hicks	Billerud
Gregg	Lentz	Brunswick Cellulose
Dean	Clay	BSI
Fred	Call	Buckman
Daniel	Paik	Buckman Laboratories
Brenden	Barnett	Clearwater Paper
Kendrick	Steverson	Clearwater Paper
Rob	Teasley	Clearwater Paper
Gene	Landrus	Clearwater Paper
Vern	Niswander	Clearwater Paper
Justin	Cochran	Clearwater Paper
Brent	Bourassa	Clearwater Paper
James	McKeown	Clearwater Paper

Austin	Lott	Clearwater Paper
Danny	Tandra	Clyde Industries
Scott	Reed	Clyde Industries
Dana	Steine	Clyde Industries
Daniel	Wentz	CMPC Pulp
Daniel	Roddy	Core Refractory Systems
Michael	Lykins	Corrosion Probe Inc.
James	Biggs	Crenshaw Machine Systems
Juan	Reyes	Crenshaw Machine Systems
Carlo	Tomassetti	DiVal Safety
Oscar	Guevara	Domtar
Greg	Burns	Domtar
Zermon	Drummond	DS Smith
Margaret	VanHouten	DS Smith
David	Stapleton	DSSmith Interstate Paper
Gerald	Nail	E&E Tech
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Brad	Osborne	Electron Machine
C.A.	Vossberg	Electron Machine Corporation
Christian	Steiner	Explosion Power GmbH
Iiris	Honkavaara	Finnish Recovery Boiler Committee
John	Lewis	Fluor
Resham	Adhikari	FM
Thomas	Meehan	FM
Maxime	Simard	FM
Xavier	Menard	FM
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Derrick	Pinto	FM
Ken	Taylor	FM
Jamie	Johnson	FM
Shafia	Ahmad	FM
Carmine	Di Santo	FM
Neil	Chaudhuri	FM
Nate	Reece	FM
Keith	Holzer	FM
Chris	Parker	FM
Edward J	Kopec	FM
Nicholas	Quigley	FM
Todd	Stinchfield	FM
Mark	Jackson	FM
Ann	Walker	FM
Matthew	Paine	FM
Scott	Crysel	FM
Matthew	Lane	FM
Jimmy	Onstead	FM
Everett	Hume	FM
Caleb	Jaynes	FM
Guy	Labonte	FM
Antoine	Jacquinot	FM
Derrick	Gossen	FM
Juan	Esparza	FM

Francisco	Britt	FM
Rudy	Haraga	FORNAX Services, LLC
Andy	Clement	FPS
Peter	Donahue	FPS
Yoram	Schaker	GE Steam Power Inc.
Dan	Cudmore	GE Vernova
Brad	Kinney	GE Vernova
Bentley	Sherlock	Gecko Robotics
John	Lewis	General Electric
Michael	Rushing	General Electric
Kevin	Sapp	Georgia - Pacific
Greg	Zavadoski	Georgia Pacific
Robert	Orender	Georgia Pacific
Jason	Miller	Georgia Pacific
Joe	Chandler	Georgia Pacific
JC	Browning	Georgia Pacific
Chris	Finnemore	Georgia Pacific
Steve	Morrison	Georgia Pacific
Tom	Meadows	Georgia Pacific
Wes	Hill	Georgia Pacific
Adam	Marickovich	Georgia Pacific
James	Ellis	Gore-Tex Professional
Olli	Kujanpaa	GP
Cope	McGee	Granbio
Jim	Russell	GranBio
Ryan	Zebroski	GranBio
Robert	Frost	Graphic Packaging
Dustin	Simmons	Graphic Packaging
ReTerrick	Williams	Graphic Packaging
Dustin	Brown	Graphic Packaging
Ryan	Beaudoin	Graphic Packaging
Michael	Grant	Graphic Packaging
De'Asia	Smith	Graphic Packaging
Jason	Saulsbury	Green Bay Packaging
Ryan	Henry	Green Bay Packaging
Clark	Conley	Hydro-Thermal
Kevin	Phillips	Integrated Global Services
Paul	Jack	International Paper
Steven	Helms	International Paper
Chris	Troemel	International Paper
Gregory	Smith	International Paper
Wayne	Ricks	International Paper
Zachary	Batten	International Paper
Brian	Rawson	International Paper
Stephen	Cox	International Paper
Bruce	Knowlen	International Paper
Joel	Byrd	International Paper
Vernon	Blackard	International Paper
Frank	Navojosky	International Paper
David	Frazier	International Paper
Ben	Coulter	IP Pensacola

James	Hendrix	IP Pensacola
Trevor	Murray	Irving Pulp and Paper
Mark	McCabe	Jansen Combustion and Boiler Technologies, Inc.
Douglas	Giarde	Jansen Combustion and Boiler Technologies, Inc.
Steve	Campbell	Jansen Technologies, Inc.
David	Slagel	Kadant
Chris	Blanchard	Kadant
Shannon	McKenzie	Kadant Black Clawson LLC
Paul	Seefeld	LDX Solutions
Gordie	Vandenburg	Liquid Solids Control, Inc
Michael	Sweeney	Liquid Solids Control, Inc.
Eric	Church	Liquidmetal Coatings & Mechanical
Chris	Skorton	Liquidmetal Coatings & Mechanical
Glenn	Hanson	METSO
Scott	Ray	Milhous Company
Roger	Lawton	Milhous Company
Frank	Crumpler	Nalco
Jason	Lewis	ND Paper
Emily	Freeze	NORAM Engineering & Constructors LTD
Aaron Zane	Whyte	OJI Fibre Solutions Kinleith Mill
Derrick Michael	Naidoo	OJI Fibre Solutions Kinleith Mill
Pervez	Punjani	Packaging Corp of America
Jacob	Wolfe	Packaging Corporation of America
Brandon	Hamm	Packaging Corporation of America
Russell	Briggs	Packaging Corporation of America
Grant	Williams	Packaging Corporation of America
Paige	Bizzell	Packaging Corporation of America
Chase	Haynes	Packaging Corporation of America
Mike	Bates	Paper Excellence
Christian	Côté	Paragon Risk Engineering
Andrew	Kirk	PCA
Jeff	Forry	Pixelle Specialty Solutions
Levi	Legg	Pixelle Specialty Solutions
Cory	Watson	Pixelle Specialty Solutions
James	Dilworth	Pixelle Specialty Solutions
Christopher	Hathaway	Pixelle Specialty Solutions
Christopher	Cade	Pixelle Specialty Solutions
Fredrick	Deel	Pixelle Specialty Solutions
Thomas	Przybylski	Power Specialists Assoc., Inc.
Carl	Wise	PowerPlus Cleaning Systems
Vince	Barreto	PowerPlus Cleaning Systems
David	Fuhrmann	Precison Reliability LLC
Tripp	Whatley	ProcessBarron
Derek	McCallum	ProcessBarron
Jennifer	Smith	ProcessBarron
Alex	Claverie	PSA
Brook	Holland	RMR Mechanical, LLC
Susan	Childress	RMR Mechanical, LLC
Dylan	Price	RMR Mechanical, LLC

Rick	Baxter	RMR Mechanical, LLC
Jed	Merritt	RMR Mechanical, LLC
Jenny	Joyce	RMR Mechanical, LLC
Patrick	Buyck	Sappi
John	Fredrickson	Sappi
Benjiman	Ward	Sappi North America
Eugene	Sullivan	SHB Power Plant Engineering
Benjamin	Roberge	Sigma 7 / Paragon Risk Engineering
Chris	Clements	Smufit Westrock
Glenn	James	Smurfit Westrock
Todd	Terrell	Smurfit Westrock
Brendan	Chellew	Smurfit Westrock
John	Melancon	Smurfit Westrock
Tommy	Marshall	Smurfit Westrock
Cobb	Golson	Smurfit Westrock
Ridge	Mathis	Smurfit Westrock
Joseph	Coyne	Smurfit Westrock
Nicholas	Lehto	Smurfit Westrock
Evan	Saumer	Smurfit Westrock
Brooks	Epting	Smurfit Westrock
Alarick	Tavares	Smurfit Westrock
Scott	Moyer	Smurfit Westrock
Dave	Tjaarda	Smurfit Westrock
David	von Oepen	Smurfit WestRock
Jason	English	Solenis
Jeffery	Armstrong	Solenis
James	Meredeth	Solenis
Anton	Vermaak	Solenis
Bernard	Abramczyk	Southern Environmental, Inc.
Daniel	Guarnieri	Sylvamo
Brant	Oberg	Sylvamo
Michael	Bruce	Sylvamo
John	Buck	Team Inc.
Wayne	Bucher	The Noram Group
Ricky	Henderson	Vaisala
David	DiCorpo	Vaisala
Keijo	Pyorala	Vaisala Oyj
Nick	Dellinger	Valmet
Daniel	Lishbrook	Valmet
Aaron	Heidenreich	Valmet Inc.
Matthew	McCumber	Valmet, Inc
Cameron	Weir	Valmet, Inc
Jeremiah	Yoder	Valmet, Inc
Abby	George	Valmet, Inc
Rob	Goggins	Valmet, Inc
Sarah	Henke	Valmet, Inc
Ron	Reed	Valmet, Inc
Casey	Beirne	Valmet, Inc
Aaron	Williams	
Daniel	Franco	
Thomas	DeBeer	

MAIN COMMITTEE MEETING

1.0 Introduction – (Frank Navojosky reporting for David von Oepen – Chairman)

Good morning! Welcome to the Fall 2024 BLRBAC Main Committee Meeting! Thank you all for being here and participating this week. Well, we did it. We moved the meeting location to the Hilton. This is our first meeting at the Hilton, and I think it went well. We have learned a lot of the logistics of holding a meeting here. We have listened to the members on what they liked and had issues with. Most of the issues were around the staffing of the restaurant and the bar. I think the Hilton is learning what staffing they will need to suit our needs there. But overall, the comments have been very positive. We had a good week with a lot of excellent participation, especially in our Sub Committee meetings, which were mostly full. BLRBAC has thrived over the years from its face-to-face interactions at these meetings. A lot of discussions and exchange of good information. We continue to build momentum on our BLRBAC meeting participation. This week's meeting was one of the biggest attended meetings we have had. We had 256 members register. Our average is around 200-210.

With that we will carry on with our business. I know everyone is anxious to get on the road or a plane. Especially those that live in central Florida have area. Our thoughts and prays go out them and their families as they go through hurricane Milton. You will hear more but we are planning at this point on holding the Spring Meeting at the Hilton. Certainly, the Executive Committee has a few details to iron out.
The Main Committee Meeting is now officially open. This meeting is being held in strict compliance with BLRBAC's Anti-Trust Policy.

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Looking at the number of member companies present I am declaring that we have a quorum for today's Main Committee meeting.
We will begin with some introductions from the executive committee members this morning. We will introduce ourselves one-by-one. We did put together a Nominating Committee to put together a slate for the election of some new Executive Committee members. We will vote on new officers at the end of this meeting. David will be leaving as Chairman after this meeting due to term limits, and he wanted to express what a pleasure it has been to lead such an amazing safety and technical organization that you all have participated for many years, some of you for decades. He is grateful for the opportunity to be involved with such a seasoned organization such as BLRBAC.
The Chairman David von Oepen works for Smurfit WestRock as their Pulp, Power, and Recovery Manager for their Demopolis Paper Mill, and also the Chairman of the BLRBAC Executive Committee. David wanted to recognize Everett for his years of service as Executive Committee Secretary. Everett has been on the Executive Committee for over 10 years. He has personally relied on Everett's experience and knowledge of the Executive Committee. Thank you, Everett and good luck, in your in retirement. Brad Osborne, Electron Machine, Executive Committee Treasurer. Brad had to leave early to head toward his home in central Florida. I am Frank Navojosky International Paper's Technology group is the vice Chair of the Executive Committee. Greg Burns, Domtar is the operating company representative. Everett Hume FM chief engineers'

group and the Executive Committee Secretary, John Phillips, Andritz, Manufacturer's Rep, Jimmy Onstead Executive Committee Insurance Representative with FM .

2.0 Old Business (Frank Navojosky)

ACCEPTANCE OF THE FALL2023 MEETING MINUTES –

With that we will move into old business and acceptance of the Spring 2024 meeting minutes. The Meeting Minutes for the Spring 2024 BLRBAC session have been posted on the BLRBAC web site. The website is blrbac.net. Does anyone else have comments or discussion regarding the Spring 2024 meeting minutes as posted?
Can I get a motion to accept the Minutes? We have a motion. Second? Anybody opposed? Thank You!
The Spring 2024 Meeting Minutes have been approved. Is there any other old business that we need to bring to light?

3.0 New Business Report (Everett Hume)

The Executive Committee met to discuss new member applications. The following companies were discussed and approved.

Energy and Environmental Technologies – Associate Membership

S&B Engineers and Constructors, Inc – Associate Membership

DS Smith, Riceboro – Regular Membership

Wurth Industry – Associate Membership

4.0 Executive Committee Report (Frank Navojosky reporting for David von Oepen)

The executive committee met yesterday in a closed session. We discussed the budget as Everett just did. We spent a lot of time discussing the move to the Hilton and the issues that came up. I think we are all in agreement to hold the Spring meeting here at the Hilton. Finally, we talked about new Executive Committee Officers Election. We will take a vote to elect new Executive Committee Officers. John DeFusco who was part of the Nominating Committee will announce the new slate, and we will vote on it. So, John can you come on up here and announce the new slate of Executive Committee Officers to be voted on. The nominations are:

Frank Navojosky, International Paper – Chair
Greg Burns, Domtar – Vice Chair
Ev Townsend, Babcock and Wilcox – Operating Company Representative
Jimmy Onstead, Insurance Company Representative

Can I hear from the member companies voting representatives. All in favor of voting in the new officers please say aye. Those opposed say nay. Looks like the new officers have been accepted. Thank you and congratulations to the new officers.
One duty of the executive committee is to approve subcommittee chairs. We have one yet unidentified. That is the Auxiliary fuel chair. If anyone is interested in that position, please contact me.
One of my first duties as the new chair is to appoint a secretary and treasurer. If anyone is interested in serving in those positions, please contact me.

5.0 Treasurer's Report (Everett Hume reporting for Brad Osborne)

Note: information provided on October 7th, so numbers have not been updated.

As of October 7, 2024, the balance in our checking account was $53,147.53. Our estimated gross meeting revenue for this meeting is $122,000. Our estimated expenses for the Fall meeting are 58,000 to the hotel and $26,000 to Metro, there will also be a few admin fees we need to account for such as legal reserves and secretarial work. We have prepaid $32,000 to the hotel before the meeting, I expect a hotel balance of approximately $23,000, but we should add approximately $61,200 to our checking account after the Spring meeting. This would have the account at $114,000 before the Spring 2025 meeting. This would complete our goal for the account to carry a balance of one full meeting plus a small reserve. The members booking though our hotel registration link was completed but will need to continue to keep our hotel cost in check. After the fall meeting the committee will evaluate the bank balance and conference cost. If meetings continue at the Hilton, maintaining a bank balance that accommodate any unforeseen expenses, and the prepayment of the conference is necessary.

We had 220 advance registrations and there were 23 at door registrations for a total of 243. The participation is continuing to increase. There were 27 attendees from outside the US.–With 14 people from Canada, 2 from Brazil, 4 from Finland, 2 from France, 3 from New Zealand, one person from Switzerland, and one person from Columbia.

Balance as of 10/3/2023	$53,147.53
Estimated Spring Gross Meeting Revenue	$ 122,000
Estimated Expenses for Spring	$92,800
Fall Meeting Hilton and AV	$ 58,000.00
Metroconnections	$26,000
ESP	$ 3,000.00
Office	$ 800.00
Other Expenses from Budget	$5,000
Total	$92,800
Estimated Meeting Revenue	$29,200
Prepayment	$32,000
Estimated EOM Checking Balance	$ 114,347.53

6.0 Secretary's Report (Everett Hume)

MEMBER COMPANY ACQUISITION

MEMBERSHIP COMPANY STATUS CHANGES – None at this time.

*{**Secretary's Note**: The Company Membership List posted on the BLRBAC website may be out of date and 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 Chairman*

7.0 SUBCOMMITTEE REPORTS

7.1 AUXILIARY FUEL – Bruce Knowlen

The meeting was called to order at about 1:15 PM. Attendance log sheets were circulated. We had 7 of 12 members present. The meeting was also attended by19 guests. We were pleased to hear that several of these were operators from mills.

BLRBAC's antitrust statement was read. The minutes of the last subcommittee meeting were reviewed and approved without objection. A moment was also taken to allow all those attending to introduce themselves.

One member, Ivan Semyanko of GE Vernova, recently retired. A replacement from GE, John Lewis, has been arranged to replace Ivan on the subcommittee. We gladly welcomed John and his contribution to our efforts.

The meeting's primary focus of revising the SFAF document was presented in the agenda. However, we asked if anyone attending had any questions that the subcommittee could answer. There were three questions.

Q1 – Is soap considered an auxiliary fuel? >> We discussed the common practice of burning soap but that this was a waste stream and not considered a separate fuel.
Q2 – A question was asked about a practice being considered to add brine in mix tanks to 65 or 68% heavy black liquor. >> We did not have references in our document on this and suggested contacting the SFBL subcommittee or raise this as a question Tuesday afternoon during the problem solving session.
Q3 – The last question was on turpentine firing. >> We stated that the Waste Streams subcommittee should provide guidance on this as this was not an aux fuel and not black liquor.

Attention then turned to the SFAF document update that is nearing completion. We paged through the changes. Tom DeBeer, our vice chairman, was recognized for the good work of converting all our figures of

control logic and piping examples to new files that can be maintained and updated as needed. These were set up in MS Visio.

We paged through the additions and updates to our subcommittee document. A plan was made to complete this work by providing the members a copy to read. Then, a separate Word file will be passed around to use in editing with change tracking. The assembled document will be distributed to gain subcommittee approval. This work will proceed in the next few weeks, not waiting for the next subcommittee meeting.

The chairman announced that he would not be present at the next meeting and would be stepping down from this position and ending his participation at BLRBAC. The subcommittee was asked if anyone had an interest in leading the subcommittee in the future. We offered the group time to consider and reply. Our vice chairman has agreed to lead if no other person comes forward.

We welcome anyone interested in joining the SFAF subcommittee. We also are always open to questions that the subcommittee might address.

Next Meeting – The meeting schedule for the SFAF subcommittee was not established due to the changes in the chair position. With the work on the document, this will likely be planned soon for 2025.

The meeting adjourned at 3:15 PM. – Respectfully submitted, Bruce Knowlen, retiring chair.

7.2 **ESP SUBCOMMITTEE** – Frank Navojosky

(See ***Appendix I*** – Incident List and ***Appendix II ESP Presentation***)

The closed meeting was called to order at 8:00 AM Monday 10/7/24 by chairman Frank Navojosky and the Antitrust Slide was read

Membership attendance
We had 11 members present out of 13 active members in the closed meeting with 1 absent (Dave Gadai), with 1 alternate in attendance (Jeremiah Yoder for Dave Gadai), and Mike Bates replaced Dino Aracki as the rep for West Canada BLRBAC. We voted in Mike Bruce as a new member to fill the position left by Chris Jackson.
For a total of 12 people in attendance.

Regular Business

- Reviewed and Approve the Previous Minutes – April 8th, 2024
- Corrected Logic Diagram on Page 8 – Added - Water entering the furnace and cannot be stopped "Immediately" , Changed "DCS" to "DCE" and Maintain "balanced draft". These changes were voted on by the BLRBAC membership in the main meeting and passed.
- Dean is to update his multi-year lessons learned document on the BLRBAC website
- We have encouraged reports of near misses/smelt rushes with DT's. We had 2 reports this session with learnings to come from them.
- Discussed classifications of DT incidents
- Dean to update BLRBAC incident report document to make it clearer for reporting all DT incidents not just explosions

- Reviewed the 16 Assigned US and Canada Incidents reported and 2 International

Open ESP subcommittee meeting 10/9/24

The open meeting session was called to order 10/9/24 by ESP Chairman and Executive committee Vice Chair Frank Navojosky at approximately 8:00 AM

START OF OPEN ESP COMMITTEE MEETING
1.0 Introduction – (Frank Navojosky – Executive Committee Vice Chair)
Good morning.
Welcome to the Fall 2024 BLRBAC Session. The Fall Session is now officially open.
My name is Frank Navojosky of International Paper Company, and I am the vice Chairman of the Executive Committee and the ESP Subcommittee Chair.

PLEASE REMEMBER THAT ALL BLRBAC MAIN AND SUBCOMMITTEE MEETINGS INCLUDING THIS SESSION ARE TO BE HELD IN STRICT COMPLAINCE WITH THE BLRBAC ANTITRUST POLICY. DISCUSSIONS INVOLVING PRICE, PRICING POLICY AND ANY RESTRAINT ON COMPETION ARE NOT ALLOWED.

At this point, I would like to have the ESP Subcommittee introduce themselves. We have one fill-in, Jeremiah Yoder for Dave Gadai of Valmet, Mike Bates as our new West Canadian BLRBAC representative and one newly elected member Mike Bruce of Sylvamo.

Before we begin the ESP sub-committee open meeting, I need to make some announcements.
FIRST - Immediately, after the open ESP Subcommittee meeting, we will have lunch downstairs. You will find your name tag to get in, in your BLRBAC packet that you received at check in.
SECOND - Right after lunch we will hold the Operating Problem-Solving Session here at 1 P.M. We will be discussing both Technical and Operational problems that people are experiencing at their facility. This is a Great Opportunity for you to solicit Feedback and share your knowledge with your peers about problems in our industry. Many issues we face, have been faced by someone else before. We have some of the greatest minds in the industry in this room. Don't miss this opportunity to ask a question or get advice on an issue. Your packet contains a form for you to submit your questions. You do not need to put your name on it. Please fill it out and leave it with me up front on the table by 1 P.M. Historically, most questions are submitted the day of this Session so please get them in. Also feel free to just step up to the mic and ask a question if you have one.
Don't forget to wear your name tag regularly so you can make contacts here and for the future.
Also, don't forget we are hosting a dinner Tuesday at 5:30 P.M. with drinks starting at 4:30 PM followed by the Activities Night. Activities night is always a fun event. Your ticket is in the same packet as your name tag.
Finally, Just as a Reminder, we will have one Technical Presentation after the Main Committee Meeting on Wednesday.
This is:
10:00 – 10:30 Bodman/RMR, Dylan Price and Rick Baxter, Chemical Cleaning Project Overview Including Roles & Responsibilities
If any Vendors are interested in presenting future topics, please e-mail me.
These will be 30 minute Presentations each. We encourage you to stay around, as these presentations promise to be interesting and informative.

With that we will now begin the ESP subcommittee open session with discussion of the first incident. The Panel will present the Economizer and Superheater incidents. For these incidents, if there is someone from the mill that is present, who can answer any questions, please speak up.
For other incidents, if there is a person from the mill that is present, who would like to present the incident, please step to the microphone when asked. A reminder: Refrain from taking photos or screen shots. Material appropriate for sharing will be published in the meeting minutes on the BLRBAC website.

We had approximately 230 people attending

18 Total incidents reported and reviewed (16 US and Canada and 2 International)

There were zero Smelt Water Explosions, 3 incidents were Critical, 11 were Non-critical, and we had 2 DT issues (1 explosion) and 0 Smelt leaks.

Three incidents were ESP'd. Of the 3 critical incidents, two were critical incidents in operation, One occurred with no bed in the boiler. One of the two critical incidents in operation were ESP'd which amounted to 50% of the incidents that should have ESP'd, were actually ESP'd.

There were 3 economizer leaks, 5 super heater leaks, 1 boiler bank leak, 2 upper furnace leaks, 1 lower furnace leak, 1 Smelt spout, 2 external water leaks, 0 ESP's with no leak and 2 Dissolving tank incidents (1 explosion with significant hood damage). Superheater and economizer leaks have typically been a larger portion of this chart and continue to be.

This slide is a side view of a recovery boiler showing approximate location and provides another view of the leak location. Some people like this type of view. It is not fully representative, as it does not also have a front view. Additionally, we now have added the section behind the nose for the generating section showing the location of a typical one drum boiler and two drum boiler leaks will also be shown in this location. The numbers in the circles are the incident numbers.

This next chart is a total over the years from 2004 to present showing the total number of leaks per section and the average in each section. This is a 20 year total. We had 477 Economizer leaks (23.8 average), 150 Superheater leaks (7.5 average), 143 Upper furnace leaks (7.1 average), 112 Boiler bank leaks (5.6 average), 106 Lower furnace leaks (5.3 average), 43 Screen leaks (2.2 average) and 32 Smelt spout leaks (1.6 average). It is good to see that leaks in the more critical areas of the boiler are lower in frequency on the chart. The order has seemed to remain the same although SH and Upper furnace are getting closer.

The next few charts show the trend in number of leaks since 2004 for each section of the boiler (Economizer, Superheater, Boiler Bank, Screen, Upper furnace and lower furnace). We track these trends looking to see if we have made a difference in the number of leaks in each section based on improved OEM design, repair practices, procedures, etc. Previous charts did not take the number of boilers in service that year into account. When you looked at Economizer leaks for example, you see a good downward trend showing a reduction in these type of leaks. I have now adjusted for the number of boilers in service that year and these trends do not show as drastic an improvement, if any, in some cases.

This slide shows incidents by boiler type. We have had 5 leaks reported in a one drum boiler, 9 leaks in a two drum boiler and 2 leaks in a three drum boiler. We show 14 leaks in large economizer boilers, 1 in a cascade boiler, and 1 in a cyclone boilers. The larger number in large economizer boilers is likely due to a larger number of these type boilers being in service.

Regarding this next chart for root cause of leaks, we had 3 thinning failures, 1 fatigue failure, 1 overheat failure (Spout), 3 SAC/SCC failures, 2 incidents due to operator error, 3 mechanical damage, 3 weld

failures and 2 external. We continue to see SAC/SCC failures which is a mechanism to watch for with an aging fleet and large numbers of thermal cycles. We are seeing failures due to mechanical damage, operator error and weld failures. Possibly Training and experience related?

This next chart shows how the leaks were detected, and again it shows a high percentage found by the operators on walkdowns. These are typically in the 75% -90% range each session with this session being at 93%. This again stresses the importance of training operators and the value of walkdowns. We had 1 leak found on a hydro this session and one during an internal inspection by an NDE employee which I have classified as a walkdown, although it was internal with the unit out of service.

We had 12 incidents reported with leak detection systems installed on the units (75% of the units). None of the leak detection systems identified or confirmed the leaks. As always, system detection sensitivity can play a part in the systems ability to detect a leak or not.

This next chart indicates the time from first discovery of a leak, to the time the unit was ESP'd. The time ranged from 10 minutes to 20 minutes. The average time was 15 minutes. As we know, the time to act to ESP the unit on an actual leak is critical, and training and education will help improve these times.

The next two charts show Critical incidents to date. The first chart is the way we used to track it, just the straight number of critical incidents per year. I have now adjusted it to show a trend in Critical incidents per boiler. You can now see that it shows much larger rise in the number of critical leaks per boiler now that the number of boilers have been taken into account. Looking at it solely for the last 20 years (Similar to the basis for the earlier charts), we do see a decrease.

The next chart shows Boiler explosion history. So why if the number of critical incidents per boiler increased since 1966, do we see less explosions?

I would dare say that we have instituted better systems and equipment and guidelines to recognize, handle and prevent these incidents from having disastrous consequences.
We have instituted walkdowns as a prime example, which you have seen, finds 75 - 90% of leaks. Finding leaks early and reacting to them properly is just one example of the things we have done to proactively prevent situations from becoming worse.

This is a testament to everyone who has participated in the BLRBAC organization over the years and has been (And continues to be) a part of the constant learning and diligence that it has taken to affect these results. It is also a testament to the operations people who do these walkdowns and discover leaks early and who have implemented the systems and procedures to handle them.
It is something we should all be proud of.

The next few charts show Dissolving tank explosions, Explosion history 5 year average and Explosions History per 100 operating years. We look at these charts to identify long term trends and improvements made. You see an uptick in the chart for explosions per 100 operating years. This chart is a combined Recovery Boiler and Dissolving Tank chart. In the future, I will look at separating them.

We know still that not all Dissolving tank incidents are being reported. We continue to encourage reporting dissolving tank near misses/plugged spouts/hood damage as incidents, so we can understand the issues leading to these incidents and be more preventative. We had 2 incidents reported this session with some good learnings from them. We would like to encourage everyone to report these. With this effort of reporting incidents, not just explosions, I feel we can have the same result as we have had with RB Explosion prevention through education, systems and guideline development.

This next chart shows the number and age of units in North America. We have 118 units in the US and 32 in Canada for a total of 150. The average age in the US is 44.3 years and in Canada is 45.4 years. The

maximum age in the US is 72 years and in Canada is 77 years. The oldest unit in operation is the Kruger Three rivers, PQ unit and it is a 1947 Ahlstrom Boiler. Please send Dean any updates.

The next slides are the captured learnings from the incidents reported this session. I will go through each of these. The numbers at the end of each learning is the incident number from this session. i.e. Fall, 2024 session, incident number 01 (F24-01)

- An inserted spout with the water shut off and smelt flow stopped (Spout plugged) may still be susceptible to the inserted portion overheating due to lack of cooling. This should be considered when determining how long to wait for a repair outage. (F24-02)
- Unstable firing conditions such as low sulfidity, jelly rolling smelt, Salt drops, etc. require additional monitoring (Guard goose, spout observation) related to bed condition & spout plugggage/runoffs until the situation is resolved (F24-03)
- Low sulfidity conditions may require additional Auxiliary fuel and reduced liquor urning rates until the condition is resolved. (F24-03)
- Leaks on the FW inlet tubes of an economizer should be inspected for internal oxygen pitting if no other root cause if evident. (F24-06)
- SH tube penetrations at penthouse refractory penetrations may have thinning (Hour-glassing) - especially if the unit has not been historically dried after water washing. This area should be spot checked (F24-08) (F24-09)
- Boilermakers must use care when using a torch or grinder near boiler tubes to avoid damage, May require supervision. (F24-10)
- Areas with vibration bars should be closely visually examined for chaffing (F24-13)
- Understand the construction of your boiler as it relates to water being able to enter the furnace during a tube leak and the decision to ESP or not – Example areas that have the potential for water to enter the furnace when tube leaks are observed to be external are: Loose tube boilers, Sootblower and observation port refractory boxes, Mandoor refractory boxes, Liquor gun refractory boxes, Roof and floor corner seals etc. Operating personnel need to understand the boiler construction and risk for water intrusion into the furnace during a leak (F24- 15)
- The refractory crotch area between the Spout wall and floor knuckle tubes should always be closely examined for mechanical damage or hydroblasting “refractory slurry” erosion damage just prior to re-installing new refractory (F24-16)

The next slide discusses how to report incidents to BLRBAC and that we want incidents reported found on hydro. Even if found on hydro, we will classify these as critical if they are in a critical area even though the unit is not running. Sometimes they may have been leaking when the unit was on the way down. We are again also requesting that dissolving tank near misses also are reported so that we can learn from and address issues proactively. Please try to submit a separate incident when leaks occur in different sections of the boiler as they may be classified as Critical or Non-Critical differently.

The next slide shows the information related to where to find the incident questionnaire and to look for confirmation from Dean Clay that it was received.

The next slide shows where to find the Collection of incident learnings from Spring 2005 to Fall 2022 compiled by Dean Clay. The document describes how it is organized and the collective learnings over the years. I recommend this as a learning tool for management and operators for the prevention of future incidents.

The second item on the slide shows where to find the posted document of “How to get the most out of attending a BLRBAC meeting”. I highly encourage reading it and providing it to anyone in your mills planning on attending BLRBAC.

7.3 FIRE PROTECTION IN DIRECT CONTACT EVAPORATORS- Stephen Cox

Meeting started at 1:12 pm Eastern Time

Attendees (as best determined):
2 attendees
Attendance:
S.Cox(IP), Gerald Nail (E&E Tech)

Reviewed anti-trust document

Introduction:
-Review of Agenda

Role Call of Members: with 1 of 6 present
Stephen Cox present
The other committee members were unable to attend due to other commitments.
One guest Gerald Nail (E&E Tech)

Discussion was held regarding recruitment of new committee members as there have been retirements and drop offs of prior members. IP discussed recruitment within their organizations and E&E Tech support of mills with DCE units.

Gerald Nail stated that E&E Tech was up for vote to become a member company and would gladly support the committee as a member once approved.

Review of Minutes:
Minutes from Spring 2023 session were reviewed
-Motion to accept (Stephen Cox). Second (Gerald Nail). Carried: Minutes Approved.

Review of Operating Boilers with DCE:
The BLRBAC listing of operating boilers with DCE was reviewed. Approximately 17% of the operating recovery boilers are DCE units with 20 of 118 units being DCE. This represents a loss of 7 DCE boilers since the last review

Recent Events:
Two were submitted in December 2023
-WestRock Longview November 2022
-WestRock West Point April 2023.

Both of these incidents were discussed. The West Point incident had some follow up request for information regarding a temperature of activation of the fire suppression system that seemed quite high.

Both incidents appeared to be covered appropriately with current language in the BLRBAC Recommended Good Practices for Fire Protection in Direct Contact Evaporators and Associated Equipment. No suggestion for additions to language were submitted.

Agenda topics for discussion were held
Public comment review during period of fall 2022 to fall of 2024 of the suggested language changes has yielded no comment. Currently waiting on final approval/vote by the Executive Committee for acceptance so the changes can be posted as the current edition on the BLRBAC website.

New Issues:

No new issues noted prior to the Fall 2024
No new topics were brought up during the Fall 2024 discussion.

Questions and Comments:
There were no questions brought up during the session

Plan for next meeting:
The next meeting will cover any issues between now and the next session, which is typically in the spring, but we discussed if the spring session was best as it often overlaps with some committee members outage support. Based on that, the next planned meeting will be Fall 2025 and again in the afternoon session unless significant event review would require an earlier meeting. Recruitment of sub-committee members will be focus for upcoming period.
A note to all member companies with the 20 operating boilers with DCE units that Submittal of any events is requested for discussion during upcoming committee meetings.
Adjournment:
Motion to Adjourn by Stephen Cox and seconded by Gerald Nail
Adjourned 1:50PM Eastern Time.

7.4 INSTRUMENTATION – Adam Marickovich for John Browning

Morning session

- Opened the Fall 2024 ICS meeting at 8.
- Review Anti-trust statement
- Welcome all members and visitors
- Had 11 of 18 members and 16 visitors present.
- Went around the room and all attending introduce themselves, their company, years' experience, and share what the greatest challenge in performing your role is while passing the attendance sheets around. (Turn-over, loss of tribal knowledge, and communications seemed to be the most common challenges).
- Reviewed and approved the ISC Spring minutes as written.

Old business:

Rotorq was to provide the IQ-3 updated document to Adam Marikovich and David Boudreau for review and committee presentation. As this was not received, will add to the Spring 2025 ISC meeting agenda.

The currently posted 2014 ISC document is missing Wate Stream sections J1 – O. Need to post the 2024 ISC document that includes these sections along with other changes.

New business

We need new ISC members.

- Bruce Knowlen, on the committee longer than anyone else will be retiring after this meeting. Over the years, Bruce has been instrumental to the ISC, providing us with technical expertise and committee continuity during transitional time. We will miss Bruce in many ways.
- Dave Avery, Vice-chairman, Spring 2025 will be his last meeting if he is able to attend.
- Jari Sopanen, a long-time member working in Brazil, is no longer able to travel but would like to remain a committee member, due to his continued recovery boiler work in South America.
- I am getting older and some say uglier, so we did the following:
- Asked committee if anyone wanted to replace me as Chairman. Although I have a couple of years left, was willing to step down if desired by the team. Members reaffirmed that they wanted me to remain Chairman for now.
- We needed to elect a new Vice-chairman
- Solicited names from committee members for either volunteers or recommend another member.
- Ben Bunner and CA Vossberg names were presented. As Ben is already committee secretary, CA Vossberg was motioned and seconded as new vice-chairman.
- Added Andrew Kirk, with PCA, as our newest committee member.

Opened meeting for questions and discussion:

- In previous session, there was discussion around using Profibus for a secondary means of operating rapid drain valves. Members had concern that a network failure would impact all drain valves, but using the communications to pull valve information out is great.

- How many facilities test primary and secondary means of ESP? Some test one method on the way down and the other when starting up. Some alternate years.

- Boiler drum level devices that are probe based can have issues during start-up.

To minimize, ensure that the controls are set for the appropriate conductivity and probes are kept clean externally and wiring is properly secure. Although wiring is high temperature, recommend replacing from probe to the electronics every 10 years or so.

- Discussed the ASME requirements for drum level indication.

Andy Clement with Fossil Power provided a short presentation on the requirements.

- Discussed the need for a condensate pot on the reference leg of a DP used for drum level. Helps stabilize the reference leg. FPS offers a condensate pot with an electrode to alarm if the reference level is not full.

- Discussed the deviation between refractometers and cookoffs. Refractometers can only see dissolved solids where a cook-off and Tappi T-650 test includes any system dead load e.g. sand.

- BLRBAC SFBL states the refractometers should be within 2% of lab test. CA Vossberg provided a short power point around this subject. The refractometer reading should always be less than the cook off and lab test. This is typically around 2%. After a major mill outage, deadload can be up to 10%, causing a good bit of deviation, but if the refractometers are adjusted then, as the system cleans up, they would have to be adjusted again and again. Recommend adjusting the refractometers only if the indicate higher solids than the other tests. Will develop and submit to the SFBL committee new verbiage around this for review during the spring session.

Encouraged all to bring E&I, E&I leaders, related engineering members to the BLRBAC session.

7.5 MATERIAL & WELDING – Laura Nicol

The Materials and Welding (M&W) Subcommittee met in Open Session on Monday morning, October 7, 2024.

The meeting was opened at 8:00 am with a review of the BLRBAC Anti-Trust Statement.

Attendance

Five (5) members and two (2) alternates out of eleven (11) attended. There were thirty-two (32) guests.

Discussions

- Opened meeting with a Review of the BLRBAC Anti-trust Statement.
- Introduction of attendees
- Reviewed minutes from last meeting and accepted.
- Worked on incorporating Executive Committee comments
    - Welding Bulletin Section 1.7 has been updated and unanimously approved by subcommittee members
    - Welding Guidelines and Procedure Section 2.5 had no comments
    - Subgroup requests Executive Committee guidance to get updated documents published to the BLRBAC website
- Presentation on Plugging Generating Bank Tubes – Bill Burns of ND Paper
- Presentation on Superheater failure; incorrect material installed during and outage repair – Bill Burns of ND Paper
- Presentation on Cold Side Corrosion – Maxime Simard of FM
- Worked on 2.6 Repair of Corrosion Resistant Weld Overlay Applications on Tubes – work will continue at the April 2025 meeting.
- Reviewed agenda items:
    - Deciding factors on when to make tube weld repair
        - Action Item: follow up with Chad Harrod for the April 2025 meeting.
    - Inspection guidelines for supply and riser tubes
        - Action Item: Brent Bourassa: AF&PA is working on updating guidelines covered in another section of the book. Perhaps reference the updated guidelines
            - Examples of failure mechanisms in Chapter 6.

- Seam weld corrosion fatigue – group consensus not really needed
  - Action Item: remove from agenda
- Neutral axis fatigue cracking in bends
  - Action Item: Mark LeBel: ID cracking possibly a form of SAC; may be worth addition
- Out of service corrosion in horizontal runs – group consensus not really needed
  - Action Item: remove from agenda

- Discussion on composite/carbon steel tube corrosion above the weld line
  - Bill Burns: Some use metal spray to protect the layer (50 Chrome /50 Nickel with ceramic sealer)
  - Metal spray is a continuous repair item
  - Adding the composite corrosion will continue up the furnace (even 10' above tertiary)
  - Issue maybe worse with burning NCG and higher sulfidity
- Discussion on hexavalent chromium: Hexavalent Chromium was found (yellow powder film) on outside of boiler. Substance was chemically tested, verified to be hexavalent chromium and abated
  - Not sure what caused the issue
    - Chromized furnace was not a factor
    - Preston Morgan: Some older refractories did have heavier metals. Perhaps the refractory could be a source.
    - Temperatures were low enough that it was not expected on the cold side of a recovery boiler
  - No members/visitors had experience with this issue

Meeting adjourned at 10:10 am

7.6 PERSONNEL SAFETY – Ben Ward

The Personnel Safety Sub-committee met in an "open" session at 8 am on Monday, October 7, 2024, and in a closed session at 1 pm as well. There were a total of approximately 51 attendees to the sub-committee, 6 members of the committee were present during the open meeting and 6 committee members attendance at the closed meeting.

Open Meeting started 0800.

Representation at our meeting by regular members and guests included 4 original equipment manufacturers (Andritz, B&W, GE and Valmet), 3 Product/Service Providers (Gore, Clyde Industries, 3S) and AF&PA and insurance company representatives. Operating company representation included 23 people from 9 different operating companies, Sylvamo, Georgia-Pacific, PCA, Pixelle, SAPPI NA, International Paper, PCA, GPI ,Clearwater and Smurfit WestRock. We had 9 engaged operators present.

The BLRBAC anti-trust statement was read. Individuals introduced themselves and a sign-in sheet was passed around for a record of attendance and contact information.

The minutes of the last meeting (April 2024) were distributed in hard copy.

Agenda Topics

- Smelt spout robots' technology and recent installation update.
  - B&W/Diamond Power – Smelt auto cleaner technology update presentation – Simon Youssef and Dennis Wickholm
  - Andritz – Smelt robot technology update presentation – Sam Miller
  - Valmet – Smelt robot technology presentation and recent installation at Pixelle – Dan Morrison
- Smelt spout PPE update.
  - Gore/Valmet/ – Smelt protection garment update, smelt head protection product and update on multi-haz garment (focused on steam protection testing). – Jim Ellis
  - CoreMAX FR – Carlo Tomassetti
- Notes/comments from presentations
  - B&W/Diamond Power reviewed Spout Runner system and showed the installed installations .
  - Valmet shared an update on the Pixelle project and lessons learned so far. Pixelle continues to be pleased with the project and has extended an open invite to schedule customer visits to witness the technology in service – Valmet held user group meeting at Spring Grove in September to showcase technology
  - Andritz shared an update on their smart spout deck utilizing the use of Robots along with advanced visual analytics (AVA)
    - Also reviewed emulsion cooled liquor gun and MODIRACK – safe liquor firing automatic liquor gun cleaning, installation and angle adjustment
  - All of the presentations focused on the high-risk activities that had been previously been identified previous risk assessments from the committee
  - Discussions on additional benefits of these technologies above and beyond the significant safety improvements
  - Gore presented convincing test data for protection from steam heat burns using their multi-haz garment and reviewed lab testing on their products vs typical historical PPE
  - Divaul Safety talked about their Coremax FR line of clothing

- The meeting ended at Noon.

- Closed meeting began 1:45 – 6 members present
  - Reviewed committee membership
    - A few members haven't been present lately need follow up
  - Steve Morrison, GP has agreed to be the committee vice chair going forward
- BLRBAC: April 7-9, 2025 Potential topics for the Spring subcommittee meeting:
  - Safety incident reviews
    - Committee members to bring incidents and near misses to share
    - Give opportunity for open discussion to all to share incidents and near misses
    - Solicit feedback for areas to upgrade guidance document
  - Closed session work
    - Review of guidance document and begin updating

There were no requests for clarification or interpretation in the last six months.

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

7.7 PUBLICITY & NEWS – Matt Paine

BLRBAC continues to inform the membership as well as perspective members and meeting attendees of upcoming meeting details by: (1) posting meeting notices on industry website event calendars such as PaperAge and TAPPI; (2) continuing with the BLRBAC-TAPPI cross promotion program advertising events on each other's webpages; and (3) reaching out to previous attendees via email.

7.8 SAFE FIRING OF BLACK LIQUOR – Vernon Blackard

Monday October 7th - 8:30 am – 11:30 am
8:30 am --Noon Safe Firing of Black Liquor Subcommittee – (CLOSED)
1 pm to 4 pm Safe Firing of Black Liquor Subcommittee - (OPEN)
Proposed Agenda:

1. Open the meetings. Both Closed and Open.

2. Reviewed BLRBAC Anti-Trust statement. Both closed and open meeting.

3. Introduce members and guests. 18 members in closed and 56 members/ guests in open.

4. Review and approve the Spring 2024 minutes. APPROVED

5. Review any open items brought up to the subcommittee before the Fall 2024 Meeting.

   - Continue new revisions after our Fall 2023 document was approved and posted.
   -

6. Items brought up since Spring 2024 meeting.
   - Time to continue liquor firing with a water-cooled spout plugged and water off the spout. QUESTION FOR PROBLEM SESSION – HOW MANY GO 24 HOURS OR LESS TO REPLACE – HOW MANY USE OEM REFRACTORY PLUGS – OTHER MILLS RUN TIME EXPERIENCE.
   - BL trip logic for 30 percent air below liquor guns. NO GO FOR ABOVE LIQUOR GUN AIR BEING USED FOR TRIP – NEED THE AIR TO ENSURE BED COMBUSTION WITH STABLE LIQUOR FIRING.
   - Continued Refractometer operation concerns with one refractometer in service. KEEP CURRENT WRITE UP. SEE WHY THEY HAVE ISSUES WITH REFRACTS.
   - Large Tube Logic – Discuss making ANY trip for high furnace pressure or low drum level initiate the logic to close feedwater valve and check for tube leak before reopening. Do away with drum recovery time. QUESTION FOR PROBLEM SESSION. HOW MANY USING LOW DRUM LEVEL IN LOGIC WITHOUT RECOVERY TIME; ANY ISSUES ON LOWER LEVELS IN BOILER AFTER CLOSING FEEDWATER VALVE.

- Continue discussions from Spring 2024 meeting (Refer to minutes). CONTINUE DISCUSSION FOR HIGH SOLIDS FIRING WITH SARAH INPUT.

- DT incidents to be reviewed. IP Red River, IP Mansfield, IP Georgetown

EC QUESTION – SHOULD SFBL PUT BOILER LOAD GUIDELINES IN FOR LOW SULFIDITY LIQUOR. AFPA HAS THEM ALREADY. WES TO WORK ON IF YES FROM MANSFIELD INCIDENT.

RED RIVER SHOULD SEE IF VISUAL SPT COOLING WATER FLOW METER CAN BE USED/CLAMP ON FLOW METER INSTEAD OF SHUTTING WATER OFF? NOT ENOUGH DETAILS IN REPORT TO CONFIRM NEED TO SHUT WATER OFF.

GT NEEDS WORKING BED AND SPOUT CAMERAS TO HELP MONITORING OPERATION.

IP Red River – Smelt leak 44 hours after spout cooling water off and spout plugged.
IP Mans – Gummy spouts after annual outage. # 1 spout hood damaged by smelt rush.
IP Georgetown – All spouts plugged; got unit down, cooled and washed-out spouts to reopen. Liquor chemistry root cause.

7. Open item discussion from members.
    - Any new items will be discussed.

    ALARICK SHOWED AFPA STUDY FOR DT VENTS.

    DANIEL SHOWED NEED FOR 2 DT AND 2 LT FOR DISSOLVING TANKS. WILL WORK ON CH 10.2 DT DESIGN

    - Functional test of RB Dissolving tank overflow capacity to be discussed. Normal set up and maximum reasonable flow set up. Set up for shatter jet working properly at DT overflow level.
    - Other functional tests on DT. Check water sources off on crystallization event.
    - VERNON PRESENTATIONS FROM RECENT CHECKS AT PENSACOLA MILL.
8. Open discussion from guests
- Guest questions?
9. Explosion videos…Will share any submitted. Have IP Power point of RB history of explosions (share visual only. No copies or files shared). SHOWED TWO SPOUT SMELT LEAKS VIDEOS.
10. Close meetings as needed (closed and open).

7.9 WASTE STREAMS - Kevin Sapp for Paul Seefeld

The Waste Streams Subcommittee opened our meeting at 1:30 with seven members present and nine guests. We did not open the meeting remotely via teams this session.

The anti-trust statement was read, and we reviewed the proposed agenda. The meeting minutes from the April 2024 meeting were reviewed and accepted. The 2021 Revised Waste Streams document is now properly published on BLRBAC's home page.

There was a question from an operating company submitted prior to the waste streams subcommittee meeting. This was asking for clarification if a maximum water content (minimum %Methanol content) in our liquid or gaseous forms of treatment of this waste stream.

The Chair pointed to the existing language (5.3.2) in the document that clarifiers that Stripper Off Gases (SOGs) are treated as a class B fuel and the required design that compliments it, recognizing that this stream is a high variability heat input. For liquified methanol treatment in a dedicated burner, the guidelines still apply based on the determination of the fuel type and may require a Class B designation as well depending on the review of the conditions for the specific install. A concentration meter is recommended, but not required, to assist in ensuring the minimum fuel specifications are met for the type of Fuel Expected for the burner that is used for treatment.

The recommendation by the committee Chair and Vice Chair, along with committee members present, treatment of liquid methanol is preferred directly into the firing liquor following the appropriate guidelines as well. It is best practice to have a minimum %MeOH content, but it is not absolutely required. The focus is more on the maximum methanol blended with the “as fired” liquor to ensure stable firing and preventing low %BLS at the ring header.

All existing figures in the Waste Streams document were converted to Visio by Tom DeBeer. This was shared with the committee and will be submitted by the chair to the committee to allow for more detailed review at the member's leisure, with obligation to report back to the Chair any identified errors.

We were unable to review updates to Figure 1 and Figure 6 during this meeting as originally planned due to member availability and will plan on reviewing this at next session if possible.

The team also discussed the previously submitted revisions to section 4 and 8 (DNCG and CBNCG) to accommodate treatment in the RB at between 15-30% MCR. The executive committee did have one question on these revisions challenging the need for an LEL monitor at 15% MCR if it is not required at 30% MCR. The committee team discussed the need for this due to limited experience in North American operating facilities treating DNCGs below 15% and believe it is appropriate to be more conservative at this time. If there are reservations regarding the %15 MCR changes for DNCG, the subcommittee would like to move forward with the changes in section 8.2.1 only as these are unrelated.

This prompted additional dialogue on the location of the %LEL meter that is recommended for DNCG Fan systems that contained CBNCGs. There is no specific location mandated in the Waste Streams Document and it is recommended to be installed at the place that would allow for best response to an exceedance in recommended LEL due to Chip Bins. This can be as drawn on Figure 22, immediately after the DNCG Fan dedicated for a conveying Chip Bin Gases; however, this can also be after the streams are blended. It is not mandated in the document the location as the design of the system must be reviewed for each install for the most practical location to meet the intent and not appropriately within scope of the waste stream recommendations to regulate.

The team also discussed again if Crude Tall Oil gases needed additional changes, but ultimately believe that a properly operated TRS Scrubber as is required already in the document is the appropriate safeguard that is unique to CTO. We will review this ahead of the next meeting. The next meeting will be virtual for most of the members.

Abby George, of Valmet, has asked to be a member of the subcommittee and we would like her added to our roster. The general meeting adjourned at 3:22 pm.

-Kevin Sapp, Paul Seefeld

7.10 WATER TREATMENT – Tom Przybylski

Fall 2024 Meeting Attendees:

Tom Przybylski/PSA
Susan Childress/Bodman
Frank Destefano/3D
Michael Bayse/Bodman
Dave Tjaarda/Smurfit WestRock
Plus 23 guests

Fred Call/Buckman
Don Downey/Purolite
Frank Crumpler/Nalco
Trevor Murray/Iriving Pulp

- The current water treatment document is **not current** on the BLRBAC website; we sent out the latest updated version after the spring session. There should be no documents out for review.

- The water treatment subcommittee met in open session for morning and afternoon sessions with 9 of 14 subcommittee members in attendance. There were 23 guests. Frank Crumpler from Nalco joined the subcommittee as an alternate to Jim Gannon

- The session started with a review of the BLRBAC antitrust statement.

- Meeting minutes from last spring were approved.

- The morning session started with discussion of overall clarifications of wording throughout our water treatment document was reviewed over email this past summer. We voted to approve the changes for submission to the executive committee. These changes include:

  - Noting that it is best practice to consider time and DWD thresholds for triggering a chemical cleaning.
  - .Addition of carbonate to the list of common tube deposition constituents.
  - Expansion on collection of boiler tube samples from high heat zones.
  - Defining high purity water (including reference to the corresponding Tappi TIP)

- When discussing remaining sections to address in water treatment, a question came up regarding spout cooling water. We do not have any guidance on this. The consensus was that this would be valuable to cover and likely a higher priority than our last two sections to cover (makeup water and filtration).

- A significant amount of time was allocated to audience questions regarding whether specific tests and procedures have been addressed in the current guidelines. This included:
  - Whether testing frequency has been covered

- What sort of guidelines there are around steam silica.
  - On this latter point, we noted that protection of turbines is outside the scope of a BLRBAC document.

- We finally moved back to the Sampling and Testing document. One audience member suggested our correction of the definition of pH.

- One audience member mentioned that some of the definitions included guidance on the subject of the definition. We tried moving some of that guidance elsewhere and reviewed in the afternoon session.

- When revising some of our notes around locating a temperature correction chart of a pH reading, we revisited Standard Temperature Coefficient on a pH meter versus Automatic Temperature Compensation on a meter. We revised our notes around temperature compensation when 25°C cannot be achieved to including making a mill-specific correction chart.

- One audience member questioned how long it was acceptable to remain out of control on water pH.

- Temperature requirements for samples was elaborated upon to indicate that this is particularly important for pH.

- Following lunch, we relocated certain statements within the existing document to better fit the content.

- An audience member asked questions about why we do not have time limits on silica excursions. This evolved into a wider discussion about how long any parameter can remain out of compliance and how the water treatment subcommittee addresses facilities that operate for an extended period of time out of compliance. There was a fair amount of discussion about how to address this subject. We left it at a general point that every mill must have some sort of process for addressing water that is outside of specification.

- The subcommittee voted on relocation of three statements that we initially put in the Sampling and Testing document but placed into the existing approved document. The motion was approved for submission to the executive committee.

- The subcommittee declined to vote on the Sampling and Testing documentation for submission to the executive committee, instead choosing to run through the document one more time in the spring to ensure we are satisfied with the overall document.

- The meeting was adjourned at 2:45PM

8.0 AMERICAN FOREST & PAPER ASOCIATION RECOVERY BOILER REPORT – Wayne Grilliot (See ***Appendix III*** – Slide Presentation)

The American Forest & Paper Association (AF&PA) Recovery Boiler Program was established in 1974 to help identify the root cause of recovery boiler critical incidents and explosions. The AF&PA Recovery Boiler Program assists companies in improving the safety, integrity, and reliability of recovery boiler operations. Recovery Boiler Program membership is open to all companies that operate recovery boilers. Program activities are funded by member company dues.

The Recovery Boiler Program is under the direction of a Steering Committee which includes Frank Navojosky (International Paper), Jeff Wagoner (International Paper), Greg Burns (Domtar) and Wes Hill (Georgia-Pacific). The Steering Committee sets Program priorities based on Member Company Input, BLRBAC Incidents, and Industry Needs

The Recovery Boiler Program provides a forum for companies to develop information to help evaluate Safe Operating Procedures, Organization and Training, Maintenance Programs, Specifications and Construction, and Research & Development Programs. Documents developed by the Program include Reference Manuals, Audit Guidelines, Best Practices, Training Aids, Checklists, Textbooks, and Studies. The Program sponsors R&D projects for Safety Improvements and Process Improvements. This helps drive improvements in Safety, Operations, Maintenance, and Recovery Boiler Integrity.

The AF&PA Recovery Boiler Program has two (2) Standing Subcommittees. The Operation & Maintenance (O&M) Subcommittee is Co-Chaired by Frank Navojosky (International Paper) and Wes Hill (Georgia-Pacific). The Research & Development (R&D) Subcommittee is Co-Chaired by Greg Burns (Domtar) and Jeff Wagoner (International Paper). Subcommittee Membership is made up of Representatives from the Member Companies.

Both the Operation & Maintenance Subcommittee and the Research & Development Subcommittee are working to develop best practices around dissolving tank related issues. The Research & Development Subcommittee is sponsoring some very exciting research projects at the University of Toronto. The 4 projects focus on Dissolving Tank key operating conditions and advanced monitoring techniques to further improve safety and reduce operational risks. The program is building on past studies sponsored by the AF&PA Recovery Boiler Program and related research underway at the University, which is currently funded by a consortium of 26 companies. We are very pleased to have Dr. Markus Bussmann of the University of Toronto leading these studies.

Available documents on the AF&PA Recovery Boiler Website include Publications, Studies, Training Aids, Standards, and General Program Information.

AF&PA Recovery Boiler Program Website:
http://www.afandpa.org/our-industry/recovery-boiler-program

9.0 TAPPI ENERGY, RECOVERY, RECAUST (ERR) Committee REPORT - ERR Committee Chair Wei Ren, report by Danail Franco

BLRBAC – TAPPI ENERGY, RECOVERY, RECAUST (ERR) COMMITTEE UPDATE

Daniel Franco
ERR Committee Vice Chair
2024 – 10 – 09

TAPPI

*Click on presentation to open

10.0 WESTERN CANADA BLRBAC REPORT - Mike Bates

It's been a tough year for some of our mills, particularly in BC with multiple curtailments and permanent closures of pulp mills/sawmills. Accessible and cheap fibre to keep sawmills running and pulp mills running on residual chips. It creates expensive fibre to keep the mills running.
At our last meeting in the Spring, we elected a new suite of Steering committee members, Treasurer, Chair for the next 2 years. We had 8 mills attend this meeting. Some could not attend due to outages and some due to their mills being idled.
WCBLRBAC has had 4 events at our mills since the last BLRBAC meeting.
Harmac Pulp mill had 2 separate pin hole leaks in the superheater of the #5 RB and 1 on their #6 RB on their screen tubes. All 3 leaks were found on walk down.
The mill at The Pas, Manitoba. This was an external leak on a wall tube attachment to a buckstay.
At our last meeting we had a visit from Greg Burns. Greg gave us some great information on a dissolving tank explosion at a mill in the US. This information was well received by all the mills at the meeting.

Our new website was brought online recently. WCBLRBAC.com. Check it out if you want to attend. You can download the registration form, and we will send you an invoice.
Our next meeting is November 19th and 20th at the River Rock Resort and Casino. I hope to see you there.

11.0 ACTIVITIES OUTSIDE NORTH AMERICA REPORTS Finish Recovery Boiler Committee – Iiris Honkavaara

12.0 OPERATING PROBLEMS SESSION REPORT – Gregory Burns for Frank Navojosky

The session began at 1:00 PM on 10/8/24, and was facilitated by Frank Navojosky of International Paper Company and Vice chair of the Executive committee. There were 25 questions submitted and we got through all of them. Topics were related to:

- To drain the boiler or not, for cooling prior to waterwash
- How to clean Steam piping header distribution system after liquor contamination
- Testing methods Conductivity/pH to ensure above has been cleaned
- Who does routing SAC testing? Where to test
- Ways to access boler sidewall floor seal for SAC inspection
- NDT methods to check sidewall seals for SAC
- Large leak logic – Any issues?
- How long does it take to fill out the large leak logic checklist?

- How long can you run with spouts plugged and cooling water off
- What type of refractory plugs are used to plug spout smelt flow? OEM?
- How to use a spout torch
- Do you shut off spout cooling water when plugging it? (Only if the spout is leaking)
- Why does furnace pressure go up initially when the boiler trips?
- How many mills still use manual blowdown valves and how are auto valves configured.
- Anyone using technology to auto adjust liquor temp based on viscosity or other variable?
- What are normal SB pressures? What pressure is too high?
- Does mixing sulfur in liquor before burning speed up the pluggage process?
- Is it normal to open SH drains on a trip to keep from stressing it?
- Experiences with GL scalant
- Experience with Nuclear devices for DT level or density?
- Differences in Scrubber styles
- Significant discussion on how to combat loss of personnel experience
- How to deal with upper furnace/lower furnace cut line corrosion
- Anyone found hexavalaent chrome in the cold side of their boiler tubes
- Install fire extinguishers in elevator or not

CLOSING COMMENTS:

CHAIRMAN: Frank Navojosky for David von Oepen:

Congratulations to the New executive Committee members:

Frank Navojosky, International Paper – Chair
Greg Burns, Domtar – Vice Chair
Ev Townsend, Babcock and Wilcox – Operating Company Representative
Jimmy Onstead, Insurance Company Representative

That concludes our Main Committee Meeting this morning. Thank you all for your attendance and your time away from home and work. Our next meeting will be April 7th, 8th, And 9th 2025 and it will be here at the Hilton Hotel. The Executive Committee strongly encourages you to register and stay at the Hilton. Be on the lookout for that registration email in February. Please spread the word to increase participation in these meetings. We really need more participation from the mills.
With that I'll now entertain a motion to close the Main Committee meeting. Second? The Main committee Meeting is now closed. We will have our Technical Presentation starts in about **15** minutes. Thank you all and have a Safe trip back!

APPENDIX I
INCIDENT LIST

EXTERNAL WATER/OTHER

EXTERNAL WATER SOURCE

Fall 2024-01	
Classification:	**Noncritical (NC)**
Co, Mill, Location:	**International Paper Rome, Ga**
Unit Data:	RB#5,1988 Tampella Unit, 325, Drums - 1, DCE - NO, Floor - Decanting
Unit Size:	5.425 MMlb DS/day, 755,000 lb/hr steam, 883 PSIG, 830^{o}F, 1204 PSIG Design
Incident Date/Time:	August 18, 2024, Earliest Indication: 8/18/2024 at 2:00 pm
Downtime hrs, leak/total:	36 hours
ESP?	**NO**
Leak/Incident Loc:	External Water, Spray water condenser line
How discovered:	Walkdown, Operator making rounds
Wash adjacent tube:	NO
Root cause:	Weld Failure,
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Mar-23
Sequence of events:	Operator making rounds noticed leak on feedwater piping to spray water condenser. Notified management. The boiler was taken down in an orderly shutdown. Repairs were made,
Repair procedure:	Weld repair by boiler contractor
Future prevention:	Replace piping

SMELT SPOUT

SMELT SPOUT

Fall 2024-02	
Classification:	**NC**
Co, Mill, Location:	**International Paper, Red River Mill, Campti, Louisiana**
Unit Data:	RB#3, Andritz 2008, 400090, Drums - 1, DCE - NO, Floor - Decanting
Unit Size:	6 MMlb DS/day, 916,500 lb/hr steam, 1250 PSIG, 950^{o}F, 1850 PSIG Design
Incident Date/Time:	June 16, 2024, Earliest Indication: 6/16/2024 at 3:30am, operator walkdown
Downtime hrs, leak/total:	35.5/36.5
ESP?	**NO**
Leak/Incident Loc:	Smelt Spout #4 spout
How discovered:	Walkdown,
Wash adjacent tube:	NO
Root cause:	Overheat, The failure occurred approximately 44 hours after mechanically plugging and then shutting the water off to the spout. The mill had been troubleshooting the spout cooling water flow to this spout and based on observations with the flow it was felt that the flow had momentarily been non-existent. The mill mechanically plugged the spout then isolated the water to the spout per International Paper policy and began to plan an outage, however, the spout failed prior to getting an outage planned and executed.
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Oct-24
Sequence of events:	6.16.2024 the Recovery Boiler was operating stable. About 3:30 am the recovery operator was making rounds and noticed what appeared to be smelt leaking from the spout area. After some investigation it was determined the smelt was leaking from the #4 spout. The boiler was then set up to burn the bed out and then shut and cool. Fire was out at 5:32 am on 6.16.2024. After much discussion it was determined that a practice that had been employed in at least 2 other sites in the industry would be the best choice. With no reliable flow meter and yet undetermined cause of the loss in flow, it was decided to remove the

	Andritz insertable spout and install a blank plate and fill the spout tube opening with refractory. The repair was completed and the boiler was making steam to the header at 3:21 pm on 6.17.2024. On Liquor at 4:35 pm on 6.17.2024
Repair procedure:	Removed the spout and blanked off the spout opening with refractory and backing plate due to could not establish a cooling flow that was consistent
Future prevention:	During the October annual outage - Repair the spout cooling water flow meter, confirm no other issues with cooling water lines, and re-install a new spout once confirmed and consistent flow

DISSOLVING TANK

DISSOLVING TANK

Fall 2024-03	
Classification:	**Dissolving Tank Explosion #44**
Co, Mill, Location:	**International Paper, Mansfield Mill, Mansfield, Louisiana**
Unit Data:	RB#2,1982, Babcock and Wilcox, 524-0200, Drums - 2, DCE - NO, Floor - Sloped to rear
Unit Size:	3.2 MMlb DS/day, 488 lb/hr steam, 1275 PSIG, 900^{o}F, 1475 PSIG Design
Incident Date/Time:	August 12, 2024, Earliest Indication: 8/12/2024 at 3:21 pm
Downtime hrs, leak/total:	44.5 hours liquor to liquor downtime
ESP?	**NO**
Leak/Incident Loc:	Dissolving Tank, #1 spout
How discovered:	Walkdown, The dissolving tank had been quite noisy for the last 3 days due to low sulfidity from liquor system issues after starting up from the mill annual outage. At 3:21pm on August 12, an especially loud dissolving tank event was heard and the recovery boiler specialist went to the spout deck to investigate. The specialist identified the damage to the #1 Spout mini hood and excessive smelt flow out of the #1 Spout. The specialist involved the recovery boiler operator and went to the basement to further assess the situation. When they got to the basement, they noticed smelt flow outside of the dissolving tank. They immediately informed the front line leader and the control room operator executed a MFT to control the smelt flow.
Wash adjacent tube:	NO
Root cause:	Operations Error, Suspected smelt rush due to low sulfidity
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	July 31, 2024
Sequence of events:	The dissolving tank had been quite noisy for the last 3 days due to low sulfidity from liquor system issues after starting up from the mill annual outage. At 3:21pm on August 12, an especially loud dissolving tank event was heard and the recovery boiler specialist went to the spout deck to investigate. The specialist identified the damage to the #1 Spout mini hood and excessive smelt flow out of the #1 Spout. The specialist involved the recovery boiler operator and went to the basement to further assess the situation. When they got to the basement, they noticed smelt flow outside of the dissolving tank. They immediately informed the front line leader and the control room operator executed a MFT to control the smelt flow. Prior to the event, the boiler had been firing liquor for 8 days since starting up from the annual inspection outage. The liquor system was impacted by a larger percentage of semichem liquor and less pine liquor and no tall oil brine coming back to supplement the sulfidity. The liquor system sulfidity drifted down as a result of this. On Saturday August 10, three days prior to the event, the dissolving tank began to become noisy from the jelly rolling of the smelt as result of the lower sulfidity. Auxiliary fuel was being used throughout the period to help heat up the lower furnace and liquor firing rate was lower to match mill balance and then gradually stepped up to near full rate. Liquor firing rate across the time period of Aug 10-12 was 50%-94% of boiler rating with the last 48 hours averaging in the 92% range. Auxiliary fuel was being used throughout the period at rates of 1,500 to 3,000 CF/hr. In preparation for required stack testing on August

	13th, auxiliary fuel was stepped down approx. 3 hours prior to the event. At 1.5 hours prior to the event auxiliary fuel was removed completely and the liquor flow increased to 94%. At 3:21 pm the dissolving tank incident occurred and the boiler was MFT tripped. The hood was repaired, and the boiler was returned to service with 44.5 hours off liquor time. After restarting the boiler, it was noted that the bed cameras were not providing adequate view of the bed and interviewing the operators on duty at the time of the incident, they stated that the bed camera was also poor prior to the event and could not tell with certainty the exact condition of the bed. The bed cameras were repaired and the lower furnace condition could be properly monitored. The liquor sulfidity was boosted, auxiliary fuel was retained to ensure a hot lower furnace and the boiler returned to normal operation.
Repair procedure:	Shut down boiler at the time of the incident to allow cooling during the night. Maintenance contractor began work the following morning to replace the spout hood. The hood enclosure above the spout (mini hood) on the #1 spout was damaged to the point of needing replacement. No other damage was noted and the spout was left on the boiler with only the hood being replaced.
Future prevention:	Operator training on bed management, operator training on low sulfidity required actions to reduce liquor rate and increase auxiliary fuel, enhanced start up procedures for annual outage, ensure bed cameras in good condition, install spout deck cameras

DISSOLVING TANK

Fall 2024-04	
Classification:	**NC**
Co, Mill, Location:	**International Paper, Georgetown Mill, Georgetown, South Carolina**
Unit Data:	RB#2,1967, Babcock and Wilcox, 524-0114, Drums - 2, DCE - Cyclone, Floor - Sloped to Front
Unit Size:	4.36 MMlb DS/day, 500,000 lb/hr steam, 1000 PSIG, 820°F, 1175 PSIG Design
Incident Date/Time:	July 13, 2024, Earliest Indication: 7/12/2024 at 8PM
Downtime hrs, leak/total:	13 hours (offline to fire in)
ESP?	**NO**
Leak/Incident Loc:	Dissolving Tank, All spouts plugged
How discovered:	Walkdown,
Wash adjacent tube:	NO
Root cause:	Operations Error, All spouts plugged – training deficiency
Leak detection:	
Bed cooling enhanc	
Last full inspection:	
Sequence of events:	On 7/13/24 at 1:08AM, a Master Fuel Trip was initiated on #2 Recovery Boiler due to finding all spouts plugged. In the 12 hours leading up to the MFT, operations had been fighting high TRS due to over-oxidation of the liquor in the 2nd Stage BLOx tank. As a result of the high TRS, liquor firing was stopped at 6:45 PM on #2 RB and the boiler was online via auxiliary fuel only. On the night shift RB SO3's first round (the SO3 is in charge of spouts on both Recovery Boilers), it was found that the spouts were plugged. The operator was able to clear one of the spouts but did not report the issue to the control room or Front Line Leader. Later in the shift, the first liquor gun was fired and another operator went to check the condition of the spouts; at this point the control room discovered that all four spouts were plugged. Operators were not successful in immediately clearing any of the spouts so the MFT was initiated. The Georgetown Mill does not have a spout torch to burn the spouts out so a torch was couriered from the Riegelwood mill to assist in clearing the spouts. While waiting for the spout torch to arrive, the mill worked with International Paper Power Technology to determine an alternative path forward to clearing the spouts. It was determined that, due to the small size of the bed at the time of MFT, the mill could attempt to wash the spouts out after waiting

	at least 12 hours for the bed to cool (and confirming safe temperature at the spouts and in the furnace). The spouts were washed out and fire was back in #2 RB at 2:30 PM on 7/13/24.
Repair procedure:	N/A – All spouts plugged
Future prevention:	Re-verification of all bottom level operators

ECONOMIZER

Fall 2024-05	
Classification:	**NC**
Co, Mill, Location:	**Smurfit Westrock Evadale – Evadale, TX**
Unit Data:	RB#4,1975, Combustion Engineering, CE29783 NB 22015, Drums - 2, DCE - NO, Floor - anting
Unit Size:	4.82 MMlb DS/day, 730,000 lb/hr steam, 680 PSIG, 750°F, 770 PSIG Design
Incident Date/Time:	June 10, 2024, Earliest Indication: 6/8/2024 at 9:00 PM
Downtime hrs, leak/total:	30
ESP?	**NO**
Leak/Incident Loc:	Economizer, Cold economizer, third platen from right wall
How discovered:	Walkdown, Operator noticed wet ash in hopper during daily round, opened inspection door entified leak
Wash adjacent tube:	NO
Root cause:	SAC, Failure at attachment weld, potentially SAC or weld defect; Failed part was not oved from the boiler for analysis.
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	May-24
Sequence of events:	During a routine shift walkdown with the sootblowers off on the night shift of June 8, the very operator noticed moisture in the cold economizer hopper. The operator opened additional ection doors above the hopper to identify the potential leak. The leak was identified just inside ight wall inspection door (north side of boiler). The recovery boiler operator was able to ıtain drum level and did not receive any mass balance alarms due to the leak. Operators ormed hourly rounds to monitor the leak until the boiler was shut down for repairs. The boiler ed on June 10 at 5AM after diverting liquor while swapping a nozzle pump. The boiler was arted to complete a bed burnout prior to completing the repair. The boiler was shut down to n cool down on June 10 at 11PM. Repairs were completed on June 11.
Repair procedure:	Isolated platen by installing plugs at header
Future prevention:	Additional inspections of attachment welds and potential SAC zones will be completed ıg the next major outage.

ECONOMIZER

Fall 2024-06	
Classification:	**NC**
Co, Mill, Location:	**Smurfit Westrock Evadale – Evadale, TX**
Unit Data:	RB#3,1995, Ahlstrom, 6135, Drums - 1, DCE - NO, Floor - Decanting
Unit Size:	2.79 MMlb DS/day, 420,000 lb/hr steam, 680 PSIG, 750°F, 800 PSIG Design
Incident Date/Time:	June 13, 2024, Earliest Indication: 6/8/2024 at 9:00 AM
Downtime hrs, leak/total:	30
ESP?	**NO**
Leak/Incident Loc:	Economizer, Cold economizer
How discovered:	Walkdown, Operator noticed wet ash in hopper during daily round, opened inspection door & identified leak
Wash adjacent tube:	NO
Root cause:	Weld Failure, Failure at butt weld completed during construction in 1995
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Feb-23
Sequence of events:	While troubleshooting issues with the cold economizer drag on day shift of June 8, the recovery operator opened the inspection door above the drag and noticed damp salt inside the door. A small leak was identified just inside the left wall inspection door (south side of boiler). There was not any visible water in the cold economizer drag below. The recovery boiler operator was able to maintain drum level and did not receive any mass balance alarms due to the leak. Operators performed hourly rounds to monitor the leak until the boiler was

	shut down for repairs. The boiler remained in service until Wednesday night, June 12, when resources were available to make the repair.
Repair procedure:	GTAW – base metal restoration, plan to replace with dutchman on major outage
Future prevention:	Additional NDE inspections at butt welds will be completed during the next major outage-August

EXTERNAL WATER

Fall 2024-07	
Classification:	**NC**
Co, Mill, Location:	**IP Riverdale, Selma, AL**
Unit Data:	RB#2,1980, CE, 28679, Drums - 2, DCE - NO, Floor - Decanting
Unit Size:	2.70 MMlb DS/day, 425,000 lb/hr steam, 1425 PSIG, 860^{o}F, 1720 PSIG Design
Incident Date/Time:	August 2, 2024, Earliest Indication: 8/2/2024 at 1530
Downtime hrs, leak/total:	
ESP?	**NO**
Leak/Incident Loc:	Economizer, Vent Valve
How discovered:	Walkdown, Standard Equipment Basic Care walk down of boiler.
Wash adjacent tube:	NO
Root cause:	Weld Failure, Failure occurred at the toe of the weld on the piping side of fillet weld.
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Apr-24
Sequence of events:	At 15:30 pm on August 1, 2024, the first helper was doing a walk down on the #2 recovery r. He noticed water spraying out of the bottom of the vent valve of the economizer. Appropriate onnel were notified. Initial investigation determined that the leak was coming from a weld below valve. An orderly shutdown was then planned. The boiler was shutdown at 2:00 AM on August 024. The boiler was drained just enough to facilitate the repair on top of the cold pass nomizer. Waterside LOTO was completed, and boiler was ready for contractors to start the ir process at 0700 August 8, 2024. Inspection showed it was leaking at the heat-affected zone ne pipe side of the weld. All welds were PT NDE and passed. The boiler was filled for hydro, we eezed it per IP Riverdale procedure, the hydro was successful, and a dry hydro was called at ust 8, 2024 at 15:30 PM. All locks were removed and turned over to Operations at 16:00 PM on ust 9, 2024.
Repair procedure:	Valve and Pipe replacement, Post repair NDE
Future prevention:	Have Boiler contractor perform repair. Review weld procedure for components where welds within six inches of each other in a vertical orientation.

SUPERHEATER

SUPERHEATER

Fall 2024-08	
Classification:	**NC**
Co, Mill, Location:	**Harmac Pacific, Nanaimo British Columbia**
Unit Data:	RB#5,1953, Combustion Engineering, CA-51126, Drums - 3, DCE - NO, Floor - Decanting
Unit Size:	1.4 MMlb DS/day, 204,600 lb/hr steam, 600 PSIG, 750^{o}F, 675 PSIG Design
Incident Date/Time:	Dec 25, 2023 15:40 Indication: Dec 25, 2023 at 15:20
Downtime hrs, leak/total:	56 HOURS
ESP?	**YES**
Leak/Incident Loc:	Superheater Hanger tubes.
How discovered:	Walkdown, Discovered during routine leak check
Wash adjacent tube:	NO
Root cause:	Thinning External, Thinning was found on the superheater hanger tubes at the roof penetrations through the penthouse refractory
Leak detection:	NO
Bed cooling enhanc	NO
Last full inspection:	Jun-23
Sequence of events:	15:20 •Shift Engineer was informed by radio of a possible tube leak in #5 Recovery Boiler sidewall adjacent to the mud drum. The Recovery Assistant had just opened a furnace door

	as part of a routine leak check and thought he could hear a leak. •The Shift Engineer met the operator on the 5th floor at the door near the suspected leak •Opening the door, the Shift Engineer confirmed that there was an unusual sound. •The door directly across on the opposite wall was opened as well; it was confirmed that the boiler was quieter on the left side. Doors on the floors above were opened, but all involved agreed that the noise was loudest at the 5th floor doors, and at that location there was a potential for the leak to be a sidewall tube. 15:40 •The ESP was initiated
Repair procedure:	New tube "pup" sections were installed on three (3) hanger tubes
Future prevention:	Survey adjacent tubes during 2024 Outage

SUPERHEATER

Fall 2024-09	
Classification:	**NC**
Co, Mill, Location:	**Harmac Pacific, Nanaimo British Columbia**
Unit Data:	RB#5,1953, Combustion Engineering, CA-51126, Drums - 3, DCE - NO, Floor - Decanting
Unit Size:	1.4 MMlb DS/day, 204,600 lb/hr steam, 600 PSIG, 750^{o}F, 675 PSIG Design
Incident Date/Time:	Feb 7, 2024 10:15AM Indication: Feb 7, 2024 at 10:00AM
Downtime hrs, leak/total:	74 HOURS for leak repair, followed a week later by 15 days downtime for total repair of superheater hanger tubes
ESP?	**YES**
Leak/Incident Loc:	Superheater Hanger tubes.
How discovered:	Walkdown, Discovered during routine leak check
Wash adjacent tube:	NO
Root cause:	Thinning External, Thinning was found on the superheater hanger tubes at the roof penetrations through the penthouse refractory
Leak detection:	NO
Bed cooling enhanc	NO
Last full inspection:	Jun-23
Sequence of events:	10:00 AM •Shift Engineer was informed by radio of a possible tube leak in #5 Recovery Boiler sidewall adjacent to the mud drum. The Recovery Assistant had just opened a furnace door as part of a routine leak check and thought he could hear a leak. •The Shift Engineer, and Area supervisor met the operator on the 5th floor at the door near the suspected leak •Opening the door, the Shift Engineer and Area Supervisor confirmed that there was an unusual sound. •The door directly across on the opposite wall was opened as well; it was confirmed that the boiler was quieter on the left side. Doors on the floors above were opened, but all involved agreed that the noise was loudest at the 5th floor doors, and at that location there was a potential for the leak to be a sidewall tube despite the same indication actually being due to a superheater hanger tube two months earlier. All agreed it was safest to error on the side of caution. 10:15AM •The ESP was initiated
Repair procedure:	New tube "pup" sections were installed on ten (10) hanger tubes
Future prevention:	All hanger tubes were pupped a week later (8 tubes X 22 platens = 176 tubes)

SUPERHEATER

Fall 2024-10	
Classification:	**NC**
Co, Mill, Location:	**IP Columbus Cellulose Fibers, Columbus, MS**
Unit Data:	RB#PR-212,1989, Babcock and Wilcox, 526-0212, Drums - 1, DCE - NO, Floor - Decanting

Unit Size:	6.5 MMlb DS/day, 943,000 lb/hr steam, 1500 PSIG, 925°F, 1825 PSIG Design
Incident Date/Time:	August 11, 2024, Earliest Indication: 8/11/2024 at 08:30
Downtime hrs, leak/total:	98
ESP?	**NO**
Leak/Incident Loc:	Superheater, Convection Pass Tube Panel
How discovered:	Walkdown, Observed loud noise when sootblowers were shutdown
Wash adjacent tube:	NO
Root cause:	Mechanical Damage, Heat damage from cutting out crotch plate (using a torch)
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Oct-24
Sequence of events:	During a recovery boiler walk down on 8/11/24, team member suspected a leak due to a loud noise observed while the sootblowers were not in operation. Team member contacted the area RE, BUM and his Process Resource to help determine if it was an actual leak. After further investigation, area RE, BUM and Process Resource confirmed that there was a leak coming from the superheater section close to IK-19 elevation. Area RE and BUM contacted SME (B. Crowe) and briefed him with the situation. Operations manager, the mill manager and APM were also notified. It was decided that the boiler be taken down in a controlled manner as there was no indication from loss of boiler water chemicals and furnace pressure that there was a water tube leak present. The boiler was taken offline at 6:00pm on 8/11/24. After the boiler had cooled down on 8/12/24, the boiler doors were opened at IK-19 elevation to try to identify the leak. It was observed that saltcake was washed out on the first 3 tubes on the first and second pendant of the 4th superheater bank from the manway door, at IK-19 elevation. This gave an indication that the leak was located at this location. During night shift on 8/11/24, contractors and night shift IPCC where able to gain access to the suspected area to look for the leak. The superheater tubes with washed out saltcake were UTT'd and PT'd and no leak was found. While in the boiler, there was also some washed out saltcake observed on the left side of the IK-19 tube opening bend. These tubes were UTT'd and PT'd as well and a tube perforation was found at the membrane weld termination of the lower bend of IK-19 opening. This was confirmed by the area RE, early morning of 8/12/24. IK-19 is located at the steam cooled panel and is not a water wall tube. The failed tube is located on the convection pass (steam cooled) tube panel that is located between the rear most tube of the RHSW and the generating bank section. This is an extension of the superheater section. See Section 11. The unit was shutdown for repairs on August 11th, 6:00 pm.
Repair procedure:	Replaced/cut out damaged tube
Future prevention:	Visual and PT examination during major outage

SUPERHEATER

Fall 2024-11	
Classification:	By ESP Subcommittee
Co, Mill, ation:	**Domtar, Nekoosa, WI**
Unit Data:	RB# #14 Recovery Boiler, 1991, CE 89101, Drums - 1, DCE - NO, Floor - Decanting
Unit Size:	1.80 MMlb DS/day, 264,000 lb/hr steam, 1500 PSIG, 900°F, 1720 PSIG Design
Incident e/Time:	August 23, 2024, Earliest Indication: 8/23/2024 at 9am
Downtime hrs, /total:	Already down for Annual Outage.
ESP?	**NO**

Leak/Incident :	Superheater, LTSH 2, 2nd platen from left, 3rd tube from the front.
How discovered:	Hydro Test
Wash adjacent e:	NO
Root cause:	Fatigue, Crack at a hinge pin weld attachment
Leak detection:	YES
Bed cooling anc	NO
Last full pection:	Oct-23
Sequence of nts:	While performing a hydro during our annual outage, we identified a leak on the LTSH 2 at a ge pin attachment weld about 5 feet below the roof. The leak was on the 2nd platen from the on the 3rd tube from the front. A 2-foot dutchman was installed for the repair.
Repair cedure:	2-foot dutchman
Future vention:	

SUPERHEATER

Fall 2024-12	
Classification:	**NC**
Co, Mill, Location:	**IP Riverdale, Selma, AL**
Unit Data:	RB# 1,1966, B&W, PR-98, Drums - 2, DCE - NO, Floor - Sloped to Front
Unit Size:	1.8 MMlb DS/day, 290,000 lb/hr steam, 650 PSIG, 840F, 725 PSIG Design
Incident Date/Time:	April 18, 2024, Earliest Indication: 4/18/2024 at 1230
Downtime hrs, leak/total:	
ESP?	**NO**
Leak/Incident Loc:	Superheater, SSH Lower Loop
How discovered:	Other, Identified during AO NDE UT survey of boiler
Wash adjacent tube:	NO
Root cause:	Thinning External, Damage caused by corrosion-erosion.
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Apr-24
Sequence of events:	At 12:30 pm on April 16, 2024, the NDE vendor (ATS) was performing the Annual Outage UTT survey of the boiler in the SSH area and called this to our attention. The technician visually identified it. The unit was already down and LOTO for the outage. Replacement loops were procured and installed. All welds were dry MT & PT NDE and passed. The boiler was filled for hydro, we hydrostatic test was performed per IP Riverdale procedure, the hydro was successful, and a dry hydro was called at April 23, 2024 at 15:30 PM. The unit was turned over to Operations at the end of the outage. There were no issues for start-up or clearing SH
Repair procedure:	Outer Lower loop replacement, 2 loops, Post repair NDE
Future prevention:	Perform full UT survey of leak location for next several outages to determine growth rate of erosion.

BOILER BANK

BOILER BANK

Fall 2024-13	
Classification:	**Critical #969**

Co, Mill, Location:	**Nanaimo Forest Products – Harmac Pacific, Nanaimo, BC**
Unit Data:	RB#6,B&W – installed 1963, Rebuilt - 1983, 5315, Drums - 2, DCE - NO, Floor - Decanting
Unit Size:	3.3 MMlb DS/day, 465,000 lb/hr steam, 600 PSIG, 750°F, 775 PSIG Design
Incident Date/Time:	February 9, 2024 at 6:25PM Earliest Indication: 2/9/2024 at 6:15 PM
Downtime hrs, leak/total:	57 hours
ESP?	**YES**
Leak/Incident Loc:	Boiler Bank, leaks were identified in the generating bank of the boiler. The tubes leaks were due to fretting damage between the tubes caused by a loose anti-vibration bar.
How discovered:	Walkdown, Assistant Recovery Operator observed moisture at boiler doors on north side of the Generating Bank at the 6th, and 5th floors. Water found in the 4th floor Generating Bank hopper.
Wash adjacent tube:	YES
Root cause:	Mechanical Damage, Anti-vibration bar supports had loosened, and the vibration bars cut into the tubes.
Leak detection:	NO
Bed cooling enhanc	NO
Last full inspection:	Jul-23
Sequence of events:	6:15 PM •Shift Engineer was informed by radio of a potential tube leak in #6 Recovery Boiler Generating bank. The Recovery Assistant had just opened furnace doors as part of a routine leak check and observed moisture at the 6th floor on the north, hot side of the Generating Bank. • The Shift Engineer, and Recovery Assistant met at the 4th floor Generating Bank hopper and together observed water in the hopper. 6:25PM •The ESP was initiated
Repair procedure:	New tube 'pup' sections were installed on five (5) gen bank tubes
Future prevention:	Anti-vibration bars will be moved, and replaced with new during April 2024 maintenance outage. Any additional tube damage identified will be pupped.

UPPER FURNACE, ABOVE HIGHEST AIR ENTRY

UPPER FURNACE, ABOVE HIGHEST AIR ENTRY

Fall 2024-14	
Classification:	**NC**
Co, Mill, Location:	**Domtar, Plymouth, Plymouth NC**
Unit Data:	RB#5,1975, CE, 20673-V2R, Drums - 2, DCE - NO, Floor - Decanting
Unit Size:	6.24 MMlb DS/day, 917,000 lb/hr steam, 850 PSIG, 825°F, 875 PSIG Design, 1040PSIG MAWP
Incident Date/Time:	April 1, 2024, Earliest Indication:
Downtime hrs, leak/total:	37 hrs.
ESP?	**NO**
Leak/Incident Loc:	Upper Furnace, above air entry, 3rd floor 194'-6" elevation, left wall tube 143 external cold side 1.688" long longitudinal crack.
How discovered:	Walkdown, Water was observed coming out of bottom, left/rear corner screen tube supply tube header access door.
Wash adjacent tube:	NO
Root cause:	Stress Assisted Corrosion (SAC),
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Jul-23
Sequence of events:	At approximately 3:30pm on 4/1/2024, the field operator making routine walk down observed water coming out around bottom, left/rear corner screen tube supply header access door located on 3rd floor. Field operator notified control room operator and team leader. Boiler conditions at the time of walk down were normal. Several pieces of lagging and insulation was removed and identified tube leak on cold side of tube behind the left wall, third floor bottom buck stay. Liquor was pulled from boiler and boiler was shutdown at 7:50pm on 4/1/2024 for repairs.

Repair procedure:	
Future prevention:	

UPPER FURNACE, ABOVE HIGHEST AIR ENTRY

Fall 2024-15	
Classification:	**Critical #970**
Co, Mill, Location:	**Canadian Kraft Papers, The Pas, Manitoba, Canada**
Unit Data:	RB#1,1970, CE, CA 69108, Drums - 2, DCE - Cascade, Floor - Decanting
Unit Size:	1.9 MMlb DS/day, 240,000 lb/hr steam, 700 PSIG, 800^{o}F, 775 PSIG Design
Incident Date/Time:	June 16, 2024, Earliest Indication: 6/16/2024 at 08:45
Downtime hrs, leak/total:	
ESP?	**NO**
Leak/Incident Loc:	Front wall right side second tube pulled off buckstay
How discovered:	Opening doors to inspect for a loss of draft issue, found boiler gas lanes plugged, heard a hissing sound, unable to locate leak, feed water was trending ~ 20 KPPH higher than steam outlet flow
Wash adjacent tube:	NO
Root cause:	SAC, T Cracking at the toe of the attachment weld of the bottom of the buckstay causing a leak externally to the boiler tube to be sent for analysis when removed and pupped in July shutdown
Leak detection:	NO
Bed cooling enhanc	NO
Last full inspection:	Oct-23
Sequence of events:	During the time preceding the incident the boiler was firing at a rate of 1.7 MMlbs DS/day, no auxiliary fuel was in use, the steam flow was 197,000lbs/hr at normal operating pressure and temperature, the drum level was stable and the furnace pressure was -0.4"WC. Prior conditions starting on June 14th were indicating that we had a loss of draft, suspecting that the generating bank was plugged up. Enhanced soot blowing was attempted over the course of the next ~48 hours. At 5:15 the power boiler tripped, recovery operator put an auxiliary fuel burner in the boiler to maintain steam header pressure the furnace pressure went positive, operators struggling to maintain draft O2 reading had dropped to 0.1%..Operator then noticed that feedwater and steam flow were not trending , and the feed water was trending ~ 20 KPPH higher than the steam outlet flow for ~ 48 hours. Supervisor contacted Manager at ~ 8 am, manager advised supervisor to pull liquor, manager and supervisor opened doors at different elevations and discovered the boiler plugged. A slight hissing noise could be heard at 6th 5th and 4th floor, there was no puffing coming from boiler at this time. Fire pulled out of unit at 10:30 am to cool unit to allow for a water wash to unplug the unit, boiler was walked down frequently with no leak indications noted while cooling, buckstays were all dry. Upon inspections the O2 probes were noted to be plugged up with carry over as well making them unable to accurately read the O2 levels. Unit water washed and hydro put on unit, leak found while pressuring up unit on front wall, right side second tube in. Leak was external to the boiler. [ESP Subcommittee, design of upper furnace is loose tube, with external, welded casing, which could possibly allow leak water to enter the furnace]
Repair procedure:	Excavate the indication, MT excavation to ensure all indications removed, weld repair and metal build up as required final visual and 100% PT
Future prevention:	Enhanced NDE of buck stay attachment welds

LOWER FURNACE, BELOW HIGHEST AIR ENTRY

LOWER FURNACE, BELOW HIGHEST AIR ENTRY

Fall 2024-16	
Classification:	**Critical #971**
Co, Mill, Location:	**International Paper, Pensacola Mill, Cantonment FL**

Unit Data:	RB#1,1975, Babcock & Wilcox, 21-0868, Drums - 2, DCE - NO, Floor - Sloped to rear
Unit Size:	3.06 MMlb DS/day, 455,000 lb/hr steam, 850 PSIG, 850°F, 1000 PSIG Design
Incident Date/Time:	September 10, 2024, Earliest Indication: 9/10/2024 at 10:00 AM
Downtime hrs, leak/total:	31
ESP?	**NO**
Leak/Incident Loc:	Lower Furnace, below highest air entry, Water wall tube next to the 6-tube panel smelt spout opening
How discovered:	Walkdown, Operator saw water while doing round
Wash adjacent tube:	NO
Root cause:	Mechanical Damage, Ding in tube. Cause unknown, but will analyze tube during a future outage
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	Sep-24
Sequence of events:	The leak was found on September 10, 2024 at approximately 10:00 AM. The boiler was coming back up from an annual outage and was online with auxiliary fuel only. Liquor had not yet been introduced to the furnace; therefore, no ESP was needed. Operator while making a round noticed water at the entrance of the West spout, and a small amount of water running down the smelt trough. After leak was confirmed by inspection from the next floor up, fire was pulled and repair started. The leak was on tube #75 of the rear wall/spout wall, on a straight piece of tube. The hole was about 1/8" diameter, surrounded by good wall thickness, including the adjacent tubes. Due to the location of the leak, a weld restoration was completed on the tube, and we will remove the tube during the next major outage.
Repair procedure:	Weld Restoration
Future prevention:	Clean crotch area and get a full inspection next annual outage.

INTERNATIONAL INCIDENTS

SUPERHEATER

Fall 2024Ox1182	
Classification:	
Co, Mill, Location:	**Sylvamo, LAN Mill, Luiz Antônio SP Brazil**
nit Data:	RB#1,1990, CBC Mitsubishi, Drums - 2, DCE - NO, Floor - Decanting
Unit Size:	1800 Tons DS/day, 245 tons/hour steam, 67 bar , 450°C, 78 Bar Max Design
Incident Date/Time:	May 15, 2024, Earliest Indication:
Downtime hrs, leak/total:	0
ESP?	**NO**
Leak/Incident Loc:	Superheater, Secondary Superheater Tube #30 of serpentine #08 at 4th level AND Tertiary Superheater, serpentine #09 at crown loop. (Two separate leaks)
How discovered:	Hydro Test, Hydro Test after Annual Outage 2024
Wash adjacent tube:	NO
Root cause:	Weld Failure (was in dutchman buttweld, installed 3 or 4 years ago due to previous leak), and Corrosion Tube in the high crown seal. Tubes was delivered to an external Lab to be analyzed
Leak detection:	YES
Bed cooling enhanc	NO
Last full inspection:	May-24
Sequence of events:	After the Annual Outage, during the hydro test was observed a small leaking at Secondary Super heater Tube #30 of serpentine #08 at 4th level AND Tertiary Super heater, serpentine #09 at crown loop
Repair procedure:	It was decided to remove this TSH panel #9 (total of 23 panels) because it was not possible to do the repairs in this position, after remove the panel a new hydro was performed. For tertiary SH, the leaking buttweld weld was cut out and a new dutchman was installed.
tre prevention:	There is already a plan for capital replacement of this superheater. It is budgeted for 2026

Lower Furnace

Fall 2024Ox1183

Classification:	By ESP Subcommittee
Co, Mill, Location:	**Sappi Ngodwana 1209, N4, Southern Africa**
Unit Data:	RB#2,Start up year TBC Valmet, To be confirmed, Drums - 2, DCE - NO, Floor - Sloped to Front
Unit Size:	5 511 559 MMlb DS/day, , 716 356.5 lb/hr steam, 1334.35 PSIG, 905ºF, 1523 PSIG Design
Incident Date/Time:	November 9, 2023, Earliest Indication: upon removal of refractrometer
Downtime hrs, leak/total:	No production impact since leak was detected during annual shut, November 2023
ESP?	**NO**
Leak/Incident Loc:	Furnace Floor, **a leak was detected on the front wall to header weld on tube No.87.**
How discovered:	NDT and furnace floor inspections during annual shut
Wash adjacent tube:	YES
Root cause:	Mechanical Damage, leak was caused be a piece of unfused welding wire which had propagated into a crack triggering the weld to leak.
Leak detection:	NO
Bed cooling enhanced	YES
Last full inspection:	Nov-23
Sequence of events:	**See RCA summary**
Repair procedure:	The weld was successfully repaired by Valmet.
Future prevention:	NDT and Tube inspections during annual shut.

1982, Gotaverken 551-990

The entire ditch was exposed during this outage to facilitate the removal on locally repaired tubes and to follow up on the February 2022 smelt leak corner sealing plate repairs. refer to tuv sud inspection report no.kvb003/22. the ditch area displayed no evidence of operational in services sagging on the header or deformation note on the front wall and floor slope tubes. there were however numerous areas of mechanical damage noted on the tubes in the form of scars and grinding marks. upon further the inspection a leak was detected on the front wall to header weld on tube no.87. during the removal of the defective area of the weld, it was discovered that the leak was caused be a piece of unfused welding wire which had propagated into a crack triggering the weld to leak

APPENDIX II
ESP POWER POINT PRESENTATION

ESP Subcommittee

SUBCOMMITTEE REPORT – FRANK NAVOJOSKY

WEDNESDAY OCTOBER 9TH, 2024

ESP Subcommittee BLRBAC 1

***Click on presentation to open.**

APPENDIX III
AF&PA Presentation

American Forest & Paper Association

BETTER PRACTICES BETTER PLANET 2030
SUSTAINABLE PRODUCTS FOR A SUSTAINABLE FUTURE

AMERICAN FOREST & PAPER ASSOCIATION RECOVERY BOILER PROGRAM REPORT

BY

WAYNE GRILLIOT
OCTOBER 9, 2024

2024 FALL BLRBAC

- Click on presentation to open