

Päivi Lampinen

29.1.2014

50 v. JUHLATOIMIKUNNAN KOKOUS I/2014

PAIKKA Pöyry-talo / puhelinkokous Lync
AIKA 21.1.2014, klo 14.00-15.30

OSALLISTUJAT:

Keijo Salmenoja	Andritz Oy
Timo-Pekka Veijonen	Stora Enso Pulp Competence Center (Lync)
Klaus Niemelä	VTT
Mikko Hupa	Åbo Akademi (Lync)
Markus Nieminen	Pöyry Finland Oy
Päivi Lampinen	Pöyry Finland Oy

LIITTEET	Liite 1	50 vuotisjuhlakirjan kirjoitusohjeet
	Liite 2	Tehdasvierailujen mainokset
	Liite 3	ICRC luennot
	Liite 4	Päivitetty technical program

Päivi Lampinen

29.1.2014

1 POISSAOILOILMOITUKSET

Esa Vakkilainen

Lappeenrannan Teknillinen Yliopisto

2 TILANNEKATSAUS

Alla olevassa taulukossa on listattu lyhyesti tapahtuman tärkeimpiä asioita ja niiden tämän hetkinen tilanne.

Asia:	Tilanne:
50v-juhlapäivän teema	Päätetty
50v-seminaarin luennoitsijat	Alustavat valinnat tehty -> varmistus + informointi
Nettisivut, rekisteröinti+hotellivaraus	Tehty
Budjetti	Tehty ja hyväksytty
Osallistujamaksut	Tehty
Excursiot 13.6.	Kymi OK, Rauma OK -> Mainokset tehty
Sponsorointivaihtoehdot	Tehty, näyttelyyn 2 varausta, ohjelmalehteen 1 mainosvaraus
50 v-konferenssin iltaohjelma	Päätetty (Werner Brothers), tekniikasta tarjous
Puoliso-ohjelma	Pyydetty tarjouksia, valinnat tekemättä
Osallistujalahja (reppu 50 v-logolla)	Pyydetty tarjouksia valinta tekemättä
Historiikki	Tarjous hyväksytty, kirjoitustyö alkaa maaliskuussa
Avauspuhuja, maanantai 9.6	Esa Härmälä, TEM energiaosaston ylijohtaja
Call for Papers	Ilmoittautuminen päättynyt, ICRC esitelmät päätetty, luennoitsijoille ilmoitettu
Yhteistyöjärjestöt	TAPPI, PI, APPITA, PACTAC (jäsenhintaa)
Mainostus	ABTCP, CSCR, AF&PA, BRLBAC, SHK, erilaiset nettisivustot
TAPPI sopimus	Tehty

3 50 VUOTISJUHLAKONFERENSSIN ESITELMÄT

Teema:

“Continuous development of recovery boiler technology – 50 years of cooperation in Finland”

Alustavan aikataulun mukaan päivällä on 4 kappaletta 1½ tunnin sessiota, jolloin 30 minuutin esityksillä luentomääräksi tulee 12. Kaikki luennot ovat englanniksi. Päivän aloittaa yhdistyksen puheenjohtajan tervehdys (15 min.).

Oheiseen taulukkoon on kokouksessa päätetyt luennoitsijat ja esitelmäaiheet. Sessioille nimettiin myös puheenjohtajat, mutta sessioiden nimet on vielä lopullisesti päättämättä. Ehdotuksia otetaan vastaan.

NO	AUTHOR	SUBJECT	SESSION CHAIR
	SESSION 1	OPENING SESSION	Timo Merikallio
	FRBC Chairman Timo Merikallio	Welcoming words	OK
1.	Mikko Hupa, Åbo Akademi	Review of recovery boiler research (TOP 10)	OK
2.	Esa Vakkilainen, LUT	Recovery boiler history and future	OK
	SESSION 2	RECOVERY BOILER DEVELOPMENT	Esa Vakkilainen
3.	Mika Järvinen, Ari Kankkunen, Aalto Yliopisto	Black liquor spraying Yhteen veto koko kehityksestä	OK
4.	Honghi Tran, University of Toronto	Review of recovery boiler soot blowing	OK
5.	Doug Singbeil, FPInnovations	Review of recovery boiler superheater material studies	? Keijo varmistaa
6.	Pekka Pohjanne, Martti Mäkipää, VTT	SKYREC:n seinä/tulistin materiaalit tutkimukset	1. varasija
	SESSION 3	“STATUS OF RECOVERY BOILERS”	Timo-Pekka Veijonen
7.	Song Won Park, University of Sao Paulo	Review of recovery boilers in Brazil? Luennon aihe saattaa vaihtua	OK Esa / Mikko
8.	Kari Haaga, Valmet	XXL recovery boilers	OK
9.	Marja Heinola, Andritz	Review of high energy recovery boilers	OK

	SESSION 4	????	Honghi Tran
10.	Andy Jones International Paper	Review of recovery boiler modelling (development & history)	OK
11.	Rikard Gebart, Luleå University of Technology	Black liquor gasification in Sweden , still emerging technology - gave information about sodium/sulphur release	OK (Mikko)
12.	FRBC, SHK, BLRBAC, ABTCP	Status of recovery boilers and their safety – international review: - Age distribution, recent developments, - dry solids distribution - overview of recent challenges in operation - progress in safety, safety records	15 minuutin esitykset / tervehdykset per yhdistys

4 50 V. JUHLAKIRJA JA KIRJE LUENNOITSIJOILLE

Esitelmistä julkaistaan kirja edellisten seminaarien tapaan. Kirjan artikkelit kasataan, tarkastetaan, taitetaan ja painatetaan juhlatoimikunnan/SKY sihteeristön toimesta. Päätettiin, että **deadline artikkeleille on 17.3.2014**. Sihteeristö lähettää kirjoitusohjeet ja aikataulun esitelmäitsijöille (liite 1).

Kirjan kanteen on ehdotettu ilmakuvaa Stora Enson Kaukopään tai vaihtoehtoisesti Oulun tehtaasta (sihteeri hoitaa). Kirjan alkuun tulee yhdistyksen puheenjohtajan (Timo Merikallio) alkusanat.

5 EXCURSIOT

Konferenssin päätteeksi 13.6.2014 järjestetään tehdasvierailut UPM Kymin sekä Metsä Fibre Rauman tehtaille. Excursion hinta on 100 eur / osallistuja ja mainokset on viimeistelyä vaille valmiit julkaistavaksi nettisivuilla (liite 2).

6 ICRC-SEMINAARIN TILANNE

Seminaarin esitelmät on valittu 11.12.2013 järjestetyssä ICRC program committee – kokouksessa. Liitteessä 3 on esitetty ICRC:n toimittama alustava ohjelma. Ohjelman 15 minuutin kahvitauot todettiin liian lyhyiksi, joten päivitettyssä Technical program – taulukossa (liite 4) kahvitauot on 30 minuuttia.

Sihteeristö päivittää konferenssin ohjelman nettisivuille.

7 MUUT ASIAT

Ei muita asioita.



Päivi Lampinen

29.1.2014

8 SEURAAVA KOKOUS

Seuraava kokous päätetään myöhemmin.

LIITE I

50 vuotisjuhlakirjan kirjoitusohjeet

Invitation to write a chapter to a coming book

Continuous development of recovery boiler technology – 50 years of cooperation in Finland

Suomen Soodakattilayhdistys – Finnish Recovery Boiler Committee
June 11, 2014 Tampere, FINLAND

Thank you for agreeing to contribute as an invited speaker at the Suomen Soodakattilayhdistys - Finnish Recovery Boiler Committee 50th Anniversary Seminar. Seminar will be held as a part of the next International Chemical Recovery Conference (ICRC) in June 2014. Previous Anniversary Seminar was held in 2009 at Sibelius Hall, Lahti.

One of the main focuses of the coming Anniversary Seminar is a bound book. This book will feature a selection of articles from internationally known authors and serve as reference for general recovery boiler users.

The preliminary list of authors and their tentative titles looks like this:

<u>Author</u>	<u>Tentative title (to be edited by author)</u>
Mikko Hupa	Review of recovery boiler research (TOP 10)
Esa Vakkilainen	Recovery boiler history and future
Ari Kankkunen	Review of black liquor spraying
Honghi Tran	Review of recovery boiler sootblowing
To be confirmed	Review of recovery boiler superheater material studies
Song Won Park	Utilization of process data in recovery boilers
Kari Haaga	XXL recovery boilers
Marja Heinola	Review of high energy recovery boilers
Andy Jones	Review of recovery boiler modelling (development & history)
Rikard Gebart	Review of the black liquor gasification activities

Due to the nature of this book I'd like to receive a written or e-mail confirmation as soon as possible with title of for the chapter, title mentioned above is only proposal. Some choice is inherent as we want this book feature what the author knows best.

Final text (10...20 pages of MS Word with figures, including author's picture) is due by March 17th, 2014 and the chapter will be ready for review April 7th 2014 (for proofs). Please email the final text to markus.nieminen@poyry.com.

You are also requested to give during conference June 11th a 30 min presentation.

With best regards

Dr. Esa Vakkilainen
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LIITE II

Tehdasvierailujen mainokset

INTERNATIONAL CHEMICAL RECOVERY CONFERENCE EXCURSIONS

Date: Friday 13 June 2014

Metsä Fibre Rauma mill and Old Rauma city

Programme:

08:00 - 08:30	Participant pickup
08:30 - 10:30	Charter bus Tampere – Metsä Fibre Rauma mill
10:30 - 11:00	Presentation of Metsä Fibre Rauma mill
11:00 - 11:45	Lunch
11:45 - 13:45	Mill tour (recovery island) at Metsä Fibre Rauma mill
13:45 - 14:00	Charter bus Metsä Fibre Rauma mill – Old Rauma
14:00 - 16:00	Old Rauma tour and refreshments
16:00 - 19:00	Charter bus Old Rauma – Helsinki-Vantaa Airport
19:00 - 19:30	Charter bus Helsinki-Vantaa Airport – Helsinki City

The excursion registration fee per person is

The excursion registration fee per person is 100 €, student 50 €

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The registration fee includes charter bus transportation, lunch and refreshments during breaks.

Participants:

Minimum 20, maximum 40 person

Including student quota maximum 10 students.

[Metsä Fibre's Rauma mill](#) is located by the sea on the west coast of Finland near the centre of the city of Rauma. The pulp mill at Rauma started production in 1996 as the world's first mill built solely for producing chlorine-free TCF pulp. The Rauma mill changed its bleaching system from TCF to ECF in summer 2007. Mill capacity is 630,000 t/a softwood pulp in a single line.



Old Rauma is the largest unified historical wooden town in the Nordic countries. It covers an area of 28 ha and contains 600 buildings, most of which are privately owned. Built around a Franciscan monastery, where the mid-15th-century Holy Cross Church still stands, it is an outstanding example of an old Nordic city constructed in wood. Although ravaged by fire in the late 17th century, it has preserved its ancient vernacular architectural heritage.



INTERNATIONAL CHEMICAL RECOVERY CONFERENCE EXCURSIONS

Date: Friday 13 June 2014

UPM-Kymmene Kymi mill and Verla Groundwood and Board Mill

Programme:

08:00 - 08:30	Participant pickup
08:30 - 11:00	Charter bus Tampere – UPM-Kymmene Kymi mill
11:00 - 11:45	Lunch at the mill
11:45 - 12:15	Presentation of UPM-Kymmene Kymi Mill
12:15 - 14:15	Mill tour at UPM-Kymmene Kymi
14:15 - 14:45	Charter bus Kymi mill – Verla Groundwood and Board Mill
14:45 - 15:15	Refreshments at Verla Mill Cafe
15:15 - 16:15	Mill tour at Verla Mill
16:15 - 16:45	Break
16:30 - 18:30	Charter bus Verla Mill – Helsinki-Vantaa Airport
18:30 - 19:00	Charter bus Helsinki-Vantaa Airport – Helsinki City

The excursion registration fee per person is 100 €, student 50 €.

The registration fee includes charter bus transportation, lunch and refreshments during breaks.

Participants:

Minimum 20, maximum 40 person

Including student quota maximum 10 students.

The Kymi integrated mill site is located by the River Kymi in Kuusankoski, Kouvola, Finland 140 kilometres north-east of Helsinki. The pulp mill produces approximately 500,000 tonnes of short- and long-fibre pulp per year. The raw materials are birch, pine and spruce. The paper mill produces approximately 800,000 tonnes of coated and uncoated fine paper with the help of two paper machines and a coating machine.

Pulp mill rebuilt its chemical recovery plant in 2008. The new chemical recovery line project consisted of new evaporation plant, recovery boiler, auxiliary and NCG boilers, steam turbine and turbo generator, causticization, lime kiln and bio sludge treatment plant. The new recovery boiler has superheated steam of 505 °C and pressure 102 bar(g). The boiler has so called high power features such as feedwater interheater, combustion air temperature heated up to 190 °C at all air levels, high dry solids in black liquor (85 % including precipitator ash) and low pressure sootblowing at economizer area.



Kuvia Verlasta, lupa kysyttävä

[The Verla Groundwood and Board Mill](#) is a well preserved 19th century mill village and a UNESCO World Heritage Site. The first groundwood mill at Verla was founded in 1872 Nauman but was destroyed by fire in 1876. A larger groundwood and board mill, continued to operate until 1964. The historical machines were preserved in their places (except for several pieces brought from other buildings), so a guided tour to the mill follows the technological process from timber cutting and pulp production to board drying, sorting, and packing.

LIITE III

ICRC luennot

Day 1			8:00 - 8:30 Welcome/Introduction - Keijo/Allan
Plenary Session I			8:30 - 10:00 - Session Chair: Keijo Salmenoja
xxxx	Esa Härmälä, Director-General of the Energy Department at the Minist		Keynote speech
xxxx	Honghi Tran, University of Toronto	Overview of Highlights of Research in Chemical Recovery Cycle - No paper just presentation	
2994	Erik Karlsson, Chalmers University of Technology	Modeling and evaluation of evaporator cleaning strategies	
Coffee Break			10:00 - 10:15
Plenary Session II			10:15 - 11:45 Session Chair: Allan Walsh
3077	Keijo Salmenoja, Andritz Oy	Kraft Recovery Boiler Dust Chemistry – Implications from Operating Boilers	
3011	Henrik Wallmo, PhD, Metso Power AB	Evaporation of lignin lean black liquor	
2996	Esa K. Vakkilainen, PhD, Lappeenranta University of Technology	Critical evaluation of new EU IPPC BAT BREF for kraft pulp mill emissions to air	
Lunch Break			11:45 - 1:00
Session 1A			1:00 - 2:30 Session Chair: Erkki Valimaki
Recovery Boiler Design & Operation			
3001	Yoshihisa Arakawa, ZEON Corporation	MAXIMIZING THE ELECTRICITY GENERATION CAPACITY OF RECOVERY BOILERS IN JAPANESE PULP AND PAPER MILLS	
3040	Esa K. Vakkilainen, PhD, Lappeenranta University of Technology	Increasing electricity generation from recovery boilers	
3014	Anders Fransson, Metso Power	Closing of a Recovery Boiler – a success story!	
Session 1B			1:00 - 2:30 Session Chair: Venki Venkatesh
Chemical Recovery Cycle - Recausticizing			
3020	Marta Bialik, Innventia AB	New challenges regarding non-process elements in the liquor/lime cycle	
2926	Kraig R. Kent, Ashland Water Technologies	Optimizing the Recausticizing Area to Maximize Pulp Production	
3135	Vivek Rajbhandari, Texo Consulting and Controls	Results and Benefits of Re-Causticizing Plant Optimization using a Novel Advanced Process Control Technique.	
Coffee Break			2:30 - 2:45
Session 2A			2:45 -4:45 Session Chair: Andy Jones
Recovery Boiler Operation and Energy Efficiency			
3002	Jarmo Mansikkasalo, Metso Power Oy	Improving energy efficiency of existing recovery boilers	
3347	Shahed Doroudi, University of Toronto	CFD Modeling of Sootblower Jets	
3036	Danny Tandra, Clyde Bergman Power Group	Energy Saving & Cost Reduction through the use of 10 - 14 bar steam from turbine extraction for sootblowing	
3134	Jeff Butler, Metso	Online Recovery Boiler Reduction Degree and Dissolving Tank TTA Data Review	
Session 2B			2:45 -4:45 Session Chair: Niklas Berglin
Lime Kiln			
3041	Richard Manning, Kiln Flame Systems	IMPACT OF CO-FIRING BIOFUELS AND FOSSIL FUELS ON LIME KILN OPERATION	
3079	Mika Kottila, Andritz Oy	Bio-dust Burning in Lime Kiln	
3048	Lars Wallbäcks, Innventia	Stable lime kiln feed through on-line measurements and feed control	
3259	Sava Kovac, Andritz	Advanced Control of Lime Kiln	

Day 2			
Session 3A			8:30 - 10:00 Session Chair: Reyhaneh Shenassa
Recovery Boiler Safety			
3043	Honghi Tran, University of Toronto	UNDERSTANDING HEAVY SMELT RUNOFF FROM RECOVERY BOILERS	
2981	Jeff Wagoner, International Paper	Use of Multi-Variant Analysis to Understand the Root Causes of Premature Smelt Spout Failures on Recovery Boilers	
3047	Markus Bussmann, University of Toronto	EXPERIMENTAL STUDIES ON SMELT SHATTERING AND DISSOLUTION IN RECOVERY BOILER DISSOLVING T	
Session 3B			8:30 -10:00 Session Chair: Chris Verrill
Evaporators/Chemicals in Pulp Mill			
3090	Jarmo Kaila, Andritz Oy	MINIMIZING EVAPORATOR ENERGY CONSUMPTION	
3034	Jean-Noel Cloutier, Quebec Hydro	New Source of Caustic for Kraft Mills from the Electrolysis of Sodium Salts - Preliminary Economics	

3035	Jean-Noel Cloutier, Quebec Hydro	Electrolytic Conversion of Sodium Salts in a Kraft Mill
Coffee Break 10:00 - 10:15		
Session 4A 10:15 - 11:45 Session Chair: Pasi Miikkulainen		
Recovery Boiler - Guns		
3003	Mika Jarvinen, Aalto University	New Design Principles of Flashing Black Liquor Guns – Modeling and Experiments
3017	Sanna Haavisto, Technical Research Centre of Finland	Application of Ultrasound Velocity Profiling for measuring flow behavior inside black liquor nozzles
3081	Ari Kankkunen, Aalto University	PIV velocity field measurement for black liquor sprays
Session 4B 10:15 - 11:45 Session Chair: Maria Bjork		
Liquor Cycle/Pulp Mill		
3025	Marta Bialik, Innventia AB	Scaling of manganese in kraft pulping process
3029	Radia Ammara, Polytechnique Montreal	Equipment Performance Analysis of a Canadian Kraft mill: energy, water and chemical utilization improvement.
3113	Thanh Trung, Fitnir	Advanced Online Process Analyzers for Chemical Recovery and Pulp Mill Control

Lunch Break 11:45 - 1:00	
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Session 5A 1:00 - 2:30 Session Chair: Danny Tandra		
Liquor Combustion and Chemistry		
3018	Liming Zhao, University of Toronto	COMBUSTION BEHAVIOURS OF SPENT PULPING LIQUORS
3008	Niklas K.T Vaha-Savo, Abo Akademi	Combustion Properties of Reduced Lignin Black Liquors
3010	Melissa Tatiana Andreuccetti, University of Campinas	Regression Analysis of Eucalyptus Black Liquor Properties for Prediction of Sodium Sulfate Content
Session 5B 1:00 - 2:30 Session Chair: Rikard Gebart		

Recovery Cycle Modeling		
3351	Peter Gorog, Houston Cascade	Computer Modeling as a Tool to Estimate the Impact of Fuel Type on the Performance of Kilns Used to Regenerate Li
2998	Aaron Howell, IPST at Georgia Inst. of Tech.	Black Liquor Falling Film Evaporation: Computational Model and Pilot Experiments
3258	Moise Dion, Daishowa Marubeni International Ltd	Flow dispersion in green liquor clarifier: CFD Modeling Review

Coffee Break 2:30 - 2:45	
Session 6A 2:45 -4:45 Session Chair: Alarick Tavares	

Fume Chemistry/ESP/Ash Treatment		
3016	Johan Martin Wimby, Metso Power AB	Purification of Recovery Boiler Ash
3019	Fanni Myllari, Tampere University of Technology	Development and testing of an aerosol test reactor to study gas-particle equilibrium
3004	Inga-Lill Samuelsson, Alstom Power Sweden AB	Effect of black liquor firing conditions on salt cake properties and precipitator performance
3007	Jacob Bendix, FLSmidth A/S	Optimal electrical energization of ESP's for soda recovery boilers
Session 6B 2:45 -4:45 Session Chair: Esa Vakkilainen		

Recovery Boiler Modeling		
2982	Aino Leppanen, Tampere University of Technology	Effect of flue gas temperature on gas-particle equilibrium in recovery boilers - a modeling approach
3080	P. Jukola, VTT	Predicting sodium release in recovery boilers in conjunction with CFD furnace modeling
3039	Manuel Garcia Perez, Lappeenranta University of Technology	Deposit formation in kraft recovery boilers
3074	Viljami Maakala, Andritz Oy	Dimensioning a Recovery Boiler Furnace Using Mathematical Optimization

Day 3

Session 7A 8:30 - 10:00 Session Chair: Doug Singbeil	
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Recovery Boiler Material & Corrosion 1		
3083	Daniel Lindberg, Abo Akademi University	Influence of deposit aging on superheater corrosion
3015	Hanna Kinnunen, Metso Power Oy	The influence of recovery boiler ash CO3/SO4 ratio on high temperature corrosion
3030	Preet M. Singh, Georgia Institute of Technology	Recovery Boiler Superheater Corrosion - The Solubility of Protective Metal Oxides in a Molten Salts
Session 7B 8:30 - 10:00 Session Chair: Patrik Yrjas		

Nitrogen Chemistry/NOx Emission		
3027	Nikolai A. DeMartini, Abo Akademi University	The Fate of Char N in Black Liquor Combustion - Cyanate Formation and Decomposition
3089	Paterson McKeough, Andritz Oy	Counter-current flows in the recovery-boiler lower furnace – a key to understanding nitrogen chemistry and sulphur ca
3026	Markus Engblom, Abo Akademi University	Understanding the formation of NOx in pulp mill boilers
Coffee Break 10:00 - 10:15		

Session 8A 10:15 - 11:45 Session Chair: Timo-Pekka Veijonen

Recovery Boiler Material & Corrosion 2

3033	Preet M. Singh, Georgia Institute of Technology	Flow Induced Accelerated Corrosion in Heavy Black Liquors
3082	Emil Vainio, Abo Akademi University	Sulfuric Acid induced Low Temperature Corrosion in Recovery Boilers
3102	Urban Forsberg, Sandvik Materials Technology	Resistant composite tube products for black liquor recovery boilers

Session 8B 10:15 - 11:45 Session Chair: Sebastian Kankkonen

Emission, Liquor Na/S Balance

2978	Jori Ringman-Beck, CEPI (Confederation of European Paper Industries)	Industrial Emissions Directive & Best Available Techniques Reference Document (BREF): Changing European Legislation
3050	Kari Karhula, SICK OY	OUTSTANDING IN-SITU MEASUREMENT TECHNIQUE - EMISSION MEASUREMENT WITHOUT SAMPLING
3139	Rolf Ryham, APPA Consulting	Black Liquor a man made fuel 5.

Lunch Break 11:45 - 1:00

Session 9A 1:00 - 2:30 Session Chair: Hans Theliander

Bioenergy/Biochemicals 1

3009	Lauri Kokko, Metso Power	ALTERNATIVE HEATING OIL FROM WOOD RESIDUES – INDUSTRIAL DEMONSTRATION
3051	James Keiser, Oak Ridge National Laboratory	Selection Of Structural Materials For Thermochemical Processing Of Biomass
2997	Marco Maschietti, Chalmers University of Technology	Catalytic hydrothermal conversion of LignoBoost Kraft lignin for the production of bio-oil and aromatic chemicals

Session 9B 1:00 - 2:30 Session Chair: Timothy Hicks

Black Liquor ????

3013	Maryam Haddad, Ecole Polytechnique de Montreal	Effect of Process Operating Conditions on the Electrodialysis treatment of Kraft Black Liquor with Bipolar Membrane
3028	Miyuru Kannangara, Polytechnique Montreal, Canada	Acid precipitation of lignin from black liquor – Extraction limits and effects on chemical recovery
3084	Rishabh Sarna, Abo Akademi University	Reduction of Carbonate Formation during Pyrolysis of Borate Doped Black Liquors.

Coffee Break 2:30 - 2:45

Session 10A 2:45 - 4:15 Session Chair: Afonso Pereira

Bioenergy/Biochemicals 2/Alternative Pulping Liquor

3071	Jamie St Pierre, University of Maine	Oxidation of Soda-AQ Black Liquor into Value-Added Chemicals
3101	Klausa Niemela, VTT Technical Research Centre of Finland	Hydroxy acids as potential kraft pulping by-products - comparison of different isolation methods
3078	Harri Rautapaa, Andritz Oy	The MOXY Polysulfide Process

Session 10B 2:45 - 3:45 Session Chair: Peter Ryder

Water Treatment/Waste Water Management

3076	Timo Karjunen	Water treatment challenges and solutions in modern recovery boilers
3000	Lauri Afflect, Rinheat Oy	Recovery of energy and chemicals from BCTMP waste water

LIITE IV

Technical Program

CONFERENCE
Overall grid

8 June, 2014	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	
Sunday June 8, 2014																				Get Together Event Speakers briefing & Registration									
9 June, 2014	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	
Monday June 9, 2014	Registration	Welcome / Introduction	Plenary Session 1	Break	Plenary Session 2	LUNCH	Session 1A Recovery Boiler Design & Operation		Break	Session 2A Recovery Boiler Operation and Energy Efficiency			Welcome reception at Tampere City Hall																
							Session 1B Chemical Recovery Cycle - Recausticizing			Session 2B Lime Kiln																			
10 June, 2014	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	
Tuesday June 10, 2014	Registration	Session 3A Recovery Boiler Safety		Break	Session 4A Recovery Boiler- Guns		LUNCH	Session 5A Liquor Combustion and Chemistry		Break	Session 6A Fume Chemistry / ESP / Ash Treatment																		
		Session 3B Evaporators/Chemicals in Pulp Mill			Session 4B Liquor Cycle / Pulp Mill			Session 5B Recovery Cycle Modeling			Session 6B Recovery Boiler Modeling																		
11 June, 2014	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	
Wednesday June 11, 2014	Registration	FRBC 50 Years Seminar Opening Session			Break	FRBC 50 Years Seminar Recovery Boiler Development			LUNCH	FRBC 50 Years Seminar "Status of Recovery Boilers"			Break	FRBC 50 Years Seminar				Reception	ICRC2014 CONFERENCE AND FINNISH RECOVERY BOILER COMMITTEE 50TH ANNIVERSARY DINNER										
12 June, 2014	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	
Thursday June 12, 2014	Registration	Session 7A Recovery Boiler Material & Corrosion 1		Break	Session 8A Recovery Boiler Material & Corrosion 2		LUNCH	Session 9A Bioenergy / Biochemicals 1		Break	Session 10A Bioenergy / Biochemicals 2 / Alternative Pulping Liquor																		
		Session 7B Nitrogen Chemistry / NOx Emission			Session 8B Emission, Liquor Na/S Balance			Session 9B Black Liquor ??			Session 10B Water Treatment / Waste Water Management																		
13 June, 2014	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	
Friday June 13, 2014	Excursions to Rauma Pulp Mill and Kymi Pulp Mill																												

PLENARY SESSIONS	SESSION 1 A, B	SESSION 2 A, B	SESSSION 3 A, B	SESSION 4 A, B	SESSION 5 A, B	SESSION 6 A, B	SESSION 7 A, B	SESSION 8 A, B	SESSION 9 A, B	SESSION 10 A, B	SPECIAL EVENTS
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