



Daishowa-Marubeni International Ltd.



Cariboo Pulp & Paper Company

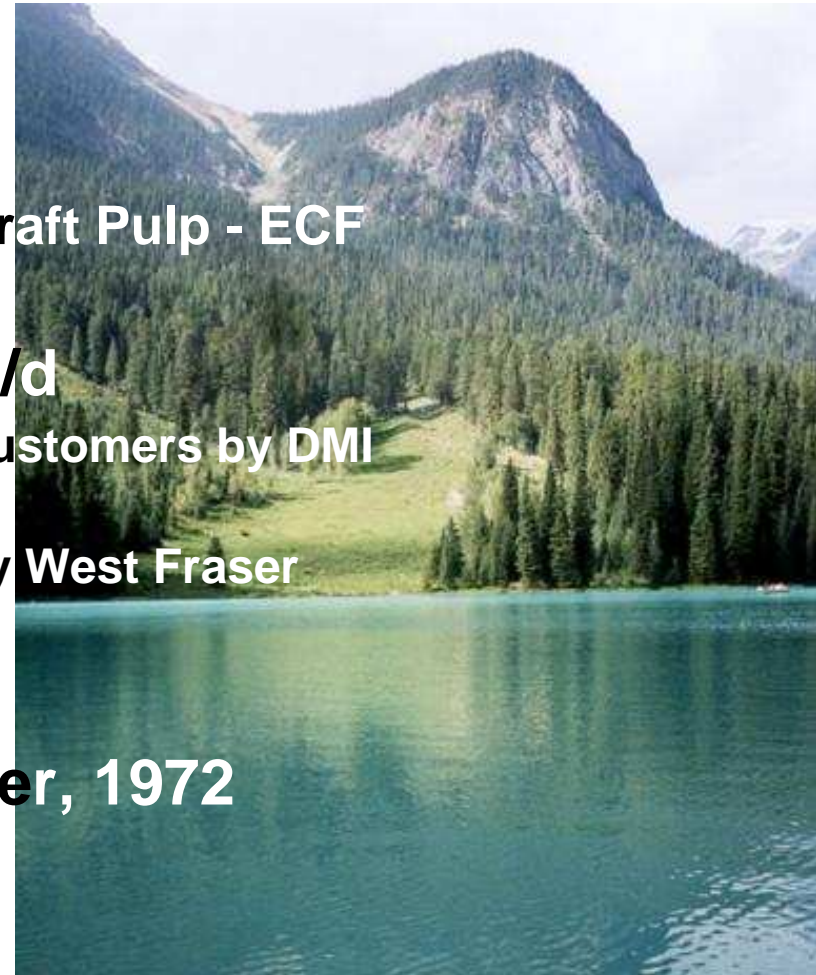


British Columbia, Canada

2009

Outline

- **Corporate Name : Cariboo Pulp and Paper Company**
- **Location : Quesnel, BC, Canada**
- **Mill Area : 2,729,000m²**
- **Product**
 - **NBSK-ECF**
Northern Bleached Softwood Kraft Pulp - ECF
- **Capacity (2008 Budget)**
: 335,000ADt/y, ave. 940AD t/d
 - **50% of products is sold to Asian customers by DMI**
 - **Japan, China, Korea, Taiwan, et al.**
 - **Another 50% of products is sold by West Fraser**
 - **North America, Europe, et al.**
- **Employees : 313 (2008 Actual)**
- **Started Operation : November, 1972**



Location

British Columbia



-North latitude 53°
 -East longitude 122° 30'
 -Elevation 475m
 above sea level
 -Population 20,000

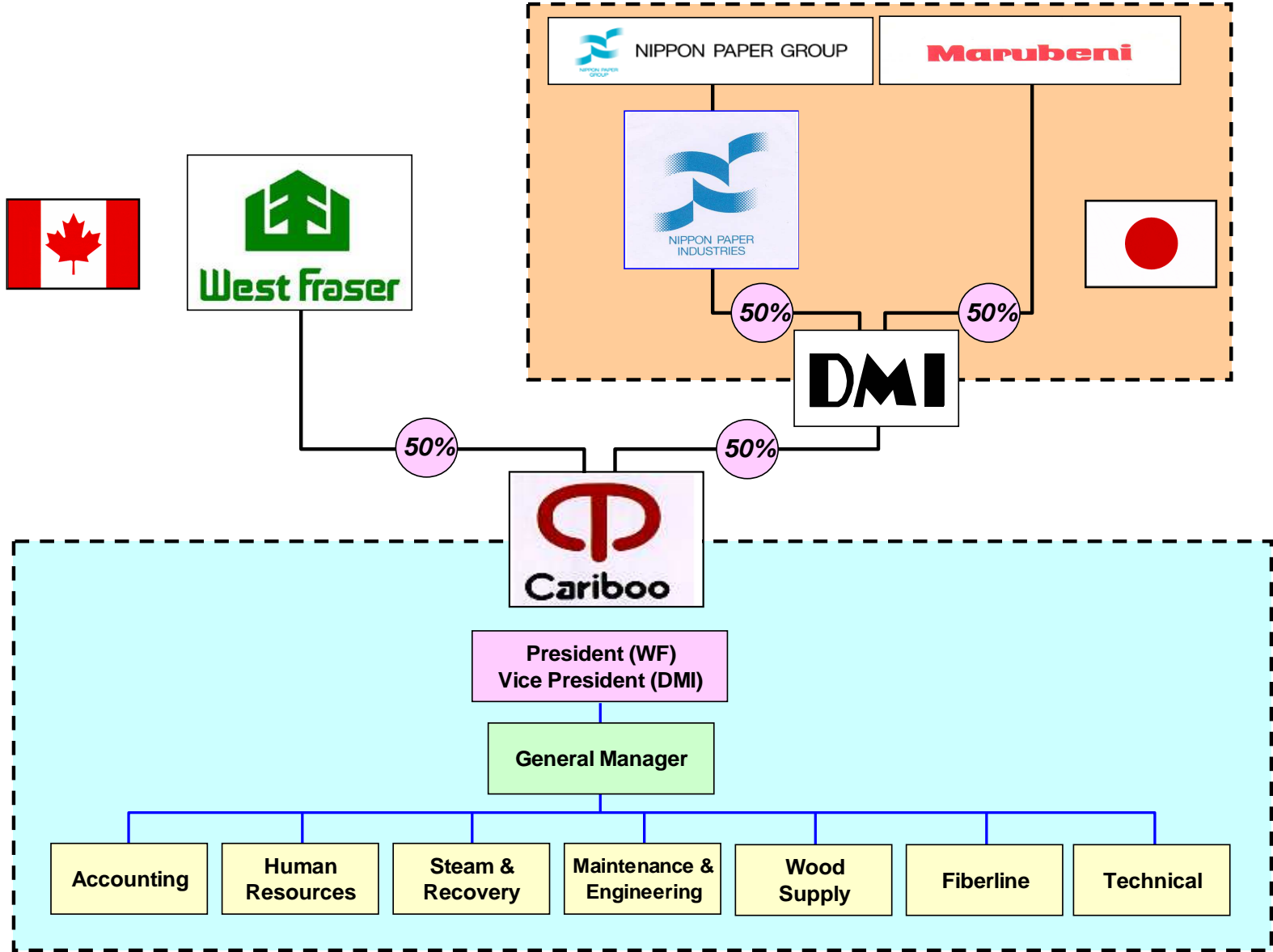
Canada



- Vancouver – Quesnel
 - BC Rail 610km
 - Highway 680km

- Prince George – Quesnel
 - BC Rail 120km
 - Highway 120km

Organization

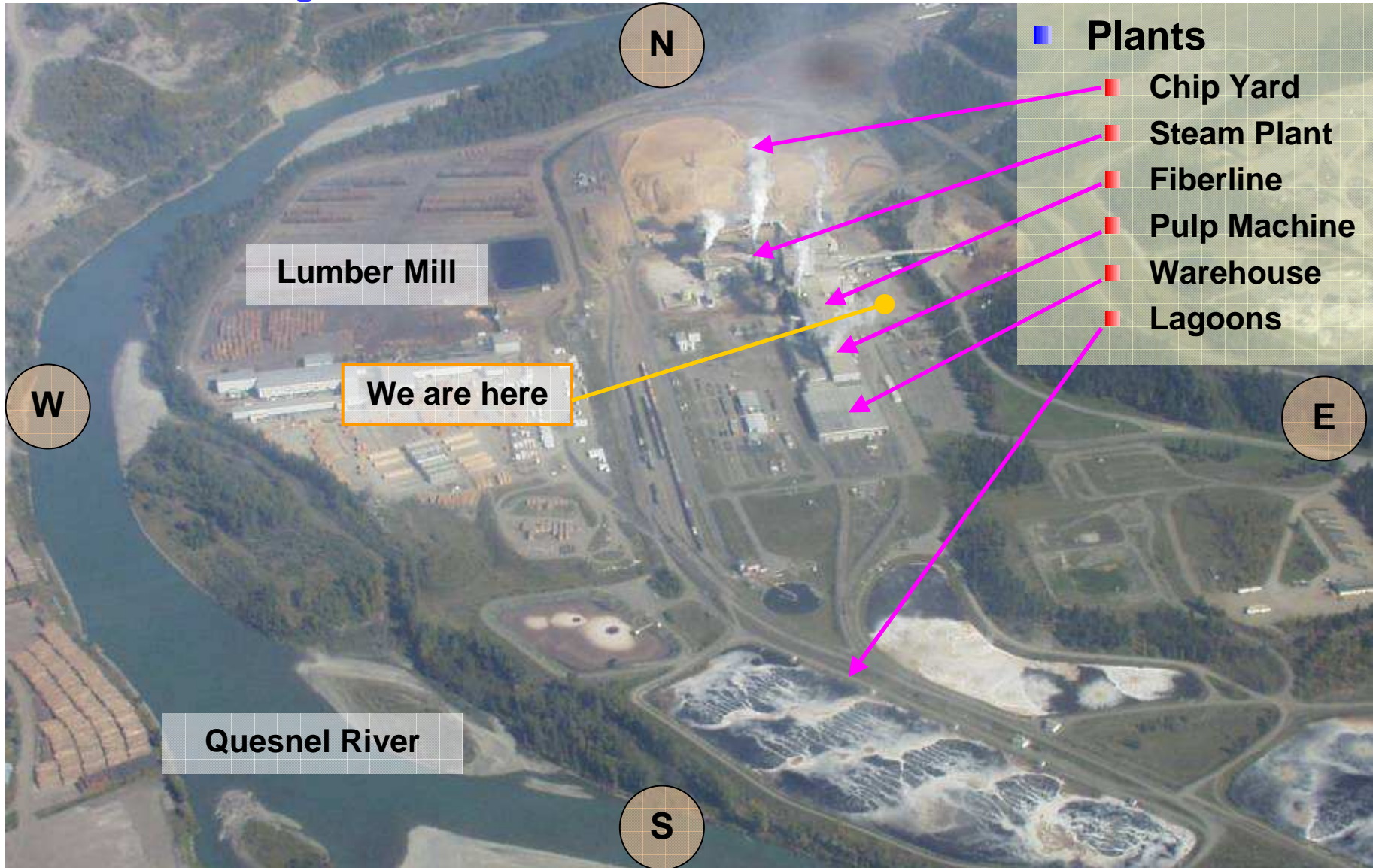




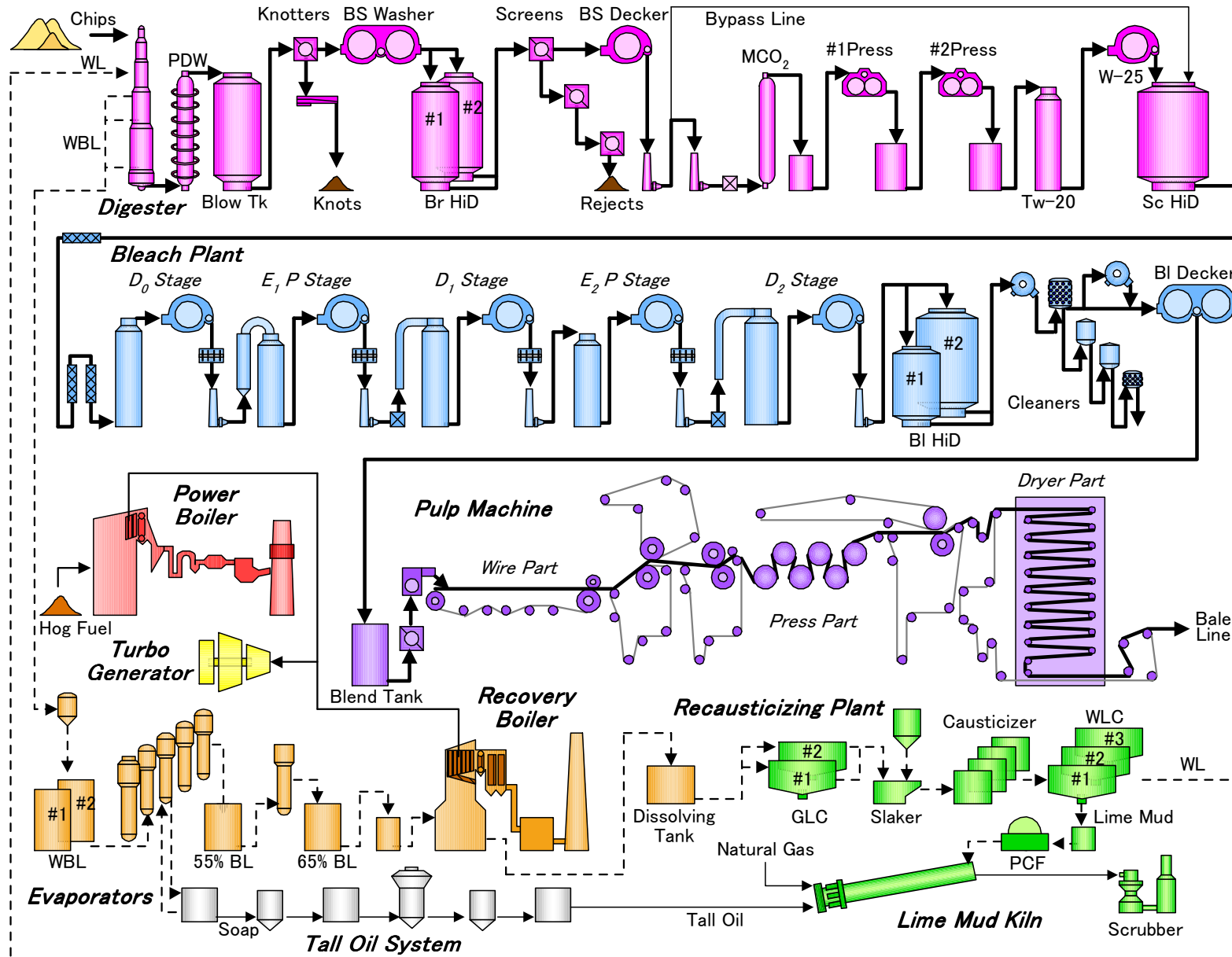
History

- Dec. 1969 Cariboo Pulp & Paper Company was established
 - Joint venture business by DMI and Weldwood
 - <Design Capacity> NBKS 680ADt/D
- Apr. 1970 Started Construction
- Nov. 1972 Started Mill Operation
- 1987 Began treating Quesnel city and Cariboo regional district sewage
- 1988-89 Mill optimization project (Capacity 800→900ADt/D)
 - Increased Recovery Boiler Capacity, Installed PDW, et al.
- Oct. 1991 Environmental improvement
 - Installed O2 delignification, Installed #3 Lagoon, et al.
- Aug. 1992 Started making ECF Pulp
- Jan. 1993 ISO 9001 Certification
- Apr. 1996 Upgraded Chip Screen
- Apr. 1997 Installed Tall Oil Plant
- Nov. 1998 ISO 14001 Certification
- Aug. 1999 Converted to Lo-Solids Cooking in Digester
- Jan. 2000 100% ECF production
- Jul. 2001 Upgraded Turbine Generator
- Sep. 2002 Installed #4 Lagoon
- Dec. 2004 West Fraser acquired Weldwood
- ※ Current Production Capacity is 940ADt/d (YTD average 2009 Plan)

Mill Layout



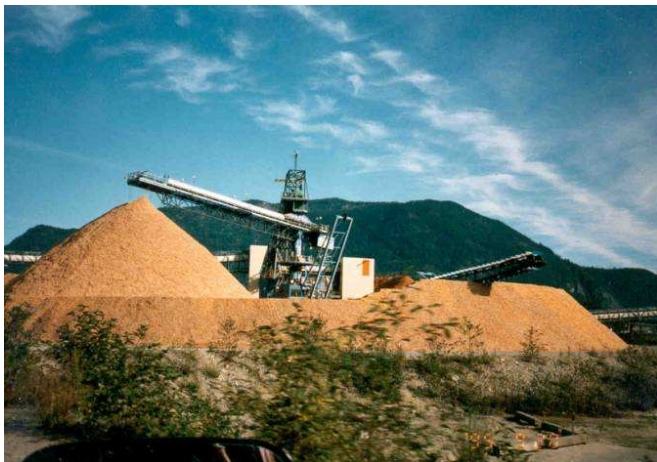
Mill Flow



Main Equipment – Fiberline 1

■ Chip Yard

- 3 Chip piles
- Capacity : 100,000BDt



■ Chip Screen



Bar Screen

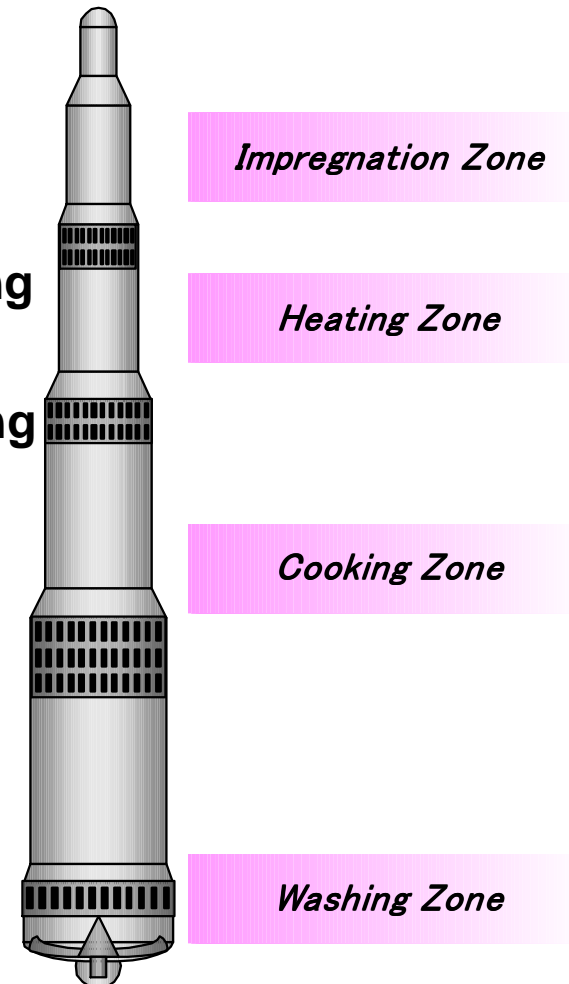


Liwell Screen

Main Equipment – Fiberline 2

■ **Digester**

- **Type : Kamyr 1 vessel continuous digester**
- **Capacity:1,150 UKPt/d**
- **Height : 54.2m**
- **Volume : 1400m³**
- **Cooking Method : Lo-Solids Cooking**
 - **Aug. 1999 Converted to Lo-Solids Cooking**
 - **Mar. 2001 Converted to**
Downflow Lo-Solids Cooking



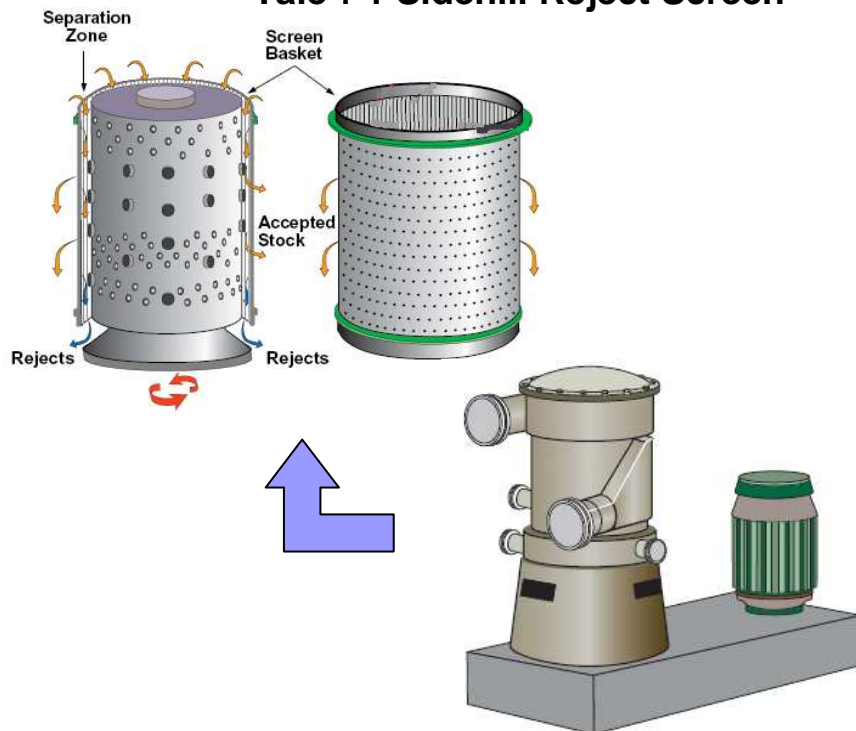
Main Equipment – Fiberline 3

■ Screen

■ Knotter

■ Screens

- 1st : 5 Centrisorter Screens
- 2nd : 2 Centrisorter Screens
- 3rd : 1 Centrisorter Screen
- Tale : 1 Sidehill Reject Screen



■ MCO₂

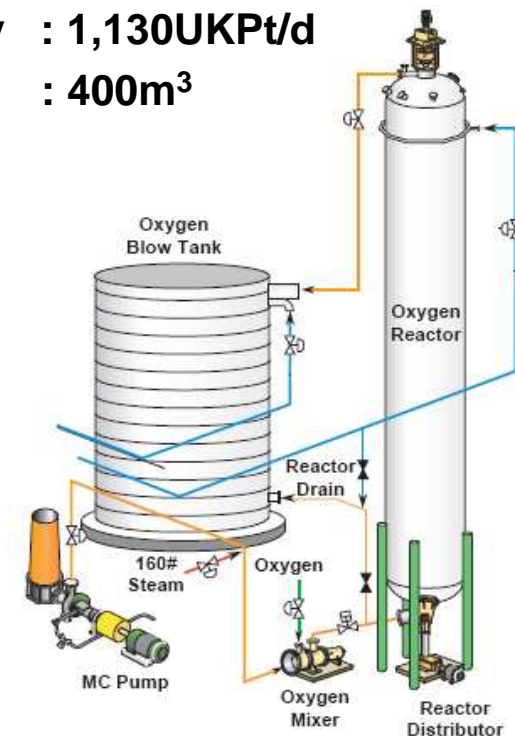
■ Type : SUNDS Medium Consistency Oxygen Delignification

● Mixer

- Type : SUNDS Hi-shear Mixer

● Reactor

- Capacity : 1,130UKPt/d
- Volume : 400m³



Main Equipment – Fiberline 4

■ Bleach Plant

- Capacity : 1,200BKPt/d
- Method : 100% ECF
- Sequence : 5 stage bleaching

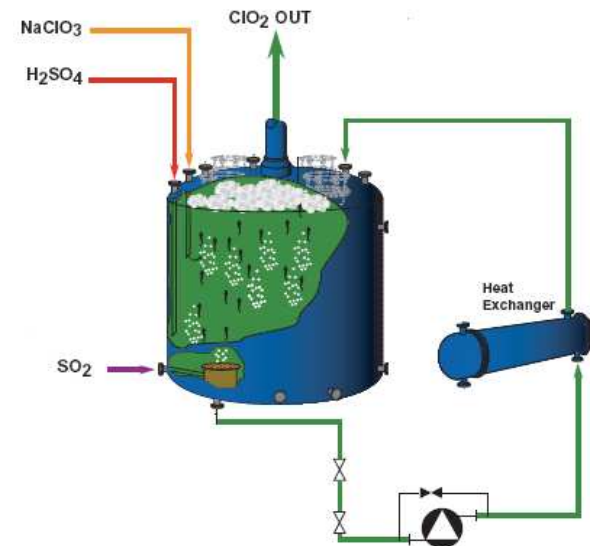
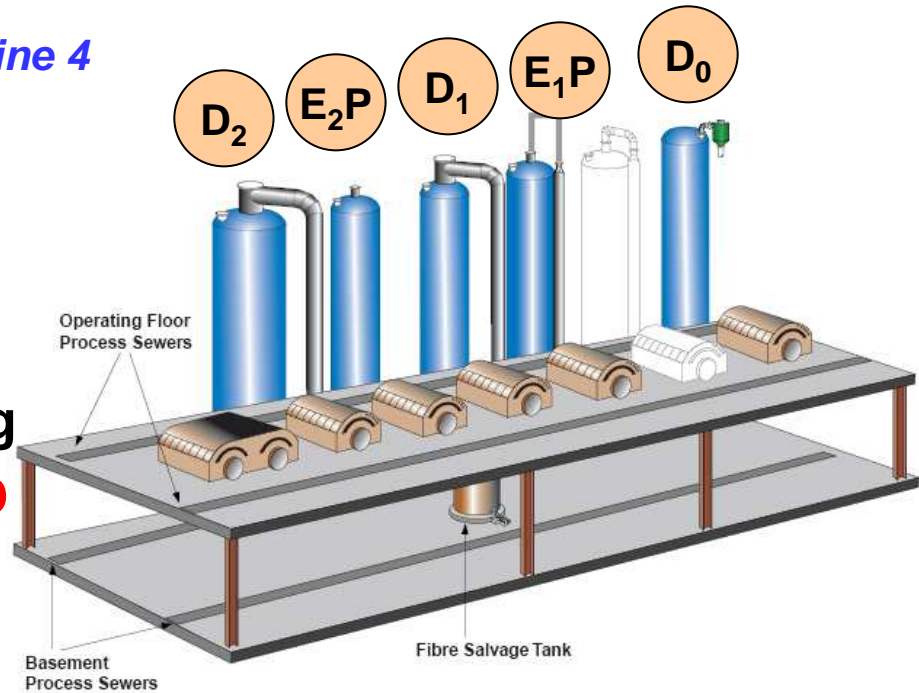
D—Ep—D—Ep—D

- D: Chlorine Dioxide
- E: Alkali Extraction
- P: Peroxide

- Washer : Kamyr/Canron

■ ClO₂ Generator

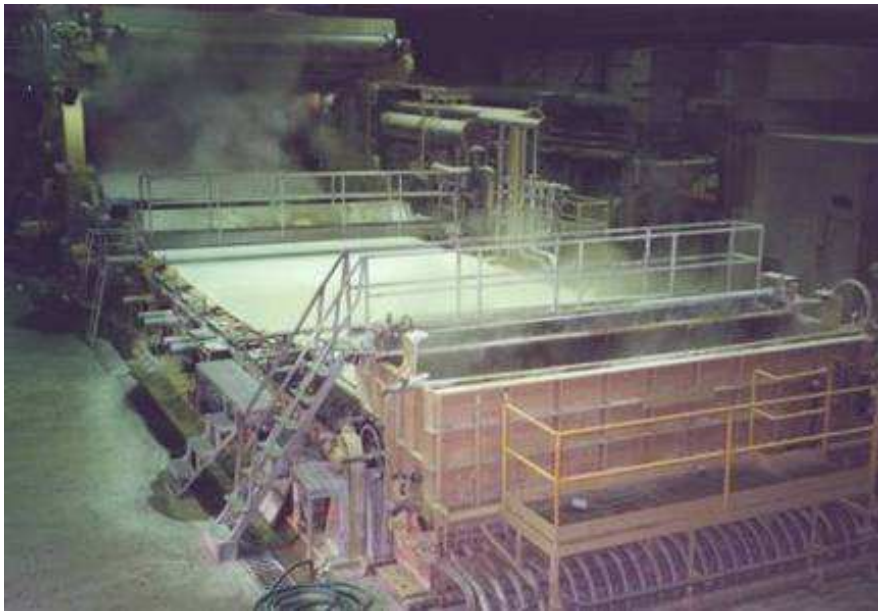
- Method : Modified Mathieson
- Capacity : 28 ClO₂ t/d



Main Equipment – Fiberline 5

■ Pulp Machine

- Wires : Beloit
- Presses : Black Clawson
- Dryer : Ross
- Details
 - Width: 5,700mm, 7sheets, Max speed: 170m/min
 - Basis Weight: 895g/m², Bale Weight: 250kg, Sheets Consistency: 90-95AD%



Wire Part



Dryer Part

Main Equipment – Fiberline 6

- **Baling Line**



- **Warehouse**

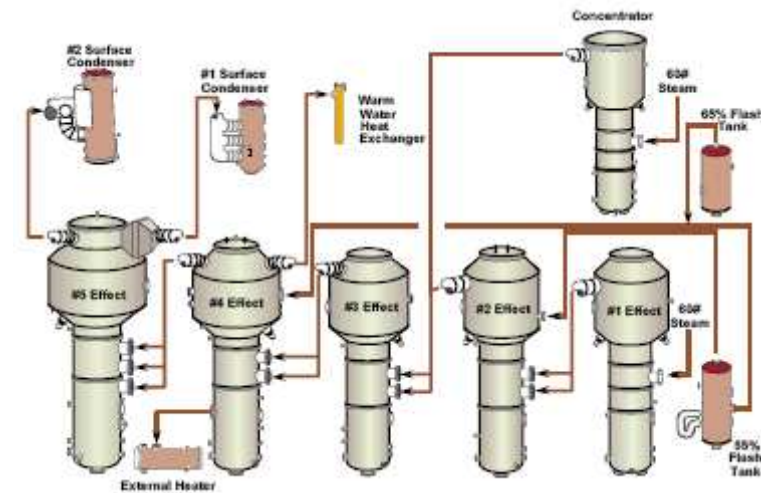


Main Equipment – Utility 1

■ Evaporator

■ Specification

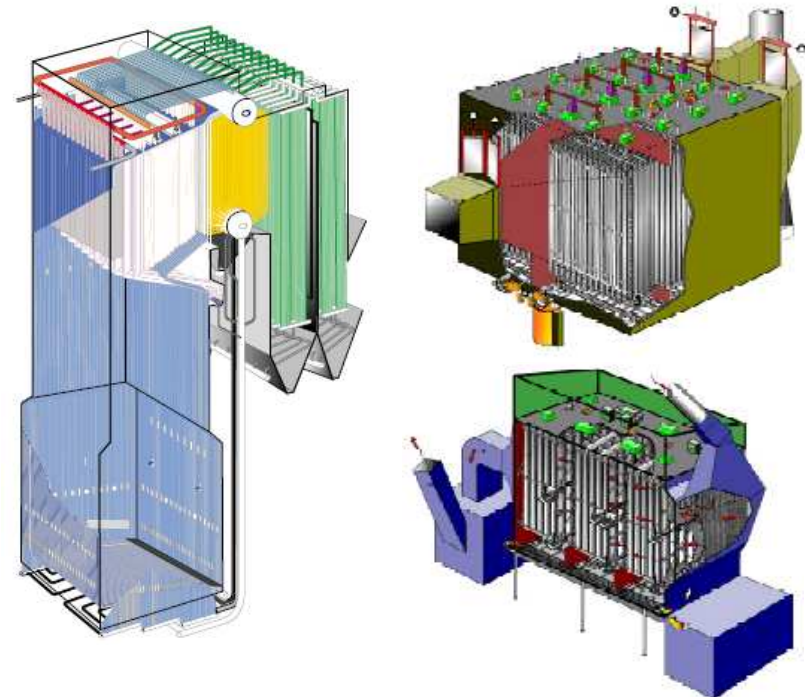
- 5 effects & 1 Concentrator
- Type : Tube
- Feed : 420m³/h (WBL)



■ Recovery Boiler

■ Specification

- Solids : 1,900 solid t/d
- Steam Production : 270t/h
- Precipitator : JOY, FLAKT (Dry Bottom)



Main Equipment – Utility 2

■ Lime Mud Kiln

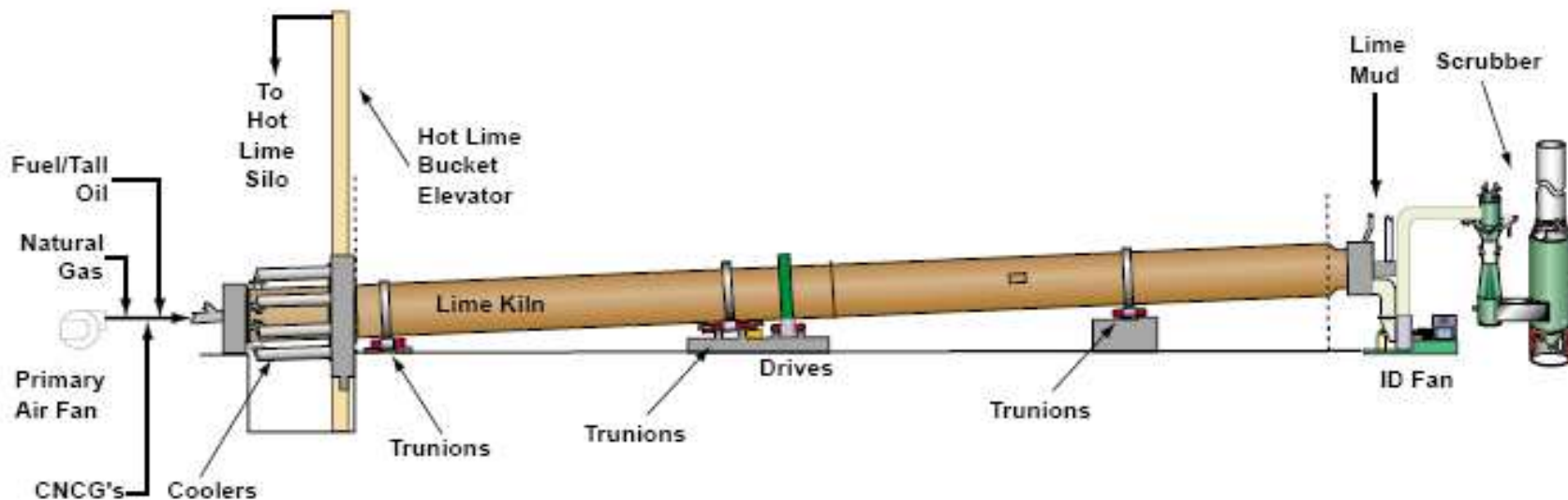
■ System : F. L. Smidth

- Lime Production : 250mt/d
- Dimension : $\phi 3.5\text{m} \times \text{L}91.5\text{m}$
- Fuel : Natural Gas, Tall Oil

■ Causticizing

■ System : Eimco

- Lime Slaker
 - Volume : 72m^3
- Causticizer
 - Volume : $76\text{m}^3 \times 4$
- WL Clarifier
 - Volume : Total 6800m^3

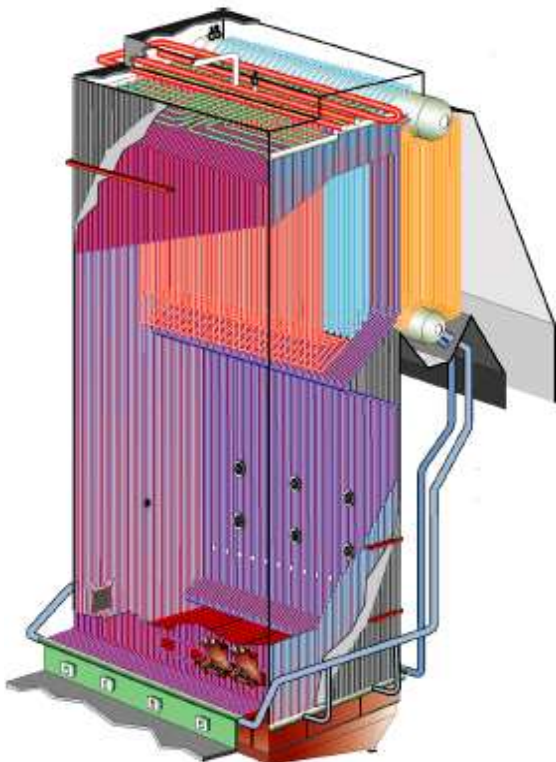


Main Equipment – Utility 3

■ Power Boiler

■ System : Foster Wheeler

- Fuel : Hog fuel
Natural Gas
- Steam Production : 218t/h



■ Turbo Generator

■ System : Toshiba (Body) Turbo Care (Rotor & Blade)

- Generate : 34,000 kW max
- Type : Extraction Steam Turbine



Environment

■ ISO 14001 manages Cariboo Pulp Environment

<Environmental Performance>

	Unit	Permit 2009	CPP '08 Current	
<i>Effluent</i>				
Effluent Flow	m ³ /day	118,200	95,552	
BOD	kg/day	7,890	1,747	
TSS	kg/day	19,725	3,016	
pH		6.5-8.5	7.8	
AOX	kg/ADt	0.60	0.30	
Dioxin/Furan	ppq	15/50	N/D	
Toxicity		100%pass	100%pass	
<i>Air</i>				
Particulate Emission	Recovery Boiler	mg/m ³	230.0	83.0
	Power Boiler	mg/m ³	230.0	148.0
	Kiln	mg/m ³	230.0	125.0
TRS Emission-Combined Total		kg/day	205.0	75.7



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