



**3L Programme**  
**on**  
**Adoption of energy efficient process**  
**technologies & practices and**  
**implementation of EC Act 2001 in Pulp &**  
**Paper Sector**

**ABOUT SPB**

**18-02-2010**

**BY**

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**Vice President (Technical)**

**SESHASAYEE PAPER & BOARDS LTD**  
**TAMILNADU , INDIA**





# SESHASAYEE PAPER



## ESVIN GROUP OF COMPANIES

- **Seshasayee Paper and Boards Limited**
- **Ponni Sugars (Erode) Limited**
- **High Energy Batteries (India) Limited**
- **SPB Projects and Consultancy Limited**
- **Esvin Advanced Technologies Limited**



# COMPANY PROFILE

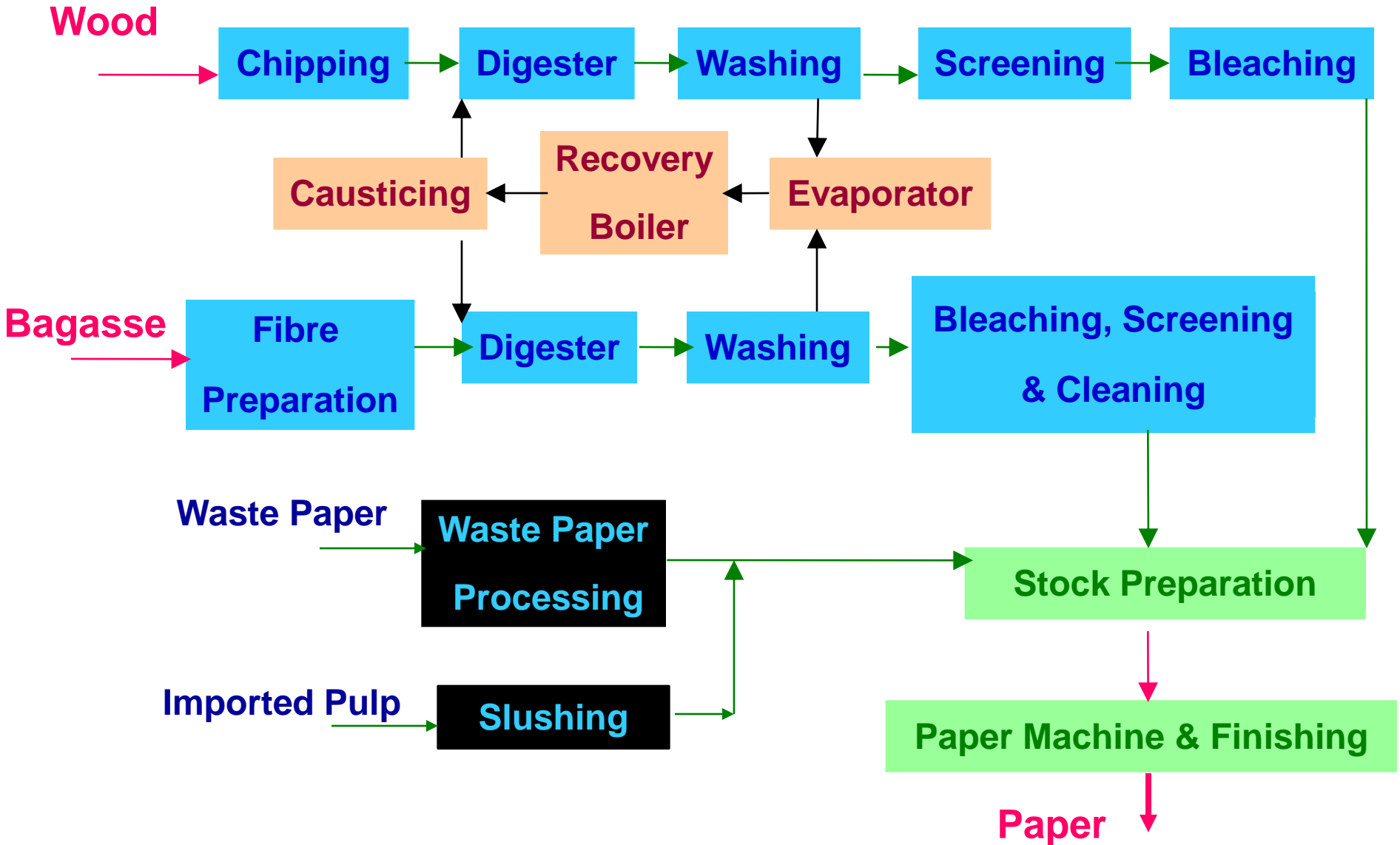


- **Established in the year 1961**
- **Started with a production of 20,000 tonnes of paper/ year**
- **SPB produces now around 1,20,000 tonnes of paper / year**
- **Present Gross turnover is about Rs 6000 million**
- **An ISO-9001 / ISO-14001 / OHSAS organisation**
- **Four projects are under consideration for CDM**





# PAPER MANUFACTURING PROCE





# PAPER MACHINES IN SPB



<b>Machines</b>	<b>1-(MF1)</b>	<b>2-(MG)</b>	<b>3-(YANKEE)</b>	<b>4-(MF2)</b>	<b>5-(MF3)</b>
<b>Make</b>	<b>Black Clawson USA</b>	<b>Black Clawson USA</b>	<b>KMW SWEDEN</b>	<b>INDO BEROLINO INDIA</b>	<b>VOITH GERMANY</b>
<b>Deckle, cm</b>	<b>300/305</b>	<b>300/305</b>	<b>230/234</b>	<b>300/305</b>	<b>280 (Max)</b>
<b>Speed, mpm</b>	<b>100-270</b>	<b>50-240</b>	<b>50-250</b>	<b>100-350</b>	<b>370-1000</b>
<b>Capacity Tons/day</b>	<b>40</b>	<b>55</b>	<b>18</b>	<b>55</b>	<b>165</b>
<b>Machine Configuration</b>	<b>Fourdiriner &amp; Cylinder</b>	<b>Fourdiriner, MG Dryer &amp; Cylinder</b>	<b>Fourdiriner Single MG Dryer</b>	<b>Fourdiriner &amp; Cylinder</b>	<b>Duoformer &amp; Cylinder</b>



# SESHASAYEE PAPER



## PRODUCT RANGE (CURRENT)

### Printing & Writing :

Azure laid  
Book Printing  
Bank/ Bond paper  
Bristol paper  
Base paper  
Chromo paper  
Cream wove  
Copier  
Colour Printing  
Duplicating  
Maplitho (Coated)  
MG Maplitho  
(White/Coloured)

Online coated papers  
Offline coated boards  
Packaging paper  
Railway water mark paper  
Superfine paper  
SPB graphic paper  
Wood Free paper  
MG Poster  
MG Poster (Orange)  
Light Weight Coated  
Offset Printing

### Packaging Paper :

Bristol Board  
MG/MF Pulp Board  
(White/Coloured)  
MG Ribbed Kraft (OT/NS)  
MG Plain Kraft (NS)  
Unbld Absorbent Kraft



## Facilities at SPB-Before MDP



- **Wood Pulping street of 150TPD with conventional washers and C/EP/EP/H Bleaching.**
- **Bagasse Pulping street of 100TPD with conventional washers and C/EP/EP/H Bleaching.**
- **Long tube vertical evaporator with Evaporation capacity of 60T/hr.**
- **Two Chemical Recovery Boilers of one 30bar and other 12 bar. Total Solid Firing Capacity 315 TPD.**
- **Three TG sets of 2.5 MW, 3 MW, and 5 MW capacity.**
- **Recusticisizing Section without Rotary Lime Kiln.**

# Implementation of MDP



- **Installation a New Modern Hard Wood Pulp Mill of 400TPD Capacity with RDH Cooking Technology with Double Displacement from GL&V USA with Oxygen Delignification followed by ECF Bleaching with D0/EOP/D1 sequence to meet brightness level of 87+.**
- **Replace two old Evaporator streets with Single Street Falling Film Type with Water Evaporation Capacity 200T/hr from M/S Alfa Laval India.**
- **Replace Two Chemical Recovery Boilers operating at low pressure with One Single Chemical Recovery Boiler with from M/S Enmas Andritz India. Capacity ( 600/900TPD with a pressure of 64ata).**
- **Replace old smaller TG sets with Single Extraction cum Back pressure turbine of 16MW from M/S BHEL India.**
- **Retrofit causticizing section with WLCD Filter and installation of Rotary Lime Kiln of 140/200TPD from M/S FLS India**
- **The Whole MDP is operated through C300 Honeywell DCS**



## Features of New Pulp Mill



- **RDH Digester 4 No's followed by 5 accumulators viz warm, hot and White Hot. And Heat Exchangers 3 No's With option of Double Displacement Technology.**
- **3 Stage Brown Stock Washing (Drum Filters)**
- **Single stage Oxygen Delignification.**
- **Pressure Screening.**
- **ECF bleaching with D0/EOP and D1 Sequence.**
- **ECF Bleaching of Bagasse pulp is also carried out separately**



# NEW PULP MILL COMPLEX RDH ECF

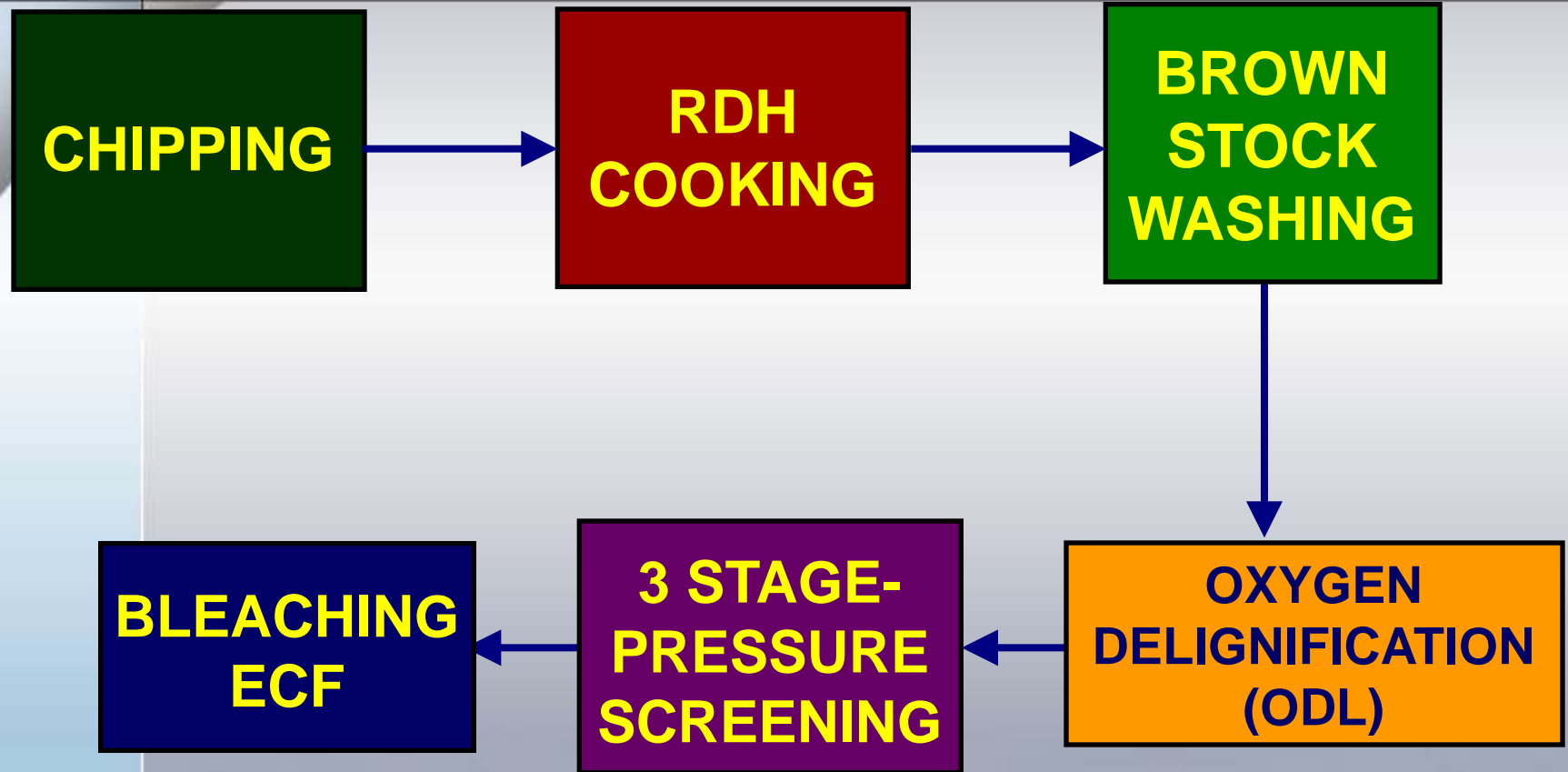
ISO  
9001/14001/  
OHSAS





# RDH Pulping Process

ISO  
9001/14001  
OHSAS





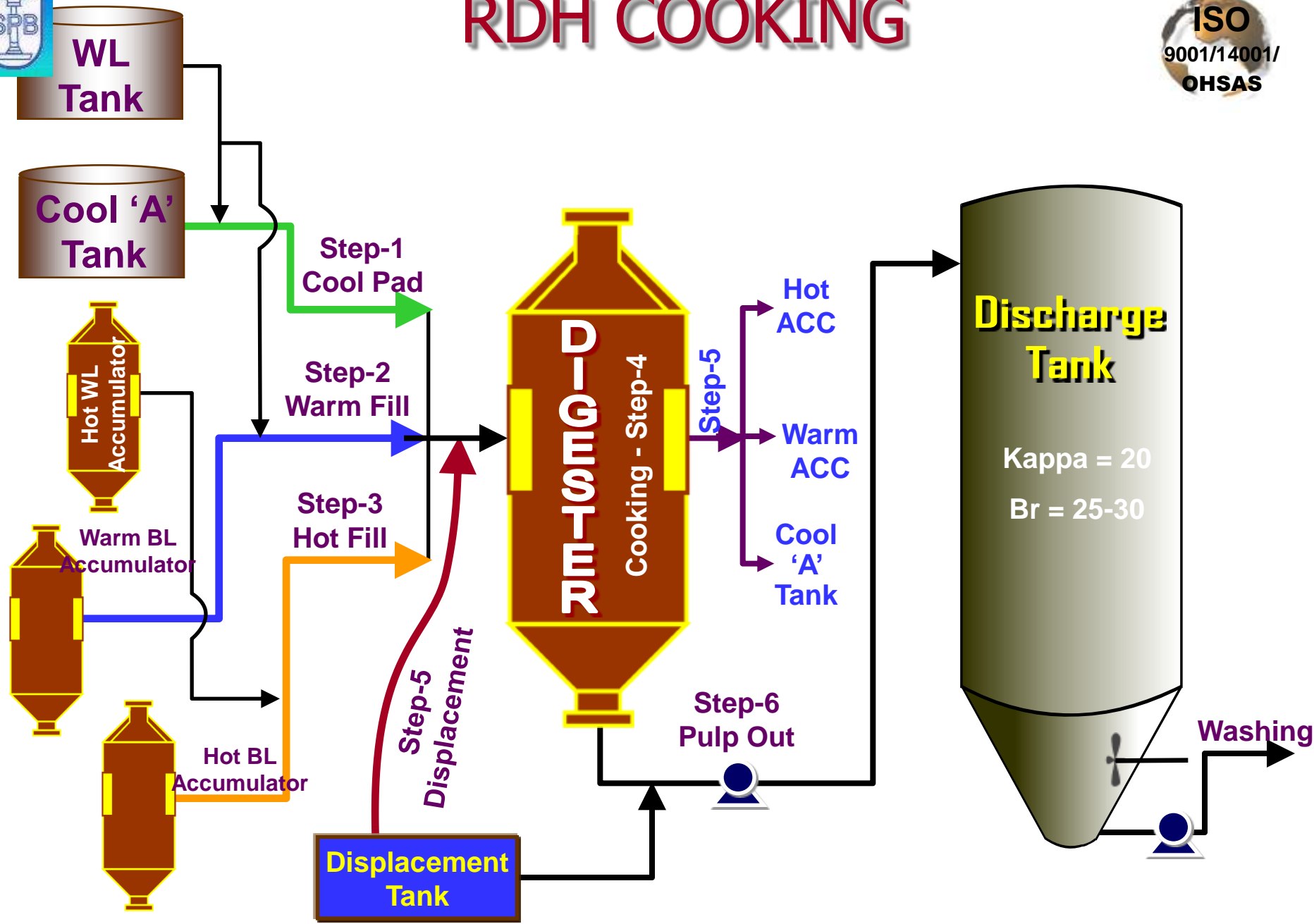
## **RDH – PULPING BENIFITS**



- **Strength of the pulp is better because cooking chemical is added in stages viz, Cool Pad, Warm Fill, Hot Fill.**
- **Instead of blowing-the pulp is pumped out of the digester, so the fiber is not damaged and most of the strength properties are well preserved.**
- **Use of Double displacement in digester gives more uniform quality of Pulp.**



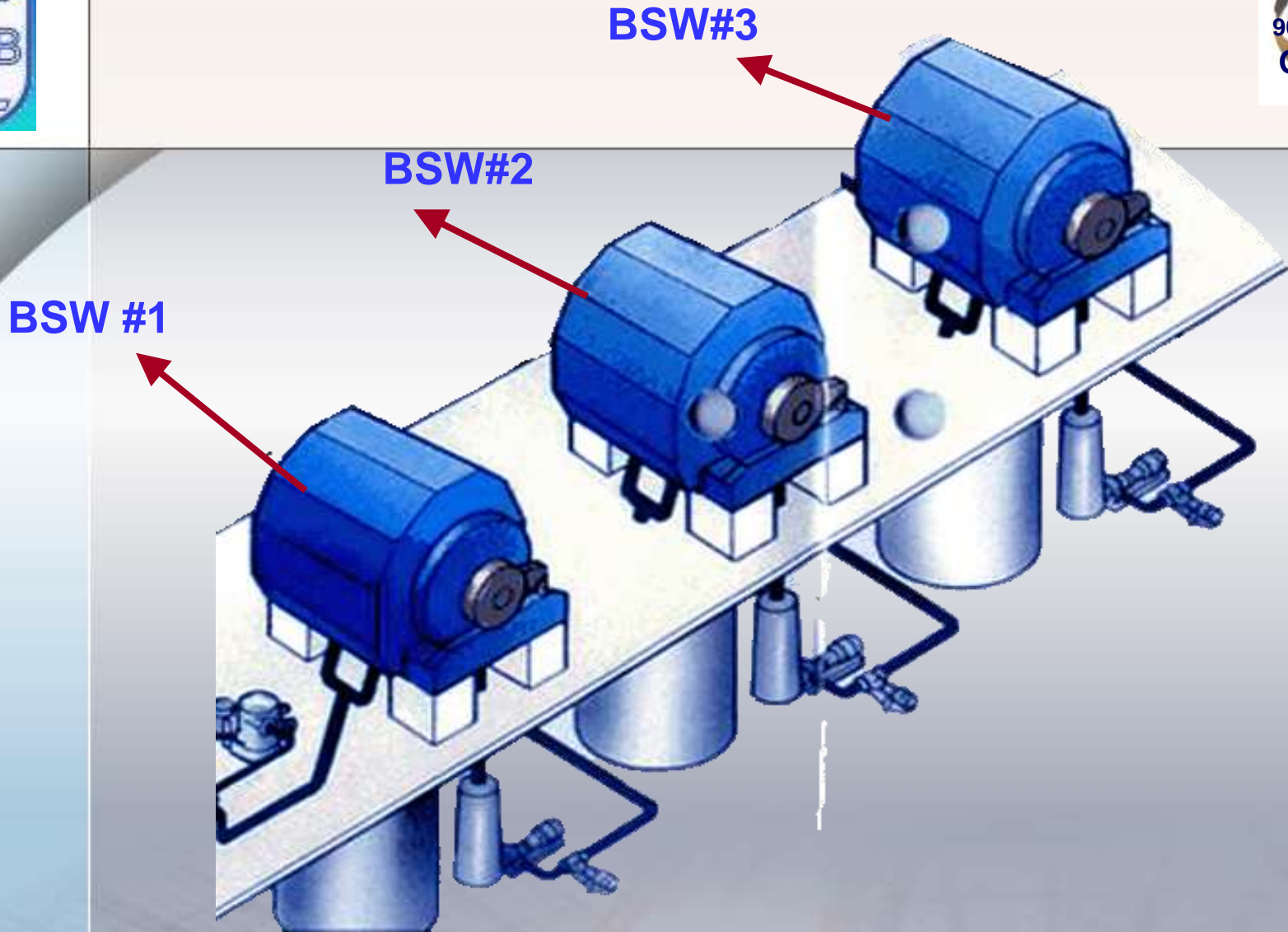
# RDH COOKING





# 3 Stage Brown Stock Washer

ISO  
9001/14001  
OHSAS





## ADVANTAGES OF OXYGEN DELIGNIFICATION



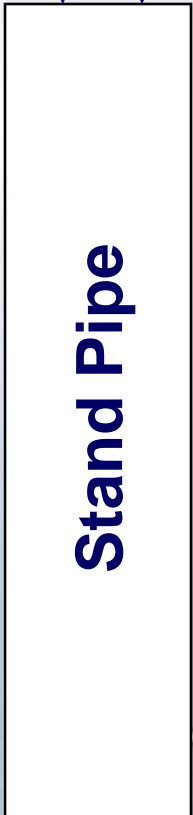
- Install a new single-stage oxygen delignification system, with a provision to add second-stage at a later date.
- The new oxygen delignification system will meet the requirement of 350 BD tpd bleached pulp production from the proposed hardwood fibreline.

### Benefits :

- Improved pulp strength.
- Environmentally friendly; reduced AOX to effluent.
- Improved energy recovery.
- Reduced bleach chemical consumption.



Caustic  
Washed Pulp



MC Pump

Steam

Liquid Oxygen

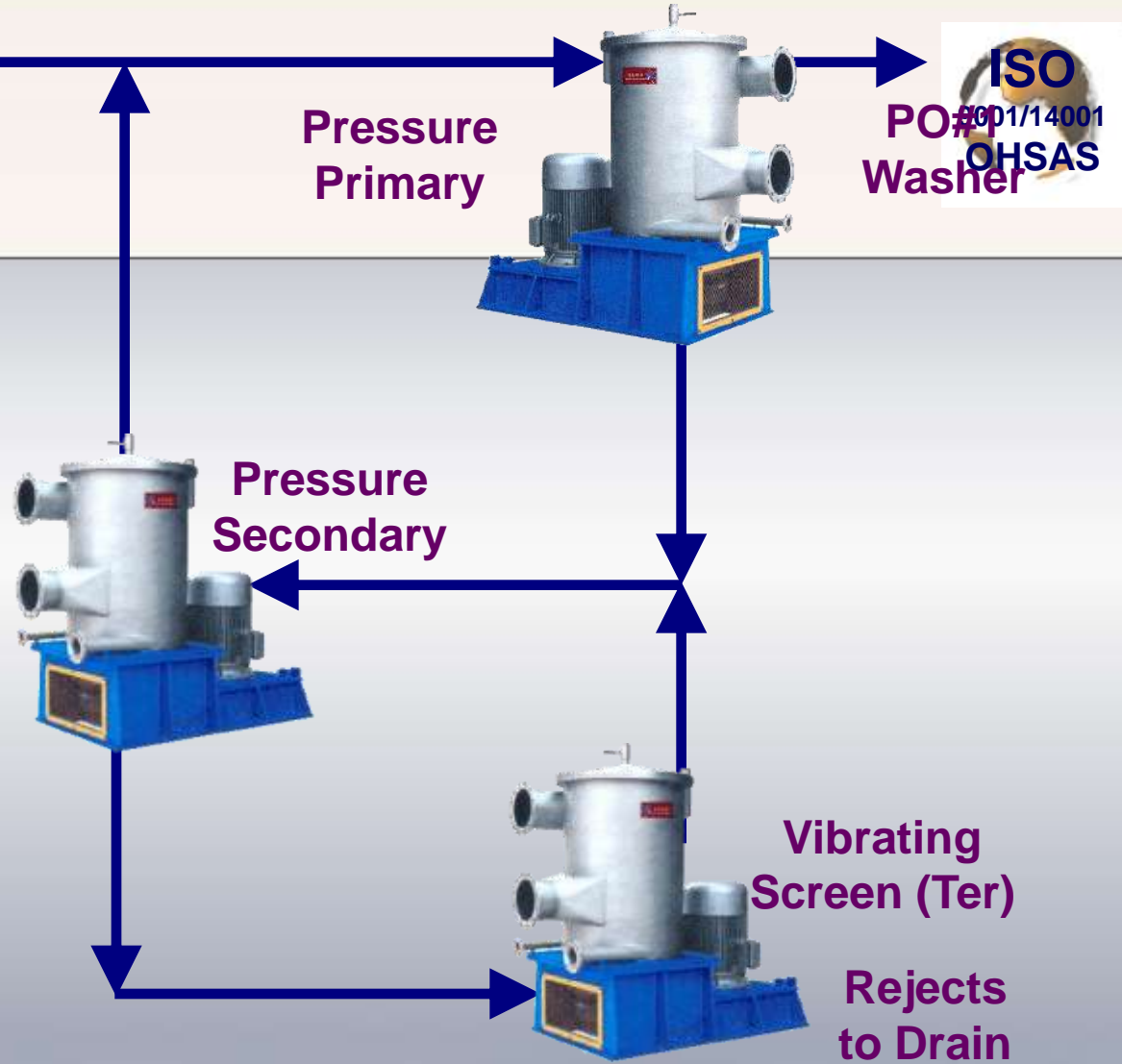
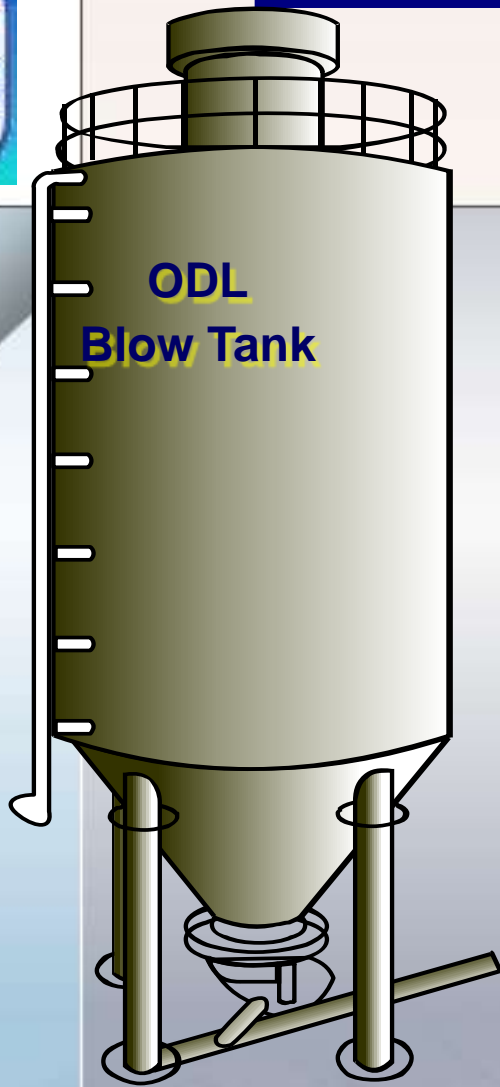


ODL  
Blow Tank  
Kappa=10-12  
Br=40

Screen



# PRESSURE SCREEN



# ECF - BLEACHING



## Chlorine dioxide Plant from ERCO CANADA - R8 Process.

- **Uses Sodium Chlorate and Sulphuric Acid with Methanol as the reducing agent.**
- **The pollutants generated in Bleaching are non carcinogenic as there is no elemental chlorine.**



# ADVANTAGES OF THE ECF BLEACHING SYSTEM



- ▶ Reduced pulp shrinkage during bleaching.
- ▶ Improved pulp quality (strength)
- ▶ Better Paper smoothness and consequent desired print qualities can be achieved by optimum filler loading in paper due to high pulp strength
- ▶ Improved pulp brightness (90%) ISO in comparison to conventional pulping which is 82% ISO
- ▶ Reduced bleach chemical consumption.
- ▶ AOx compliance to International Standards.
- ▶ Reduced dependence on market pulp.



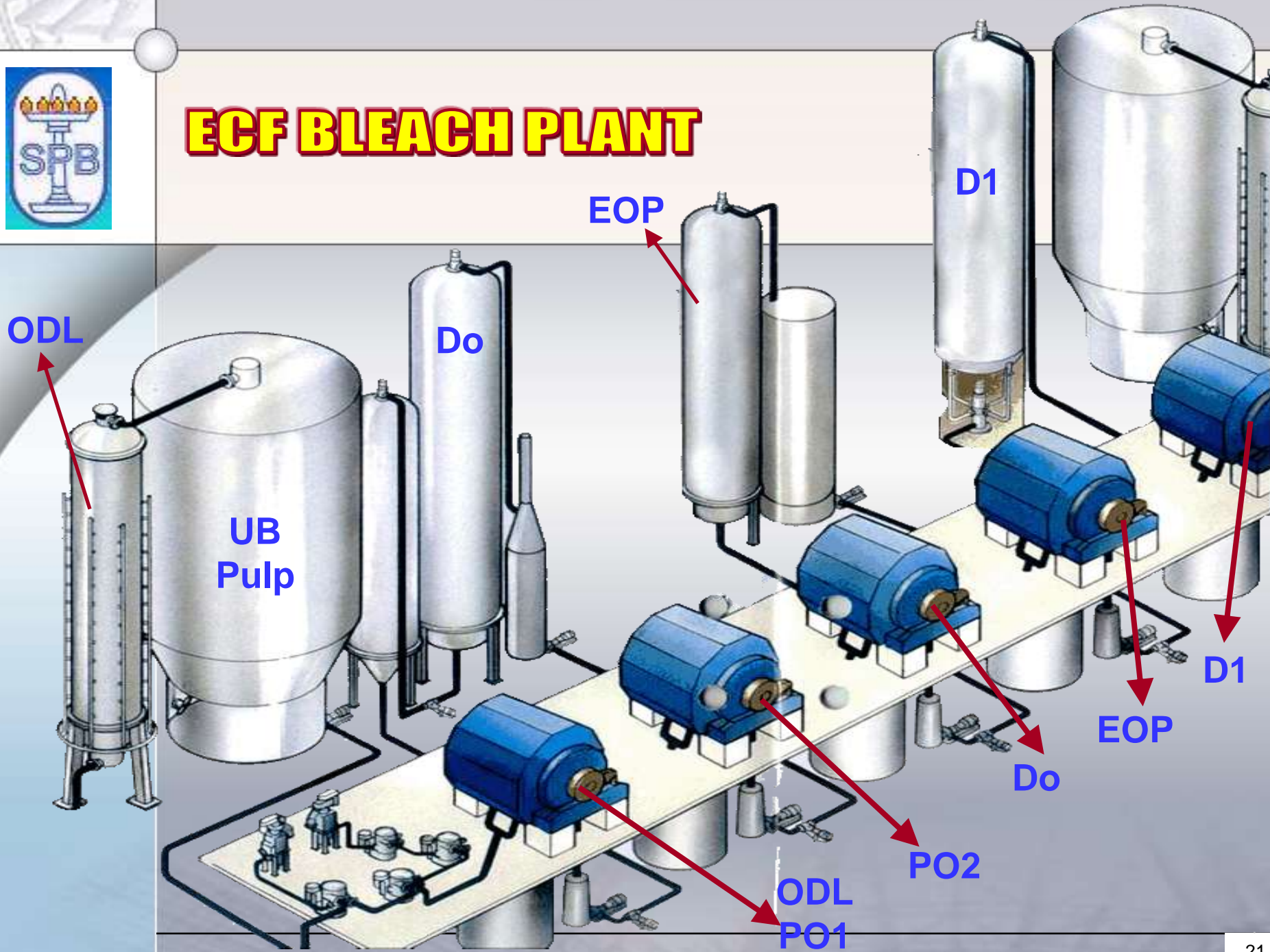
# BLEACH WASHERS

ISO  
9001/14001/  
OHSAS





# ECF BLEACH PLANT





ISO  
9001/14001  
OHSAS

# ClO<sub>2</sub> PLANT





## **HONEYWELL AUTOMATION LIMITED, USA** **EXPERION PKS SYSTEM, C300 CONTROLLER**



**Complete Pulp Mill is managed, controlled and monitored by Honeywell Distributed Control System through C300 controller. DCS broadly controls following main field instruments :**

**Flow control valves.**

**Alkali analyzer for measuring cooking liquor concentration.**

**Magnetic Flow Meters for addition of chemicals and monitoring the flow of pulp at each stage for uniformity.**

**Consistency Transmitters at each stage.**

**RTD temperature Sensors.**

**pH measurement for controlling the bleaching.**

**Kaajani On line Brightness Measurement meter for maintaining the uniformity of brightness.**

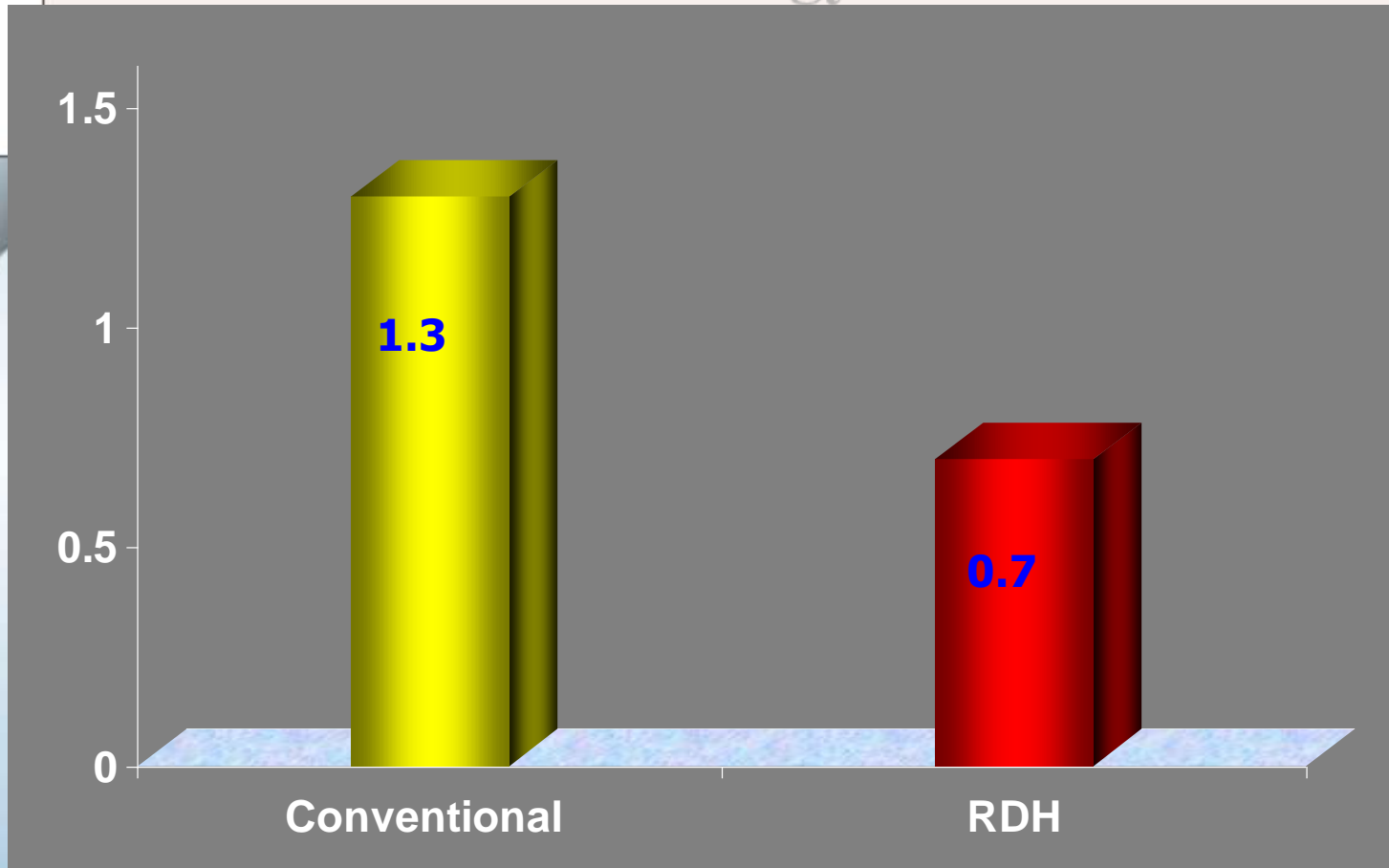


# DCS CONTROL ROOM





# Energy



- Reduction in Specific Steam Consumption of 0.7t in comparison to 1.3 t in Old Conventional Cooking.
- Peak Steam Demand of 15T/hr in (250 TPD) comparison with 12 T/hr (150 TPD)



# ENERGY CONSUMPTION



POWER	24.5 MW
LP STEAM	115 TPH
MP STEAM	35 TPH
WATER	1400 m <sup>3</sup> /hr



**Conserve Energy**

**Save World Save Money**

**THANK YOU**