



Win-Win with PI System

IPSM Challenge in Coal Power

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Agenda

Coal Power will be 120 years Reserve and Low Running Cost.

But, it will give significant Environmental Impacts!

We must share the knowledge to Improve Efficiency and Reliability.

Win-Win with PI System.

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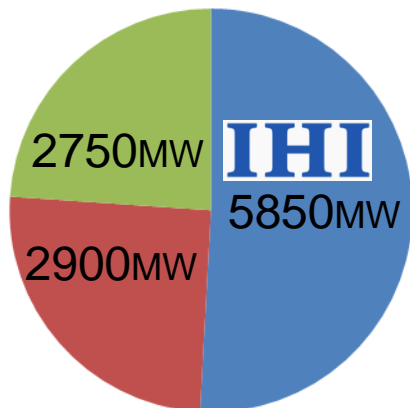
1. Company Profile
2. Coal Power in Malaysia
3. Useful PI System
4. Powerful PI System
5. Knowledge Supportive PI System
6. Wrap up

1-1). Company Profile **IHI**

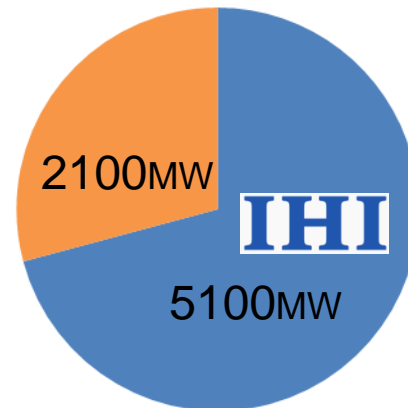
Coal Fired Boiler Japanese Supplier

51% Market Share in Japan 2000-2010

71% Market Share in Malaysia



Japan



Malaysia

1-2). Company Profile



IPSM, IHI Power System Malaysia

- Operation & Maintenance Support
- Services for Malaysian Coal Boilers
- Parts Supply for Malaysian Boilers
- **Together with PI System**

1-3). IPSM with PI System

IPSM, we were studying many of incidents through PI System.

Findings turns to improve customers

- SAFETY
- RELIABILITY
- HIGH EFFICIENCY
- MINIMUM COST

2. Coal Power in Malaysia



Manjung Power Station

700MW x 3units

Full Sub-Bituminous

1000MW USC under construction



Kapar Power Station

300MW x 2units Oil and Gas

300MW x 2units Bituminous **IHI**

500MW x 2units Bituminous **IHI**



Jimah Power Station

700MW x 2units **IHI**

Bituminous + Sub Bituminous



Tanjung Bin Power Station

700MW x 3units **IHI**

Bituminous + Sub-Bituminous

1000MW USC under construction



3. Useful PI System

- Data Collection and Storage

PI System execute it automatically without fail.

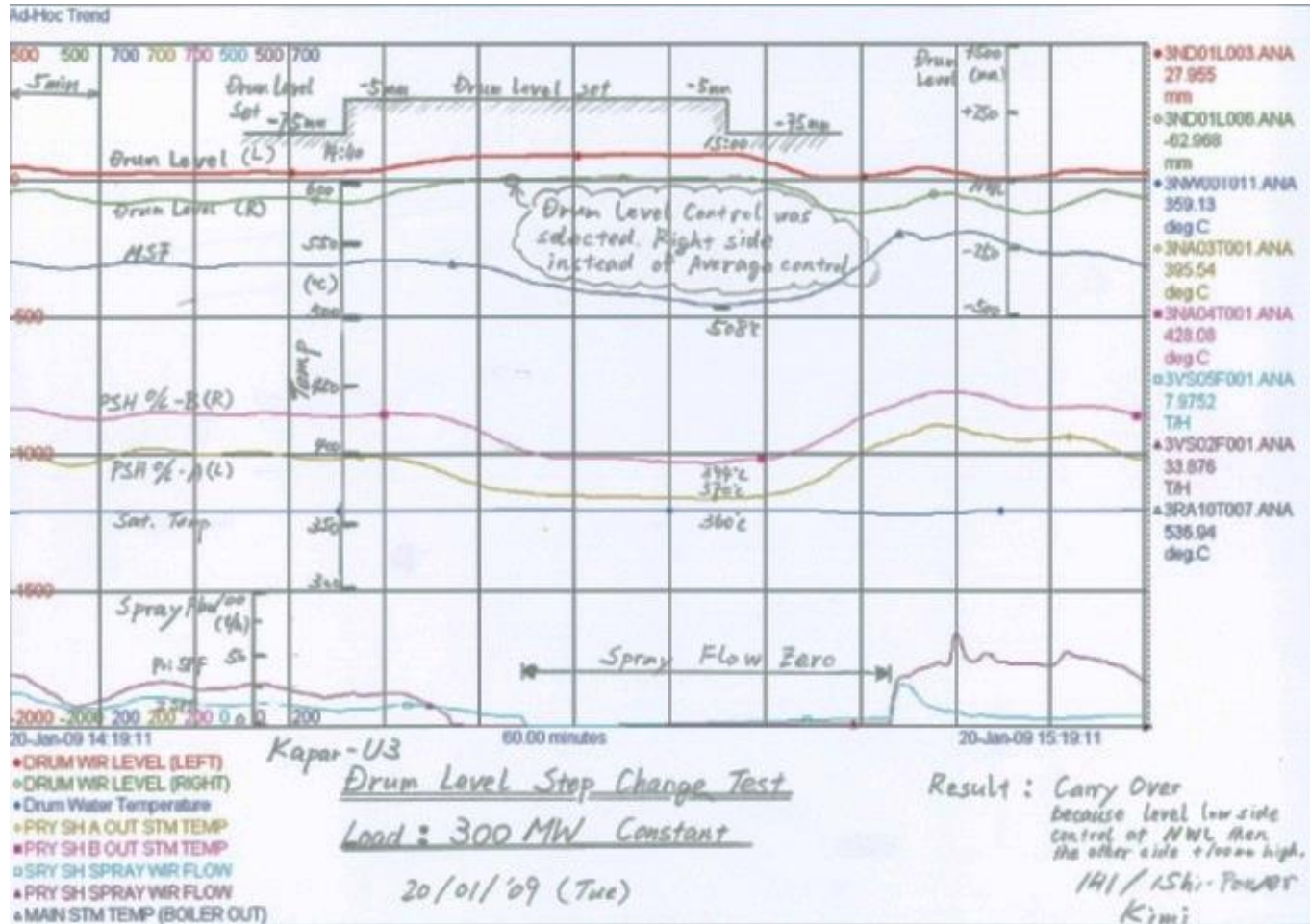
- Data Monitoring and Analyzing
for TAKING ACTION!

We must well-utilize PI System!

PI System only provide valuable data!

The **Power** of **Data**

It was very user friendly.

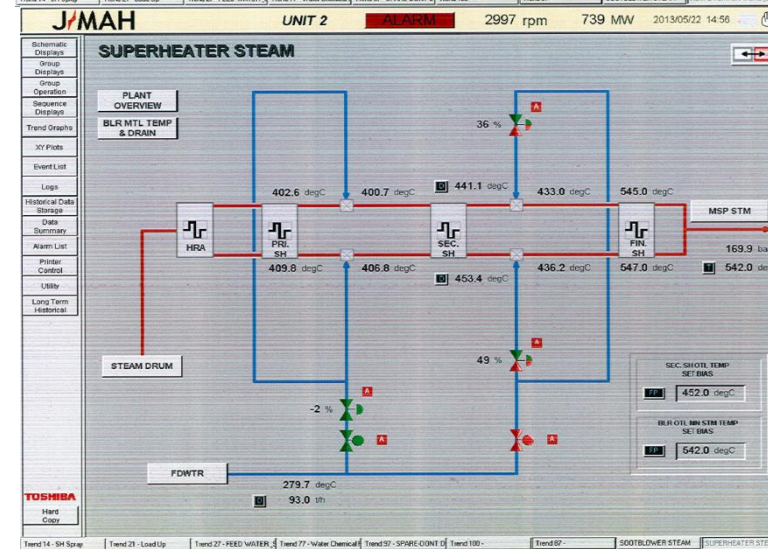
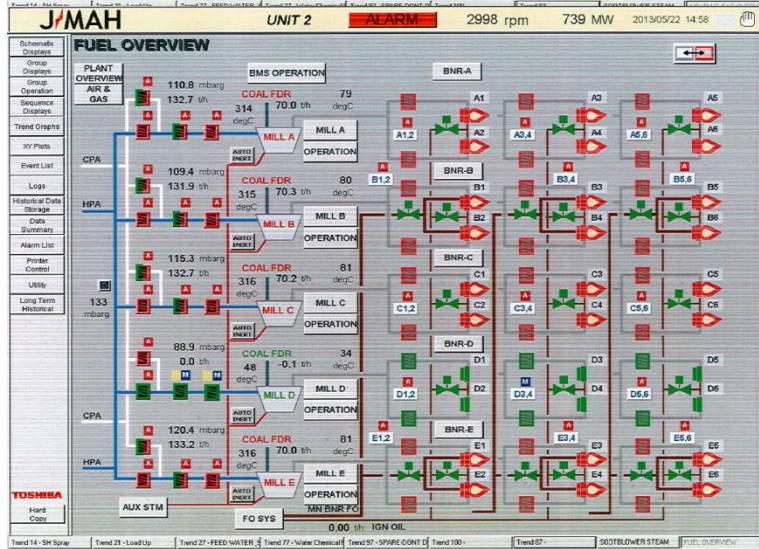
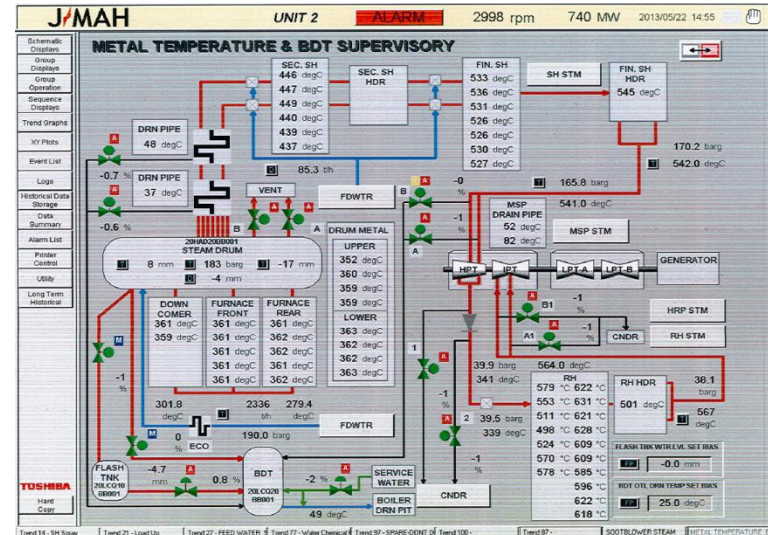
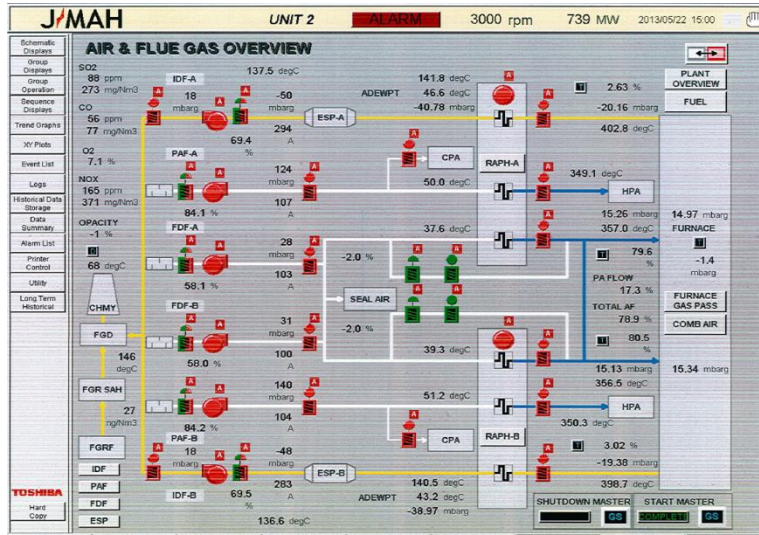


3-2) Old Faison DCS

PI system helps data collection.



3-3) Typical DCS Mimic



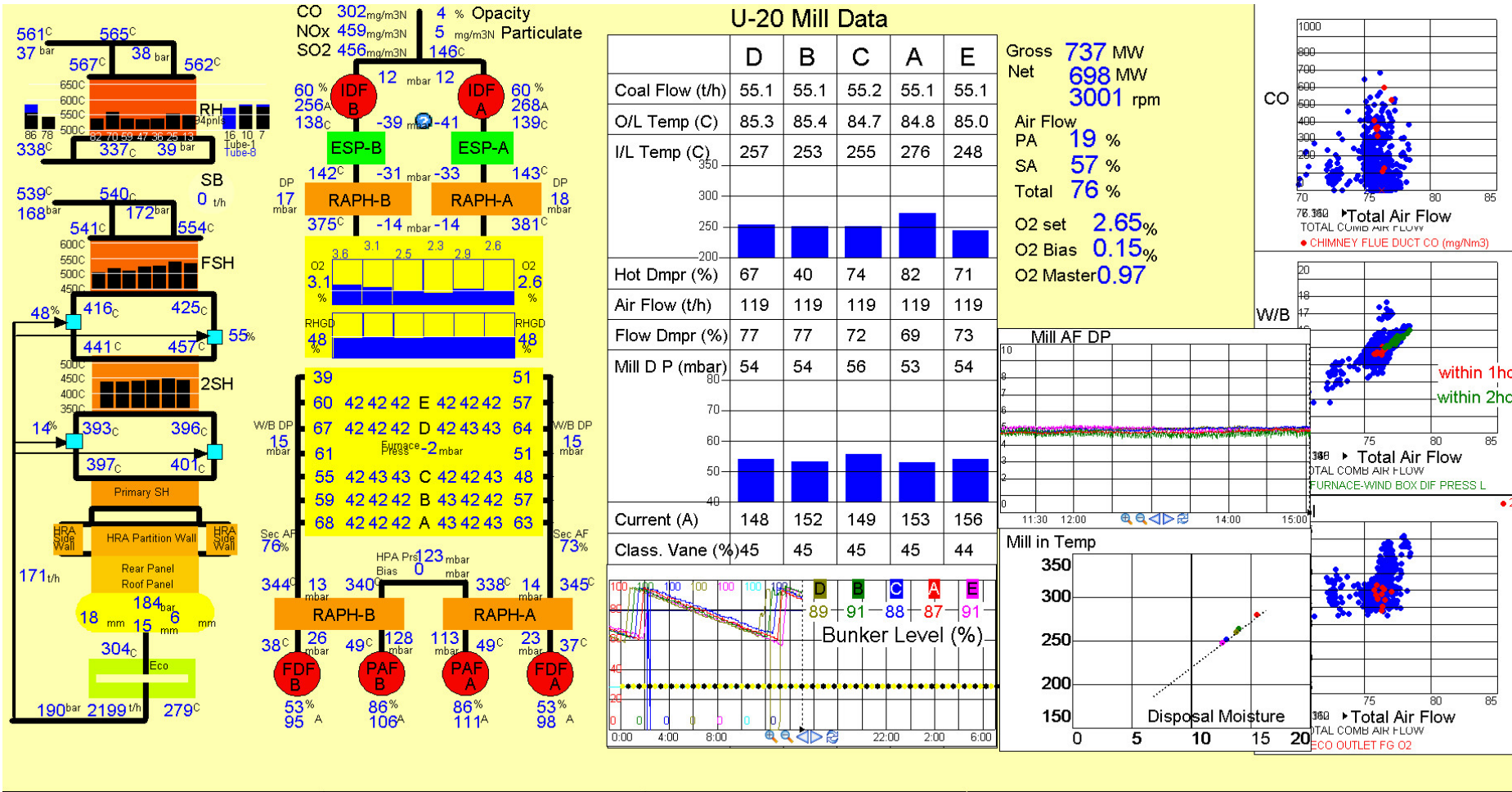
3-4) Discontent in DCS

- Limited day of data storage.
- No text editing on Trend Chart.
- Print out in Paper (USB = Virus)
- No Sense in Mimic
 - Flow is Left to Right
 - Numerical information
 - Fixed Graphic
 - Data is spread into many pages

3-5) PI System advantage

- NO LIMIT in data storage.
- Editable Trend Chart.
- Copy and Paste in Windows.
- Mimic & Trend as you like.
- No disturb to the operators.

3-6) PI Process Book (1)



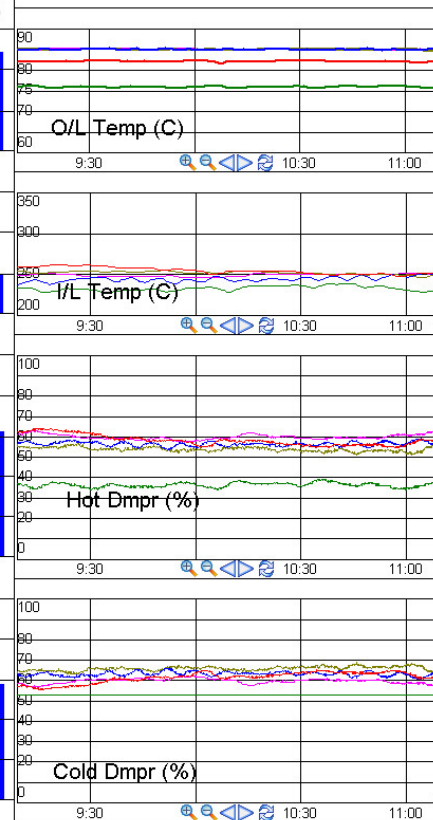
3-7) PI Process Book (2)

U-20 Mill Monitoring

	D	B	C	A	E
Coal Flow (t/h)	54.4	54.5	54.6	54.5	54.6
Air Flow (t/h)	118	118	120	118	118
Flow Dmpr (%)	77	78	75	72	73
Current (A)	130	144	129	146	146
Class. Vane (%)	52	44	53	43	55
Mill D P (mbar)	51	52	54	53	52
Moist. (%)	13	12	13	13	13

	D	B	C	A	E
O/L Temp (C)	84.7	75.8	85.1	82.1	84.8
I/L Temp (C)	251	232	248	253	252
Hot Dmpr (%)	55	38	57	57	62
Cold Dmpr (%)	65	53	63	63	58

D B C A E



3-8) PI System Advantage

- **EASY VISIBLE.**
- Keep process stream. (Left is Left)
- Bar chart
- X-Y Plot
- Trend
- Re-arrange any time.
- **ALL IN ONE SCREEN**

4. Powerful PI System

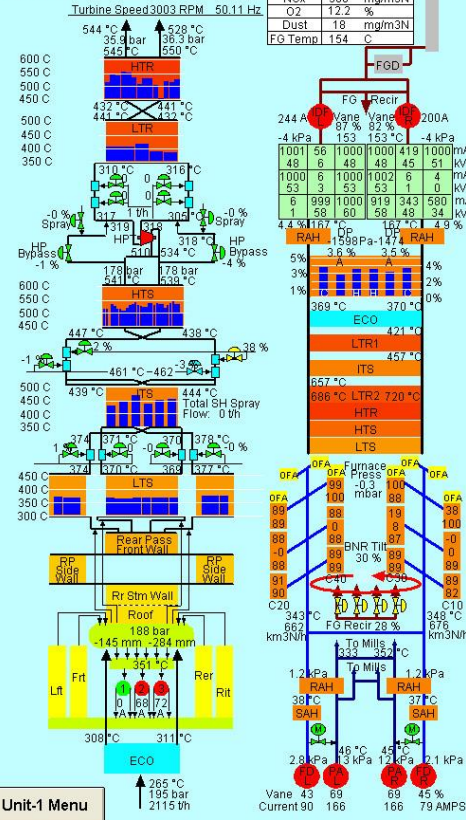
- PI System is much greater than DCS
- How many data do you see in a screen display?
- How can you see a lot of ready-made numerical data effectively?
- PI System has unlimited potential on evaluating/judging the plant status

4-1) 3 Units Comparison

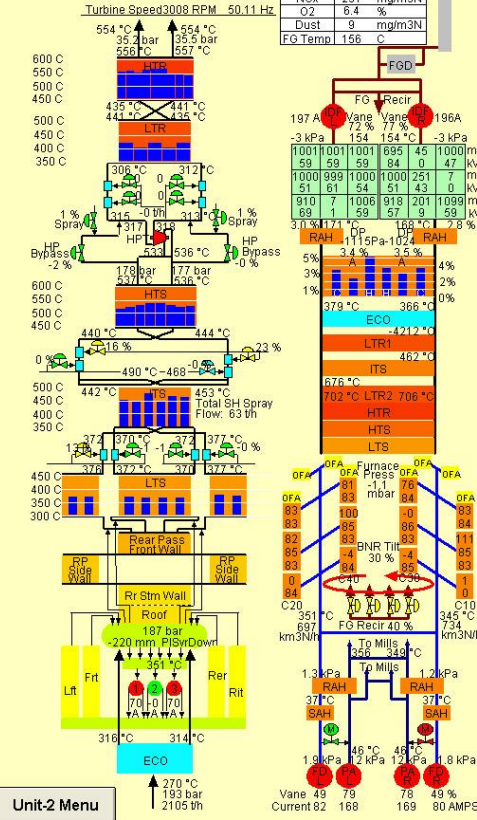
Easy to compare reference data

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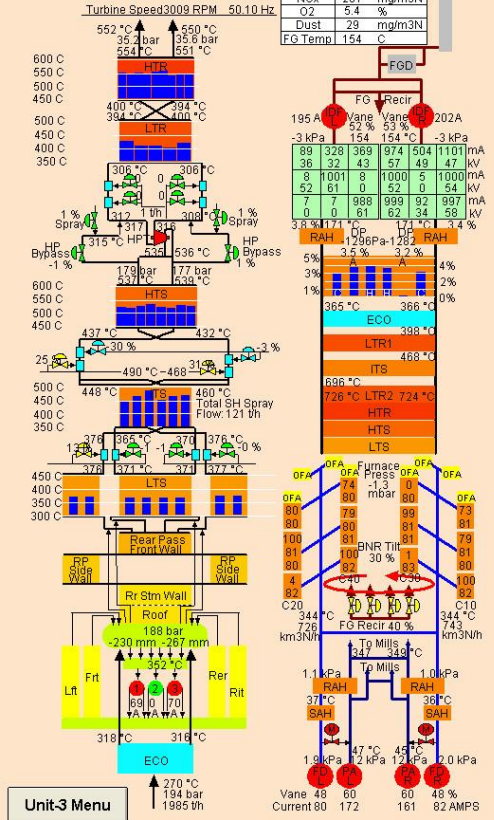
Unit-1 687 MW Nett 739 MW Gross



Unit-2 690 MW Nett 744 MW Gross



Unit-3 691 MW Nett 738 MW Gross

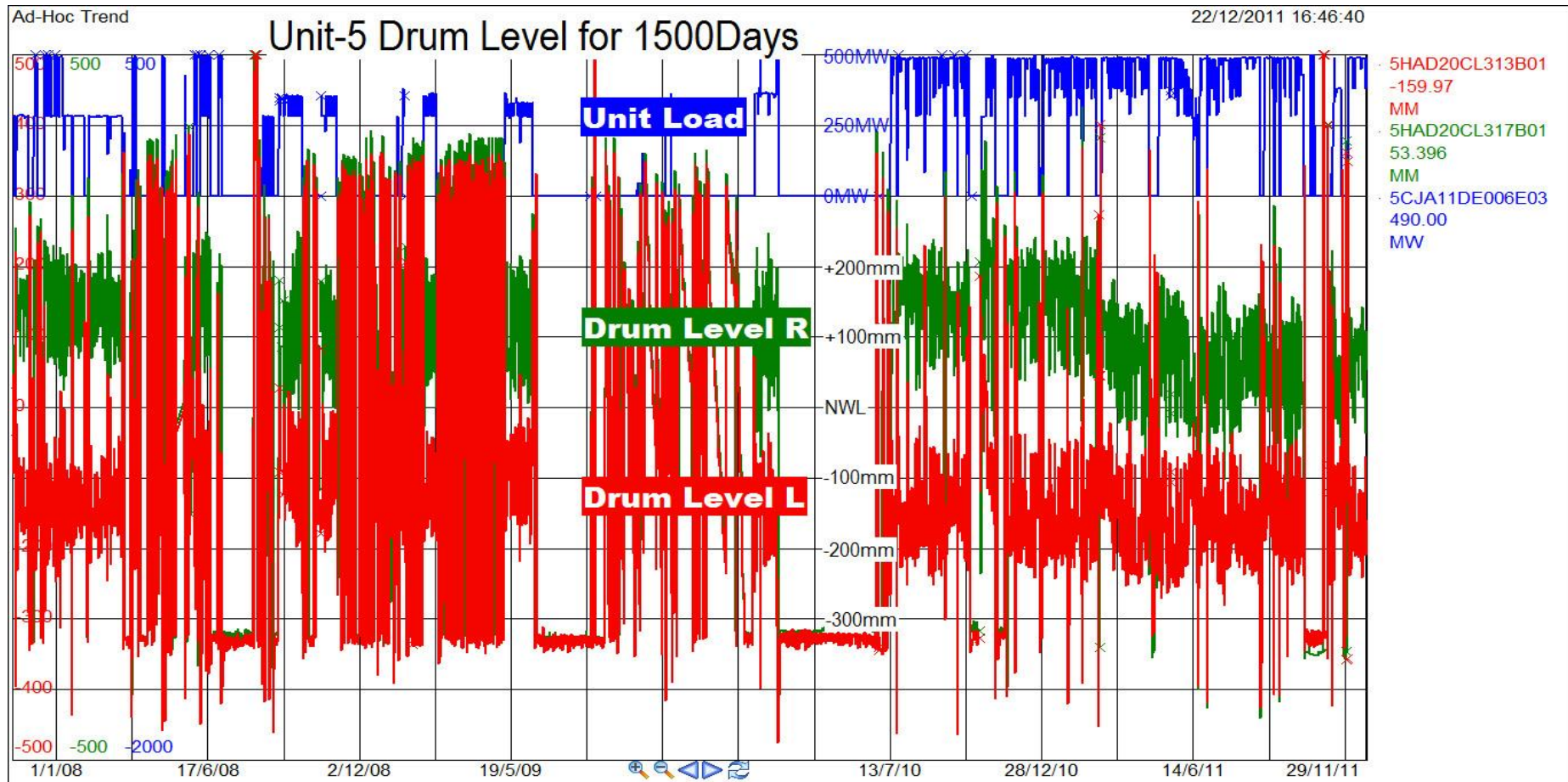


Easy to find the abnormality

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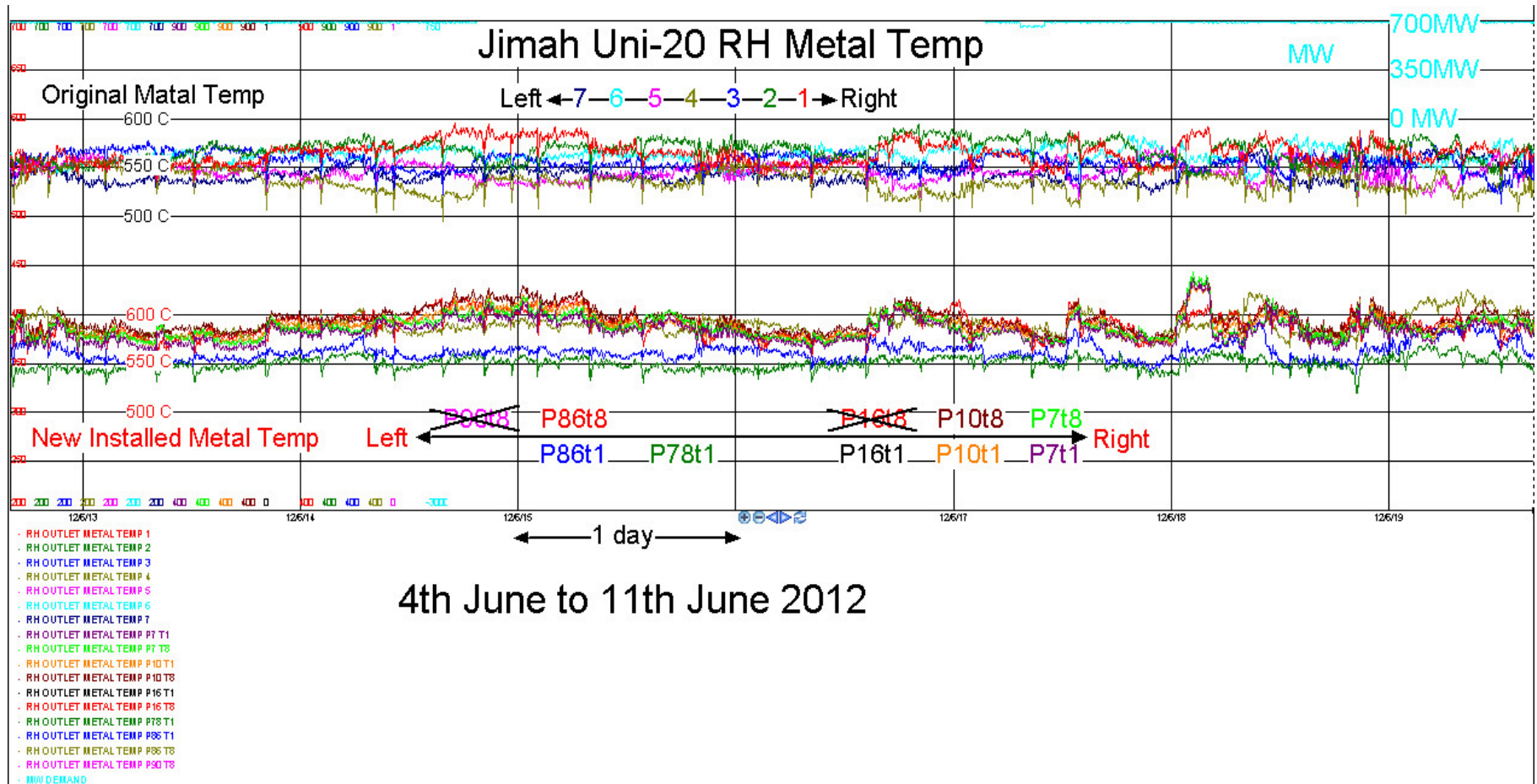
4-3) 1500 Days Trend

Unlimited Trend History Time



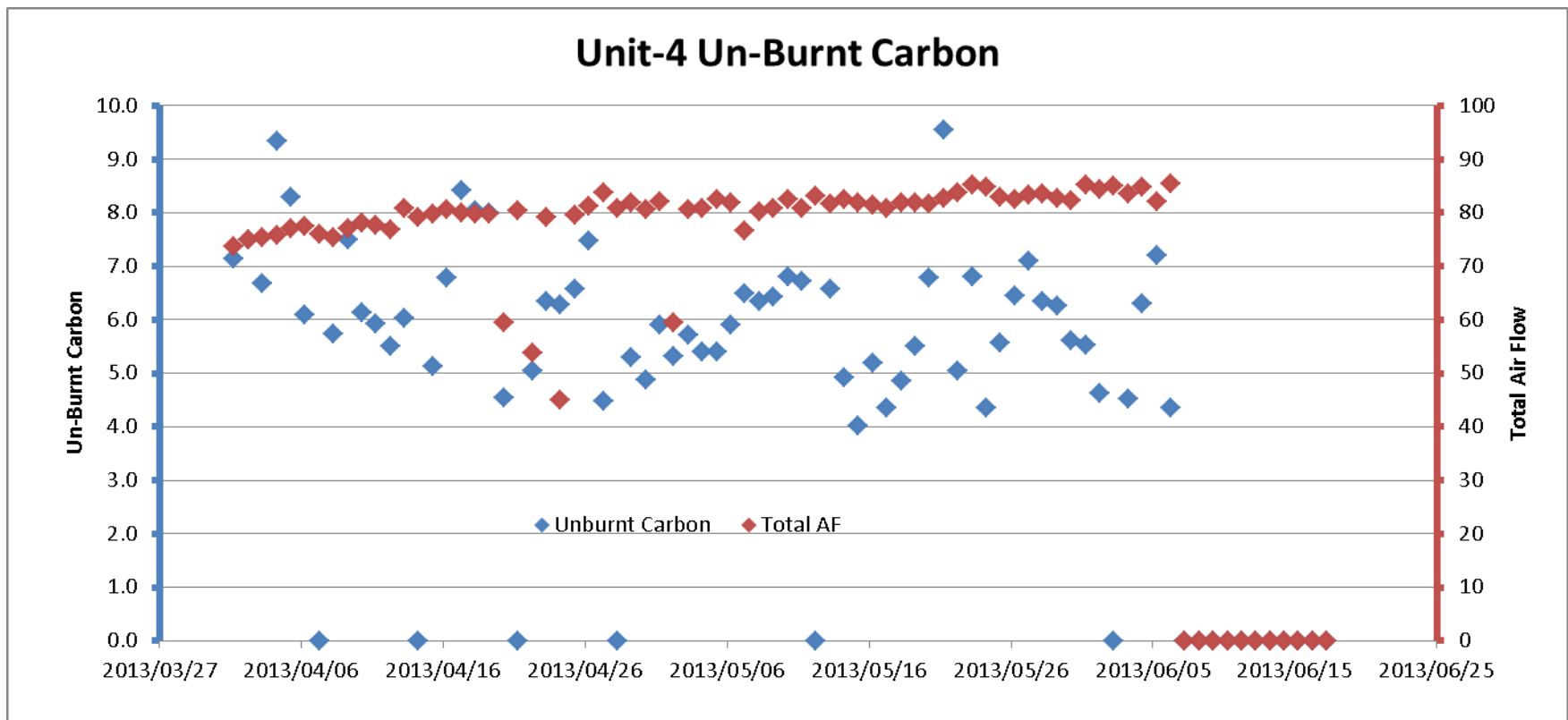
4-4) 18 Lines in a Trend

It can create valuable data on operation



4-5) Data Integration

Lab. data and DCS data,
it can integrate by PI DataLink.



5. Knowledge Supportive PI System

- New findings only come from data analysis.

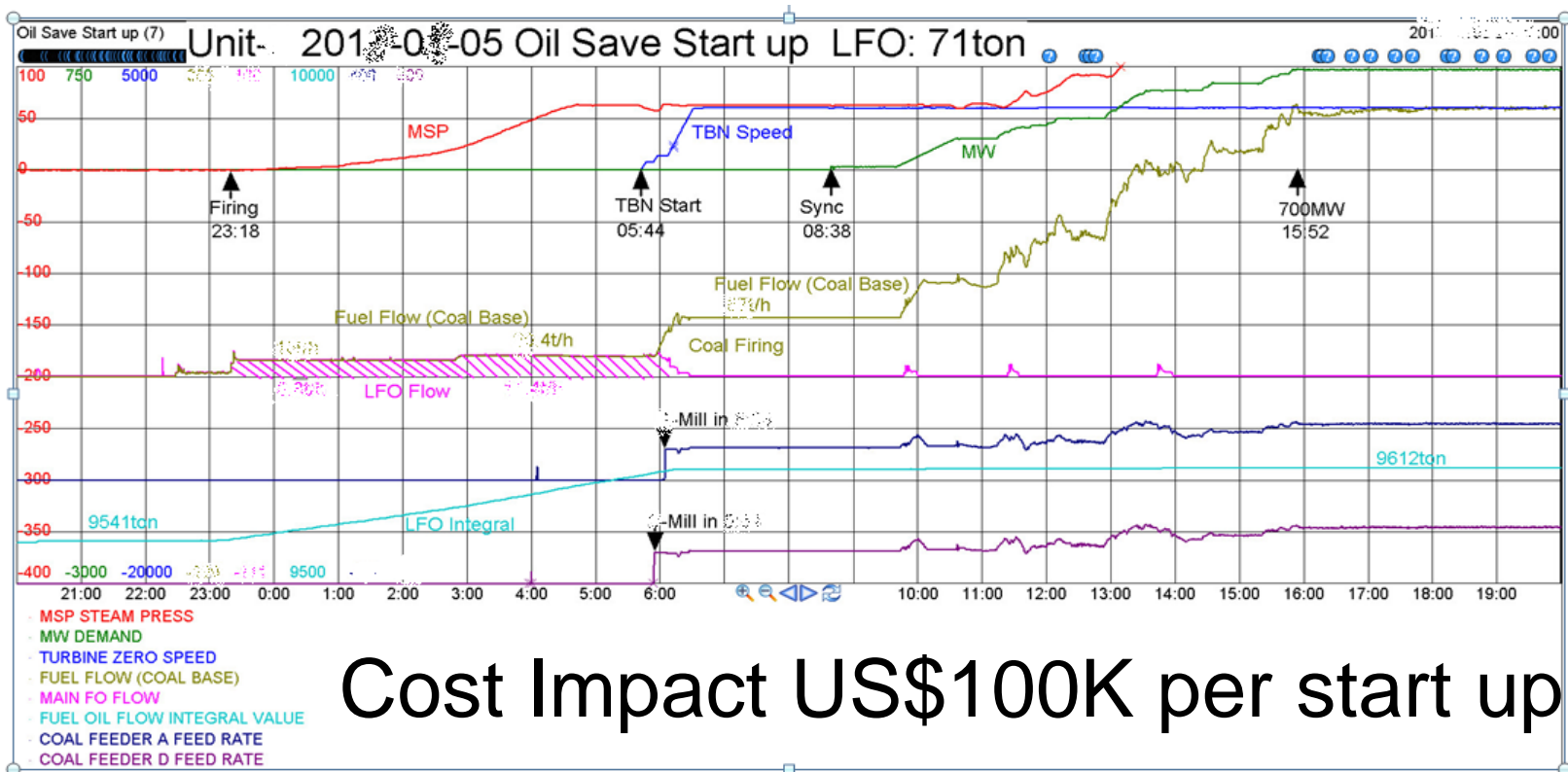
PI System helps us
to study and analyze the data.

- Fine data monitoring only gives early detection on plant abnormality.

PI System helps us
to provide reliable operation.

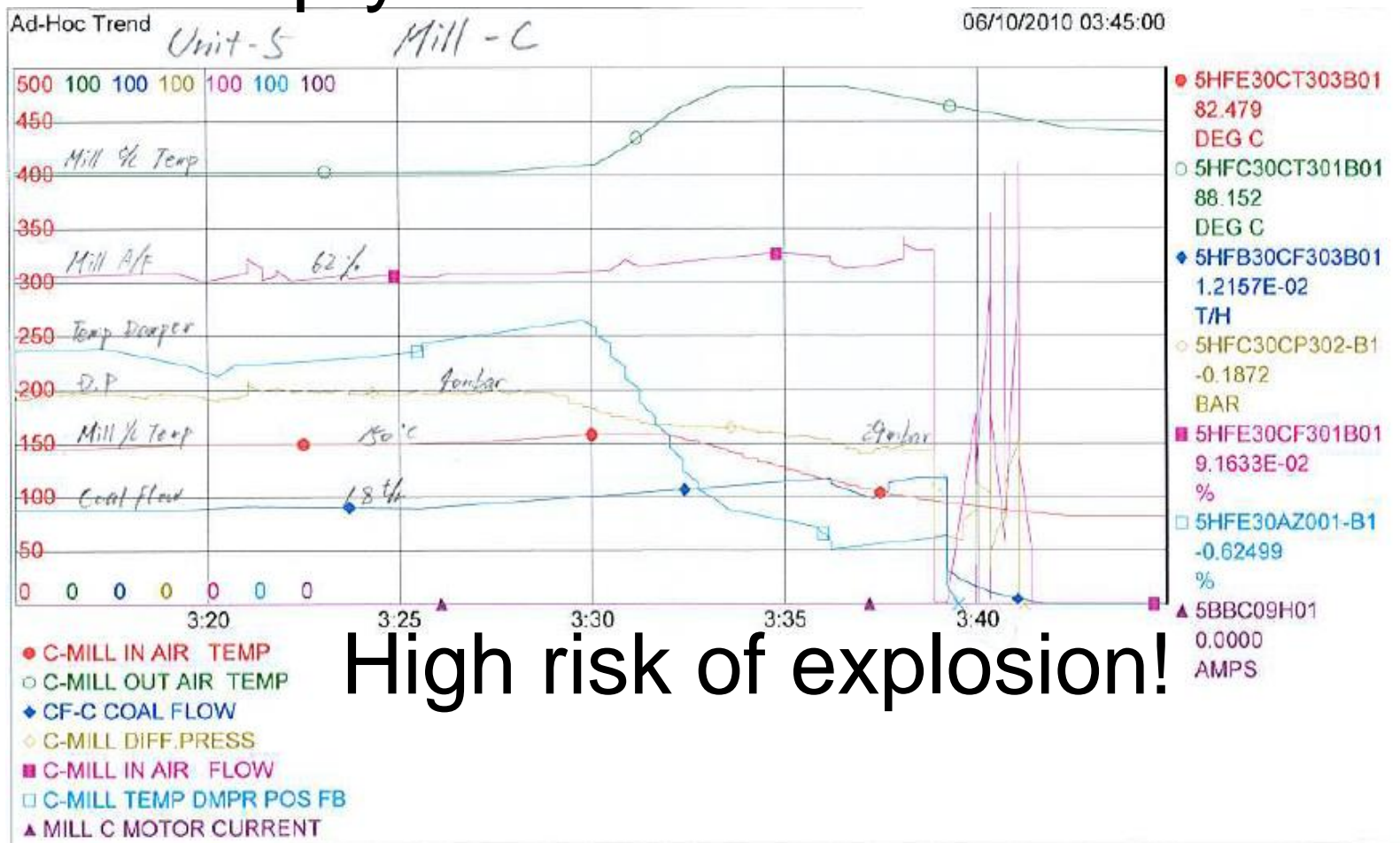
5-1) Challenge to NEW Operation

We have succeeded to save 100ton of LFO for cold unit start-up.



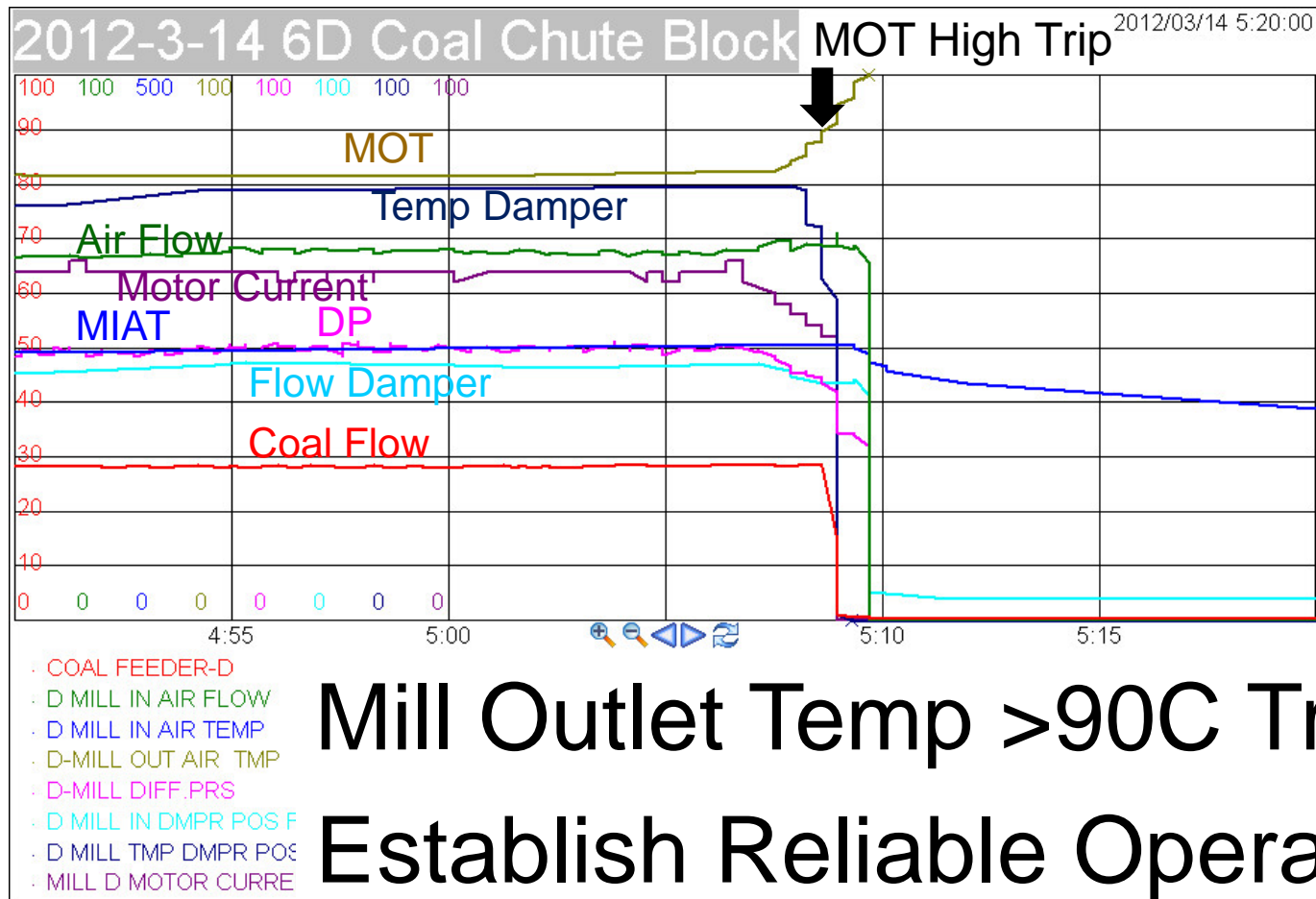
5-2) New findings from analysis

Mill empty due to Chute Block



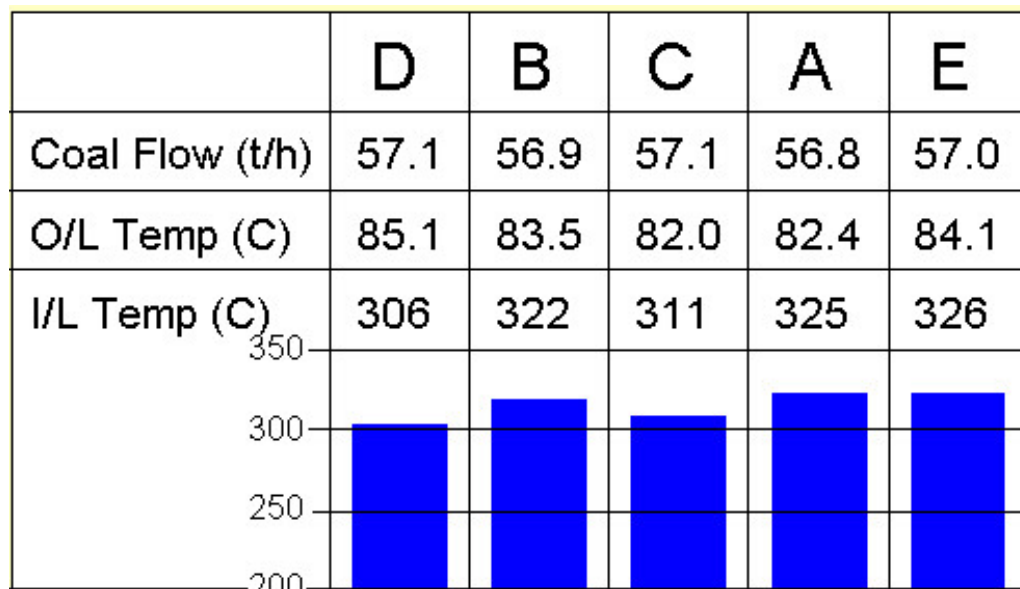
5-3) Taking Action

Apply Safety Interlock in DCS



5-4) New challenge

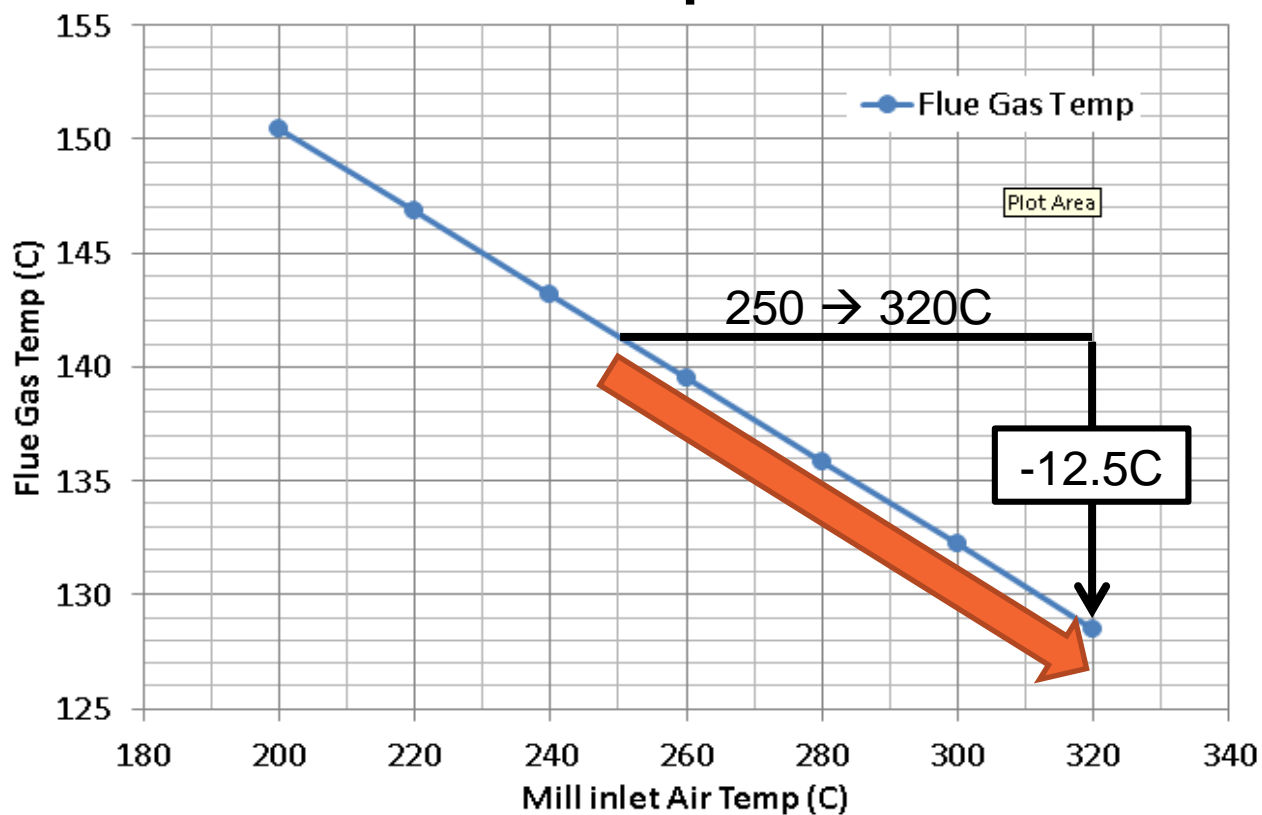
We can challenge because Reliable
Maximize Mill performance



← > 80C
← > 300C
Limit was 250C

5-5) Gain from Challenge

Flue Gas Temp 25C = Efficiency 1%



Eff 0.5% Improve!

6. Wrap up

- Let's fully well-utilize the PI System.
- Realize **The Power of Data**
- Let's share the knowledge.

Win-Win with PI System

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YOU