FDE404 PROCESS CONTROL

#	Book name	Author	Publisher	Year
1	Computerized Control Systems in the food Industry (Food Science and Technology)	Mittal G.S.	Marcel Dekker	1997
2	Food Processing Handbook	Brennan J.G. ve Grandison A.S.	Wiley-VCH	2006
3	Automatic Control for Food Processing Systems	Moreira R.G.	Aspen Publishers	2001
4	Automatic Control of food Manufacturing	McFarlane I.	Chapman&Hall	1995
5	Food Process Engineering and Technology	Berk Z.	Academic Press	2009
6	Process Identification and PID Control	Sung S.W., Jietae Lee, Lee I.B.	John Wiley and Sons	2009
7	Chemical Process Control	Stephanopoulos, G.	Englewood Cliffs	1984
8	Process Dynamics and Control	Seborg, D.E., Edgar, T.F., Mellichamp, D.A	Hoboken	2004
9	Proses Kontrol	Alpbaz M., Hapoğlu H, Akay B.	Gazi Kitabevi	2011

Course Outcomes

► To apply your knowledge of unit operations, mathematical modeling, food science and technology to control processes and equipment in the food industry

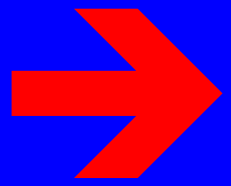
► Become aware of the relationship between process control and product quality in food industry.

► Gain awareness on the importance of selection and application of process control schemes in the food industry.

► To apply your knowledge of food science and engineering to optimize processing conditions and control them at their optima.

► Become aware of importance of process control in the food industry to manufacture products at optimum processing conditions.

Basic principles and Definitions



CONTROL ?

What are the common features of these objects?

Tornado

Boeing 777

- Both have non linear ve complex dynamics
- Both carries human to distant places ☺

BUT

- Only one of them can be controlled.

PROCESS CONTROL

Activities involved in ensuring a process is predictable, stable, and consistently operating at the target level of performance with only normal variation.

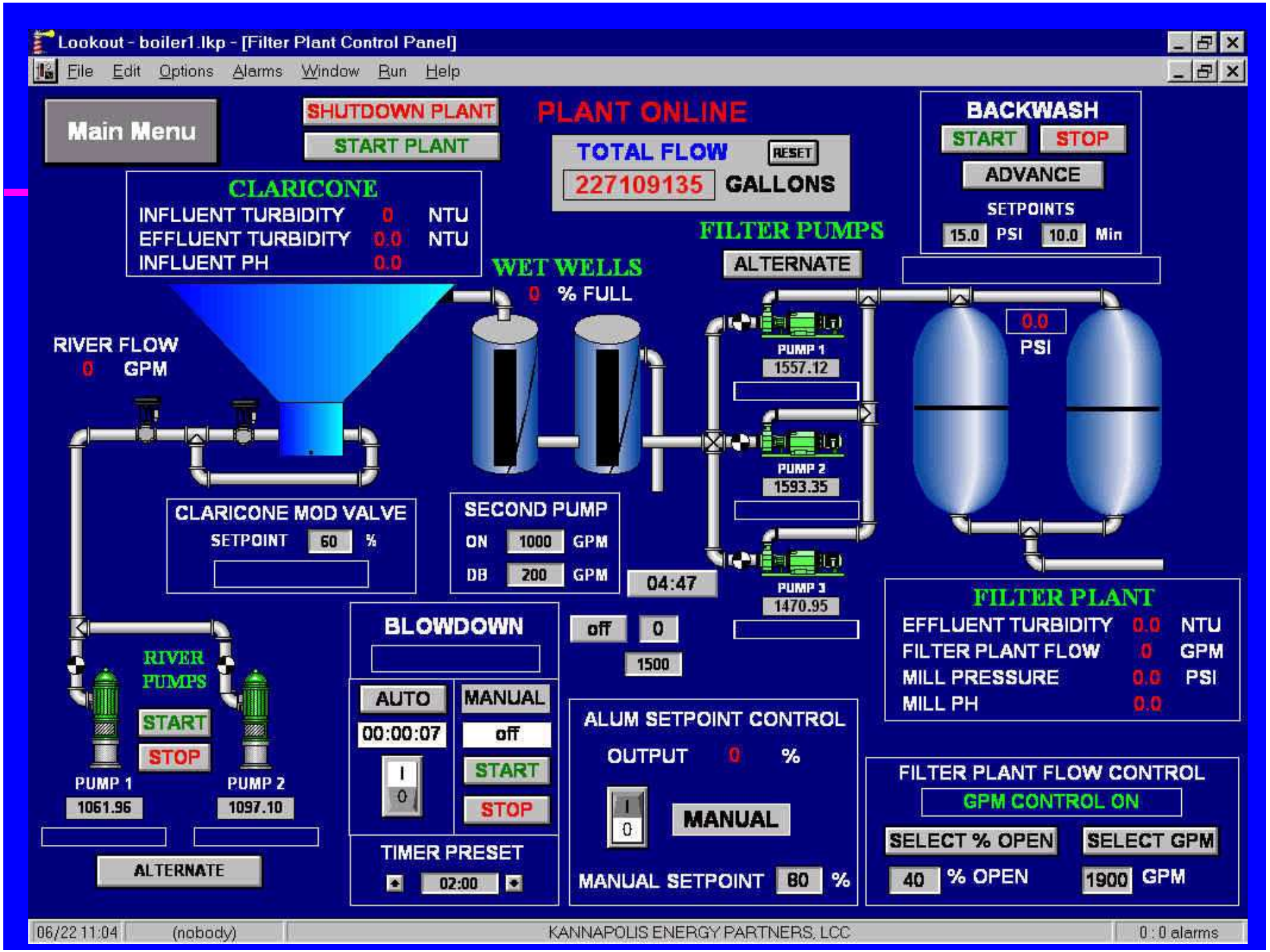
Importance of Process Control

- Getting difficult to meet the quality criteria in food industry.
- Strong competition, tough environmental and safety regulations and fluctuating economic conditions are the key factors in product quality features.

Importance of Process Control

- Food process are complex (many inputs/outputs, a lot of important parameters)
- In the modern era, it is impossible to meet the product quality requirements and environmental and safety regulations without having computerized process control systems.


CIP-Tanks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SHUTDOWN PLANT
START PLANT
PLANT ONLINE
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BACKWASH
START
STOP
ADVANCE
SETPOINTS
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ALTERNATE
RIVER FLOW
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A food process operation should meet the following conditions:

- Safety
- Food specifications (capacity, quality)
- Environmental regulations
- Operation limitations
- Economy

“Process Control” is a tool to achieve these goals